reviewed paper

Sustainable Real Estate Development in the Age of E-commerce – Implications of the Structural Change and resulting changed Requirements for Retail Property

Josef Zimmermann, Kilian Burkholz

(Univ.-Prof. Dr.-Ing. Josef Zimmermann, Chair of Construction Process Management and Real Estate Development, Technical University of Munich, Arcisstraße 21,80333Munich, j.zimmermann@bv.tum.de)
(M.Sc. Kilian Burkholz, Chair of Construction Process Management and Real Estate Development, Technical University of Munich, Arcisstraße 21,80333Munich, k.burkholz@tum.de)

1 ABSTRACT

With regard to sustainable urban development and maintaining or developing the attractiveness of cities, the future viability of retail real estate is of great importance. Besides itsfunction of supply, itservesas aplace of residence, meeting point and a place of communication (often referred to as "third place"). Moreover, retail real estate contributes to the formation of urban centres, usually being found in central locations of cities, and is therefore decisive for developing both the townscape and urban attractiveness.

However, the original function of a (retail) property is solely to meet the requirements of its users. Otherwise being unusable, all further criteria of sustainability lose their significance. From an investor's perspective, value preservation and appreciation of real estate are the most important incentives for sustainable real estate development. Only if there is a demand for a particular use, an investor is willing to spend money on a property. In this sense, real estate can only be termed sustainable if its features meet the requirements of its present and future users. Therefore, project developers must already be able to anticipate today what property features will be in demand by its future users and whether there is a long-term demand for any particular use at all.

In the retail sector, digitisation is inducing changes in demand. The close link between property operations, i.e. the utilisation to allow people buying goods, and stationary places is increasingly released due to the rise of e-commerce, where parts of stationary trade and consequently retail real estate becomes obsolete. The recent development of these markets forces the retail real estate industry to establish innovative and sustainable operation formats.

The aim of this paper is to point out the implications of the structural change in the retail sector for real estate development as well as the resulting requirement changes for some exemplary operation formats. Current empirical studies on retail property are focussing on the user, thus shedding some light on the specific market situation. The presented results show to what extent consumer demand for brick-and-mortar retailing has changed due to the possibilities of online retailing. The therewith emerging challenges for real estate industry in general are shown, in particular for the retail sector, and finally for urban development.

Keywords: user integration, e-commerce, real estate development, sustainability, structural change

2 INTERACTION BETWEEN RETAIL AND CITIES IN THE CONTEXT OF SUSTAINABLE URBAN DEVELOPMENT

Trade and urban development have always been closely related. Historically, apart from its original supply function, trade had a city-founding role, since the right to hold markets was a precondition for subsequent municipal legislation (Hengst, Steinebach 2012:1). Trade therefore has always had a significant influence on the development of (inner) cities. Also today many city centres are mainly dominated by retail usage. Retail real estate is thus shaping cityscapes, both in terms of the character of cities and the attractiveness of their inner cores. A survey conducted by the German Institut für Handelsforschung in 2016, among nearly 60,000 visitors in 121 German cities, revealed that retail trade exerts a very large influence on the overall perceived attractiveness of inner cities (IFH 2016: 9). Only the aspect of flair or ambiance was evaluated as more important which, in the eyes of respondents, is significantly influenced by existing buildings and thus also by retail real estate. In addition, trade also has a social function. After all, retail real estate places serve as residences, meeting points, and communication venues (often referred to as "third places") and provide a link and mix of uses for various urban functions (e.g. housing, gastronomy, culture).

On the other hand, retail also benefits from the inner city and agglomeration advantages of urban centres (Sperle 2012: 12). As part of the structural change which is induced by demographic shifts, changes in consumer behaviour, technological innovations and digitisation (see the following section), stationary retail and thus the city as a shopping venueare increasingly threatened. This change in circumstances also effects the image of inner cities and poses new challenges for urban development.

According to the German Bundesinstitut für Bau-, Stadt- und Raumforschung, urban development is considered to be sustainable if it balances the different social and economic use claims and interests and leads on to a space-compatible and future-proofcompensation scheme (BBSR 2018). In Germany, this is controlled at the municipal level in particular by the instruments of land-use planning (Bauleitplanung), which regulate the settlement of retail projects and arethereby supposed to ensure the maintenance and development of central supply areas as well as consumer-oriented supply (BauGB § 1 Abs. 6 Nr. 4, 8a). However, these city planning objectives, which are geared to the common wealth of the population, basically contradict the profit motive of retail companies and the real estate industry(Segerer 2014: 37). Moreover, they are not necessarily in line with the prevailing consumer behaviour patterns nor do they influence their choice of store or choice of transport. However, it is precisely these patterns of behaviour that will determine the acceptance and thus the success of retail real estate over the medium- to long-term (Segerer 2014: 38).

3 SUSTAINABLE REAL ESTATE DEVELOPMENT

Regardless of its diverse significance for urban space, the original function of a retail property is solely to meet the requirements of its users, because only it is developed and realisedfor this purpose. These core processes of object usageforming the functional operation represent the value-adding part of a property (Zimmermann 2015: 115). In case of retail real estate, this added value can be measured economically, as revenue is generated from the operation. For the operator (trading company) of a retail property, an optimal process of his business (core processes)is of top priority (Zimmermann 2015: 115).

In case of retail real estate, the user is the tenant or retailer as the one who needs the property as a resource. The investor receives income and ultimately a return only because of rental payments. The property must thus enable the retailer's business concept and best support its functional operation. However, ultimately, the consumer is decisive for the success or failure of a retailer, since a property can only be operated sustainably if the existing utilisation is accordingly requested by the customer.

Therefore, in the first place, the project developer (in dialogue with the operator)needsto have knowledge about the requirements and business concepts of future tenants, since only these are willing to pay for the use of the property. On the other hand, healso needs to anticipate the requirements and decision criteria of the customer and create an environment that meets the acceptance of the consumer. This includes the right assessment of demand and the resulting focus on the appropriatesupply.

If this demand is not given, all further dimensions of sustainability lose their significance. A property can only be termed sustainable if its features meet the requirements of its present and future users and if there is a long-term demand for a particular use at all (Schaule 2014: 4; Geywitz 2017: 33).Therefore, it is up to real estate developers to target propertiesthat meet the requirements of the respective user. Depending on the respective situation or the respective user, a suitable and feasible object conception needs then to be found. These three factors are mutually dependent and have to be seen in the context of further framework conditions, such as planning requirements regarding type and degree of building and land use,as well as aspects of the financial viability of the project and possible return targets of investors (Zimmermann 2015: 123).

The adequate consideration of demand and user requirements is not only important for project developerments. Also, real estate in the portfolio must be continuously checked for marketability and, if necessary, adjusted by redevelopment measures to the current demand and requirements of the users.

4 CURRENT DEVELOPMENTS IN THE GERMAN RETAIL SECTOR

4.1 Structural change

The retail sector has always been undergoing a process of change and development because it hasbeensubject to a variety of exogenous and endogenous factors that are mutallyinterconnected (Heinritz et al., 2003: 40). The most important driver for this structural change at present is the development of e-commerce acting less causal but catalysing (trend-enhancing) upon structural changes in brick-and-mortar retailing (BBSR 2017: 18). The effects are evident both on the supply side in terms of changed concepts and strategies of the retailers, as well as on the demand side by a change of the buying and information behaviour of the consumers.

In the retail real estate market, digitisation is inducing changes in demand. The close link between property operations, i.e. the utilisation to allow people to buy goods and services, and stationary places is increasingly being released due to the rise of e-commerce, where parts of stationary trade and consequently retail real estate become obsolete. In return, logistics real estate, as a real estate profiteer, benefits frommarket development enormously. According to a study by the Fraunhofer Institut, which examined the dependence of the development of e-commerce turnover on the construction activity pertaining tologistics properties, the need for logistics space increases by 120,000 square metersper additional billion in e-commerce turnover (Veres-Homm et al., 2015: 126). In view of this market development, the retail real estate industry is wondering which formats and what locationsstill bear long-term demand, and thus can be described as sustainable or resilient toward the influence of e-commerce. The dynamics of the industry is thus contrary to the durability of the capital goodreal estate.

4.2 Demand-side developments

The development of demand determines the need and existence of retail formats. The quantitative measure of demand in the retail sector is the revenue potential which, in turn, depends on the number of residents, consumption expenditure and purchasing power at the location (BBSR 2017: 18).

The number of inhabitants is reflected in an area’s demographic development. For Germany, five trends can be identified (Statistisches Bundesamt 2015 and 2016, Bundesinstitut für Bevölkerungsforschung 2016): First, the population will decline in the long term. For the population projection the scenariosby the German Federal Statistical Office (Statistisches Bundesamt) range from -16.6 percent to -3.0 percentthrough 2060. Secondly, the proportion of the elderly population is increasing. The cohort of people over the age of 65 is expected to increase from 21 percent today to 33 percent by 2060. Thirdly, regional disparities within Germany are exacerbated by internal migration. Especially young and highly qualified people are moving into growing, economically more dynamic regions. Fourthly, the proportion of people with a migrant background is increasing. Finally, as a fifth issue, more people are moving into cities - the trend toward urbanisation will continue over the next few years (United Nations 2014).

The analysis of private consumption expenditure shows that the share of retail spending has declined in recent years (Statistisches Bundesamt, HDE 2017). This circumstance is justified by a high degree of saturation households already achieved as well as a shift in preferences in favour of other leisure activities or services (Vornholz 2010: 45, Mütze 2016: 1-2).

However, the greatest pressure for change has resulted from the steadily increasing importance of e-commerce. Between 1999 and 2018, according to the German Trade Association (Handelsverband Deutschland), online retail sales of private consumers in Germany increased from 1.1 billion to 53 billion euros corresponding to an increase factor of more than forty-eight(HDE 2018b: 33, see Figure 1).

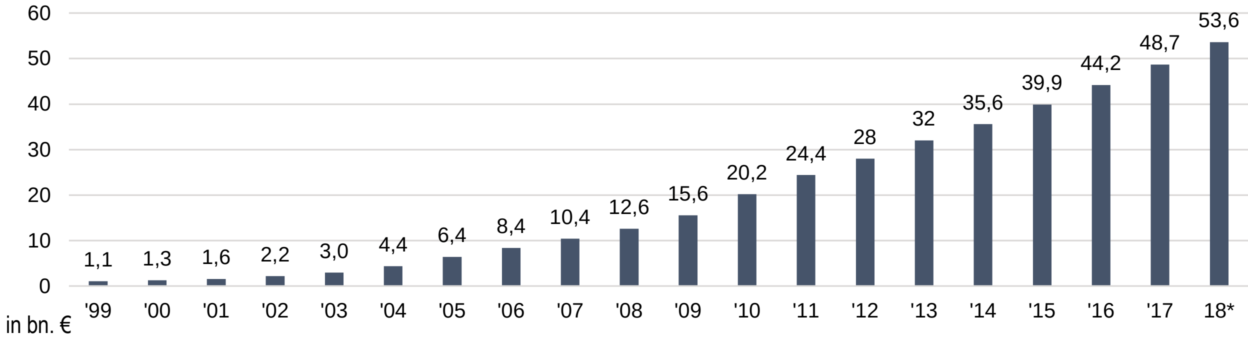


Fig. 1: Development of e-commerce turnover in Germany 1999-2018 in bn. € (HDE 2018b: 33).

Thus, the market share of online commerce currently amounts to around 10 percent of total retail sales. The relevance of the online format, however, greatly varies depending on the commodity group. While in the non-food sector the sharesof individual segments, such as textiles or consumer electronics,amount to more than 25 or 30 percent, food and fast moving consumer goods only account for 2.0 percent of sales (HDE 2018a: 10).

ISBN 978-3-9504173-6-4 (CD), 978-3-9504173-7-1 (print)
Editors: M. SCHRENK, V. V. POPOVICH, P. ZEILE, P. ELISEI, C.BEYER, J. RYSER

In addition to quantitative factors, qualitative changes on the demandside also play an important role. This includes, in particular, changesin consumer behaviour that entails changed requirements for retailers. The transparency of the Internet means that today consumers arewell informed and make their product choices (unlike in the past) before their store choice – the point of decision moves ahead of the point of sale. Gehrckens and Boersma (2013: 53-55) conclude that store selection thus becomes more fact-based according to criteria of accessibility, price or availability. In return, in contrast to convenience- or price-oriented purchases to meet daily necessities (fast-moving consumer goods), the importance of experience shopping for the consumer increases. In this respect, not the pure fulfillment of demand is of key importance, but rather the fun and leisure aspect. Typical for such scenarios is the tendency to a spontaneous, more emotionally influenced buying behaviour and the combination of shopping with other activities such as gastronomicvisits (Mayer-Dukart 2010: 58)

However, the majority of customers cannot be clearly assigned to a certain consumer behaviour, but rather acts as a hybrid consumer depending on the situation. This predicament is accompanied by the dissolution of the link to certain types of operations. For example, customers use discount-oriented and quality-oriented formats at the same time, resulting in a "loss of the middle". (Kulke 2006: 44, Mayer-Dukart 2010: 58).

In addition, the boundaries between the channels are becoming more blurred nowadays. Contributing to this is the spread of mobile devices such as smartphones, which enable an ever-increasing fusion of online and offline commerce (multi-channel) and allow for shopping at any location (Bevh 2016: 1).

4.3 Supply-side developments

Basically, supply can be taken as a value derived from demand, sinceretail companiescannot exist without corresponding demand. Mainly, trade-endogenous developments can be understood as the result of an adaptative process with demand-side or consumer-side influences (Heider 1997: 46).

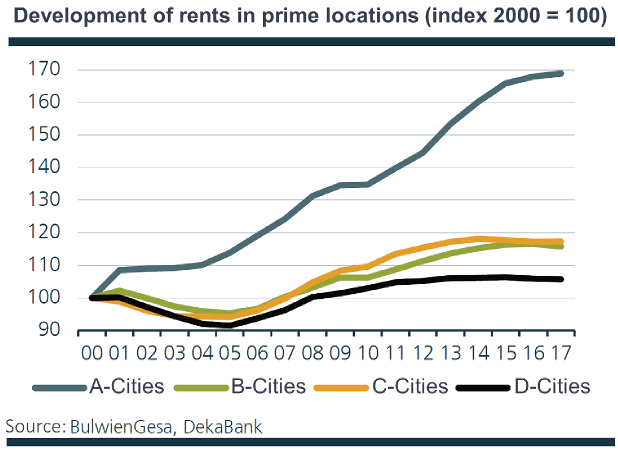
For stationary retail, the following development patterns can be identified (BBSR 2017, Stumpf 2018, Zentes et al. 2015): First, competition has increased in recent years. This is also a result of the longstanding increase in total sales area, which took place in particular during the 1990s, as well as rising internationalisation and anincreasing share of chain stores within the industry. Massive losses of market share passed to online retailers – in some sectors more than thirty percent (see chapter 4.2) – further intensify the competitive situation for brick-and-mortar retailing. Secondly, dynamic development reflects upon a change of operational formats. Since the turn of the millennium, cost-oriented formats have particularly grown, e.g. specialty stores and discounters. Market share losses appeared in particular foroperational formats without pronounced price profiling, but mainlyin companies featuring non-chain stores. Department stores, traditional grocers and supermarkets also lost market share. Thirdly, the role of brick-and-mortar retail is changing. Branches no longer work exclusively as points of sale, but have instead become increasingly relevant to branding or points of information for the customer. As a result, the importance of showrooms is increasing. Smaller shopsbecome feasible because space can be partially substituted by information (BBSR 2017: 29). Fourthly, online and offline activities continue to merge. The number of stationary retailers also using the Internet as a distribution channel and thus becoming multi-channel providers is increasing. Nevertheless, former pure online retailers are now opening stationary stores creating additional competition in stationary retail.

4.4 Spatial effects - polarisation of sites

The structural changes in the retail sector also reflect on the real estate market. Here, strong polarisation of sites at both macro and micro level becomes visible. While prime rents (at prime locations) in the seven largest German cities (A-cities[1], Top 7) were rising by an average of 70 percent since 2000, cities classified as B, C and Dshow significantly smaller increases for the same period (about 5-15 percent) (see Figure 2,

[1] The classification of cities by market type is made by bulwiengesa AG and is based on the influence and reach on international, national, regional or local markets. There are four groups defined, in total 125 cities in Germany are classified (Bulwiengesa 2018): A-Cities: major cities in Germany of national and international importance, larger property markets in all segments; B-Cities: bigger cities of national and regional importance; C-Cities:larger cities, of limited national importance, but with broad regional influence, in general medium market activity; D-Cities:smaller cities, with regional or local focus, central funktions for direct hinterand, in general lower market activity

Deka 2018: 5). Thistrend obviously coincides with the increasing relevance of e-commerce in Germany (see chapter 4.2).



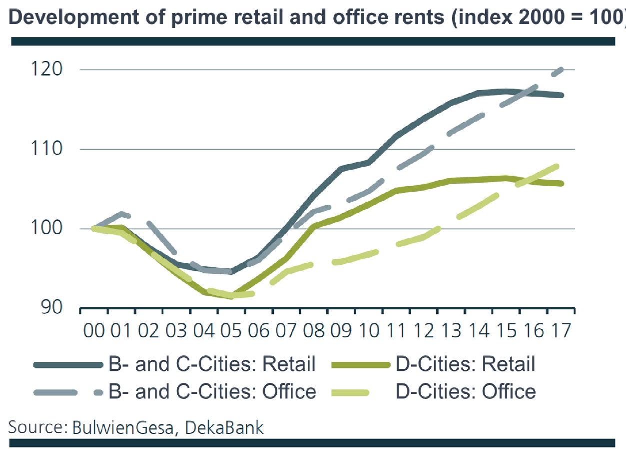


Fig. 2 (left):Development of rents in prime locations in Germany 2000-2017 (Deka 2018: 5). Fig. 3 (right): Comparison of prime retail and office rents in Germany 2000-2017 (Deka 2018: 5).

The comparison with the change of office rents shows that the reasons for this development are of no demographic or economic nature (Figure 3). For example, prime rents for office real estate have continued to rise in recent years, in contrast to retail rents in B-, C- and D-cities (Deka 2018: 5).

Also at micro level (within cities) growing spatial differences can be identified (see Figure 4). For all classes, city district rents have developed less than prime locations (Deka 2018: 6). This suggests a decreasing demand for retail space, coupled with the concentration of retail supply in the best locations of the city.

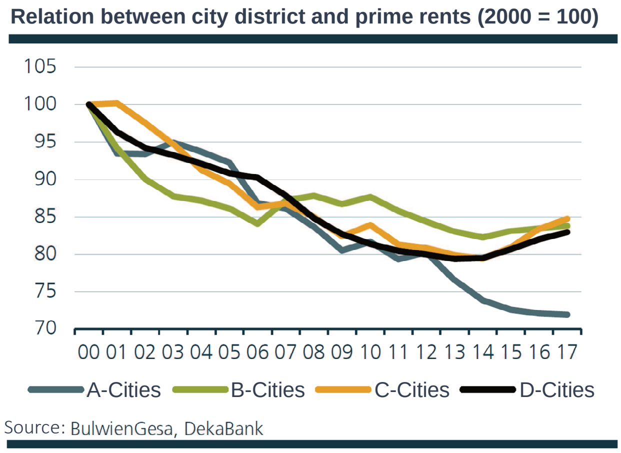


Fig. 4: Polarization of sites: Development of the relation between city district and prime rents 2000-2017 (Deka 2018: 6).

5 REQUIREMENTS FOR RETAIL REAL ESTATE USING THE EXAMPLE OF THE SHOPPING CENTRE

Referring to the understanding of sustainability, the aim of real estate development is to create products that meet the current requirements of their users. At retailultimately the customers decide on the functionality of operationformats and the related retail real estate by using their purchasing power.

As part of an empirical study conducted at the Chair of Construction Process Management and Real Estate Development at the Technical University of Munich, shopping centres were investigated examplarily to understand the current requirements of consumers for retail real estate. Participants were asked to rate a total of 33 criteria derived from the literature to analyse their significance (see Figure 5).[2] For this purpose,

[2] The selection of the list ofvariableswas both based on an analysis of existing literature on empirical, customer-oriented success factors of shopping centers (in particular based on the papers of BÜHLER, BASTIAN andBESEMER) and identified trends and developments in the retail sector that were taken into account in order to meet the topicality of theissue.

anunipolar interval scale with a total of six discrete characteristics was available. Only the endpoints were verbalised. The rating ranged from ‚not important at all‘, to ‚very important‘. Answer options were encoded for statistical calculation in numbers from 0 to 5. Figure 5 shows an overview of the distributions for all queried criteria - sorted in descending order according to their arithmetic mean.

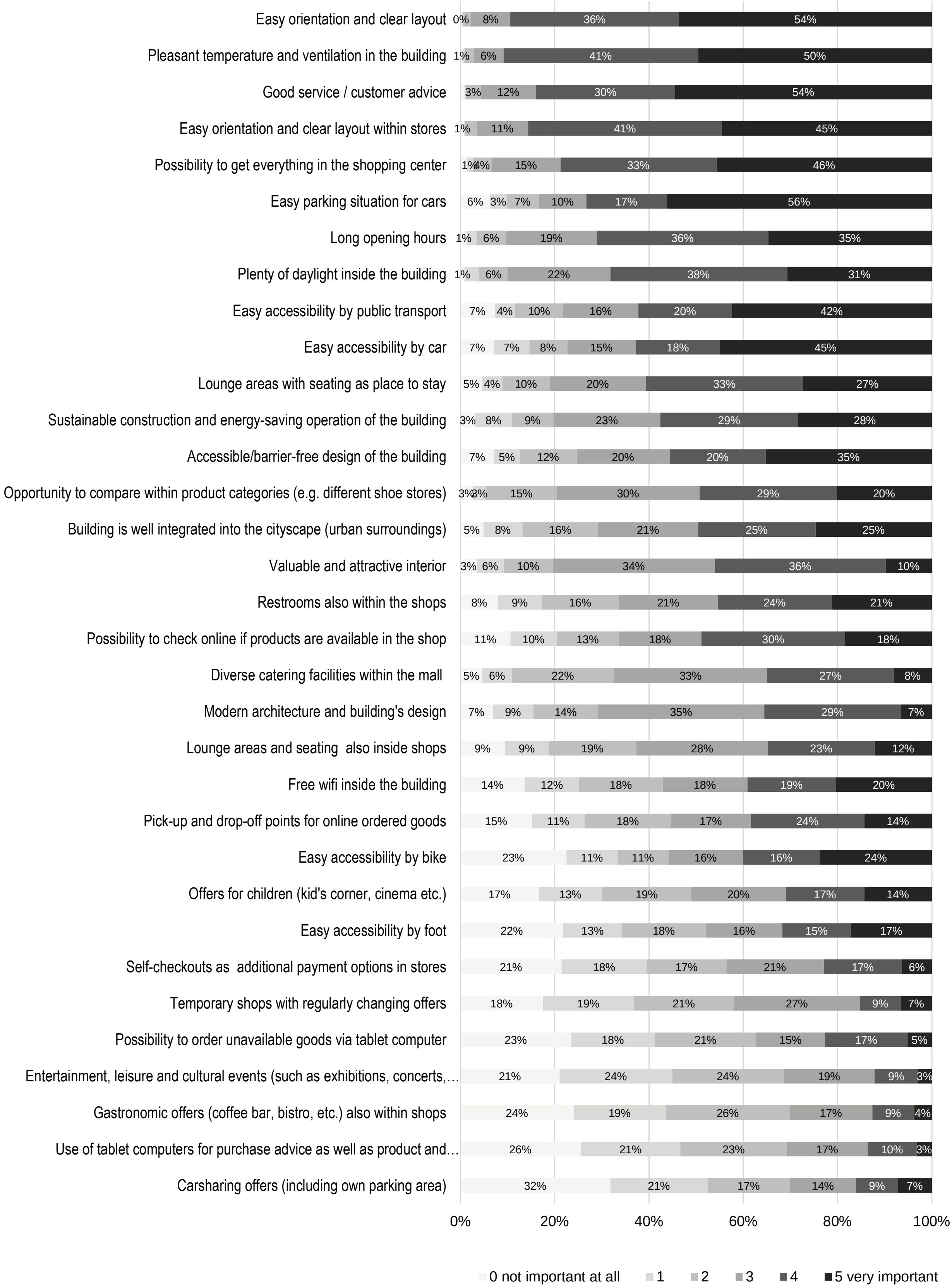
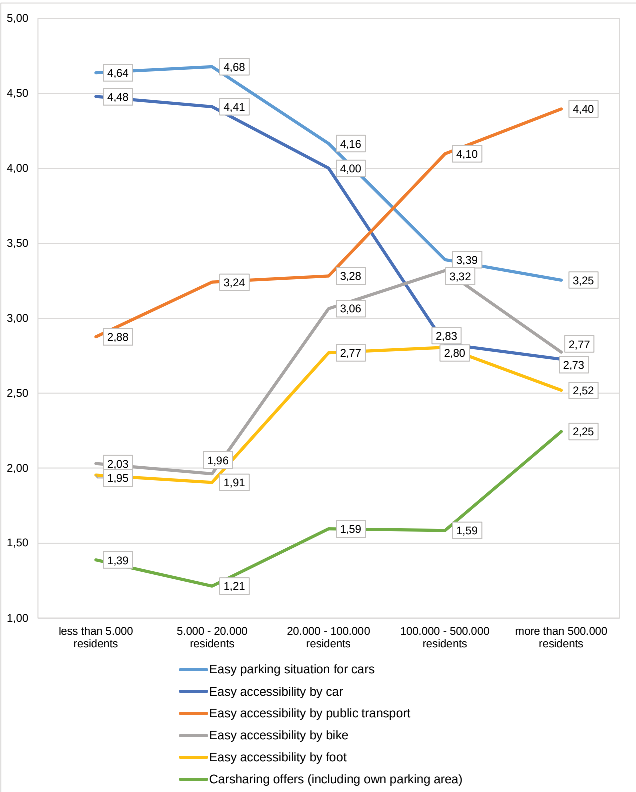


Fig. 5: Arithmetic mean of the 33 criteria at a glance (n = 342-349)

The findings indicate that instrumental[3] criteria (such as ‚good accessibility‘ or a ‚varied range of services‘) and consumptive[4] criteria (for example, a ‚pleasant temperature‘ or an ‚attractive interior design‘) are of similar importance to consumers. Among the top 10 were four consumptive and six instrumental, among the top five were three consumptive and two instrumental criteria. This suggests that customers generally also see importance in aspects which are not directly related to purchasing - such as a ‚high quality of stay‘, ‚atmosphere‘ or ‚quality of experience‘ – or rather that such criteria are also decisive in choosing the shopping centre.

Retailers and project developers should therefore consider these aspects as relevant for planning and decision-making. Likewise further improvement of the object and sojourn quality is of importance, since fulfilling intrinsic-emotional needs also requires placing greater exigencies on the design and the experience value of shopping venues. The atmospheric and architectural quality can therefore be considered as a relevant criterion of success for shopping centres.

As further findings criteria regarding accessibility and traffic connection strongly depend on the place of residence of the respondent and, partly, on the age (see Figure 6 and 7). Unsurprisingly, residents of rural areas are more reliant on the car than residents of large cities. Results regarding the importance of good accessibility by public transport are diverging and thus indicating, that infrastructural prerequisites need to be adequate for the specific location.



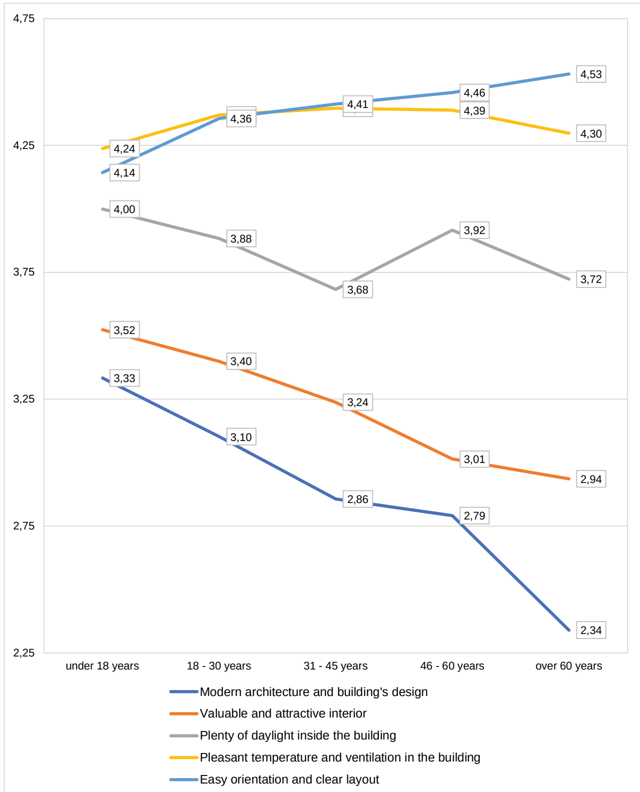


Fig. 6 (left):Importance of accessibility depending on the place of residence of the interviewee. Fig. 7 (right): Importance of structural aspects (1/2)according to age group.

[3] Instrumental motives pursue an extrinsic reward by visiting a shop or buying a product. They take into account more objective or functional characteristics of objects (or shopping venues). (Besemer 2004: 165-166) Regarding shopping centers, motives can be classified as instrumental when specific consumer wishes for products or services are the cause of purchasing. Examples of instrumental motives are: “consumption of products, services, leisure and gastronomy offers”, “availability of brand-name products”, “possibility to get everything under one roof”, “targeted shopping”, “convenience (parking facilities, accessibility)”.

[4] Consumptive motives, on the other hand, aspire to the realisation of intrinsic goals and thus focus on a more emotion-based (affective) experience of an action. Here, subjective and emotional aspects dominate the purchase or store choice behaviour. (Besemer 2004: 165-166) Motives can be classified as consumptive when shopping experience is paramount to the customer and not the object of purchase itself. Examples of consumptive motives are: “entertainment and leisure activities”, “mental gain”, “atmospheric or architectural quality”, “aesthetics”.

ISBN 978-3-9504173-6-4 (CD), 978-3-9504173-7-1 (print)
Editors: M. SCHRENK, V. V. POPOVICH, P. ZEILE, P. ELISEI, C.BEYER, J. RYSER

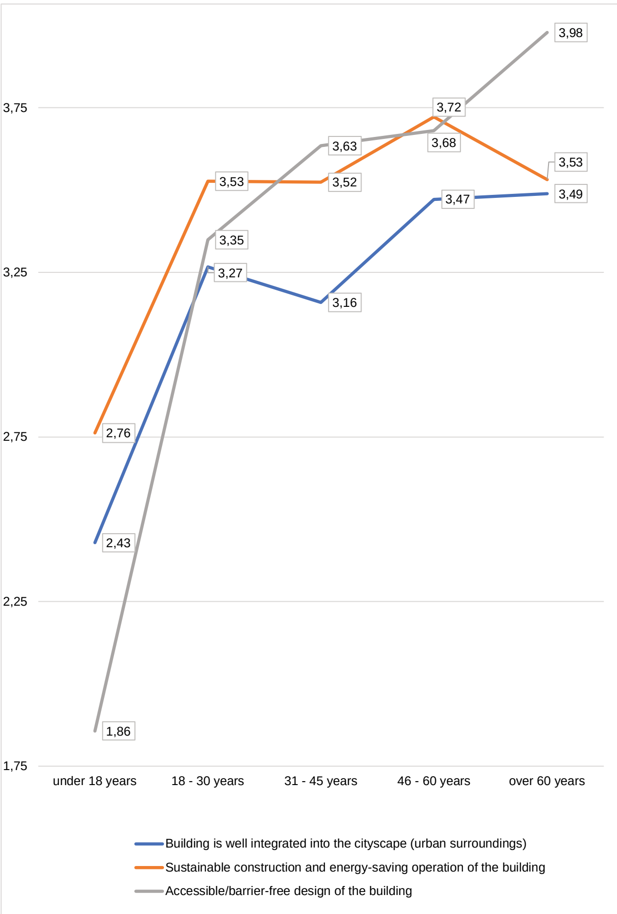
Regarding the structural and conceptual design, besides a lot of daylight inside the building, customers value easy orientation as another consumptive criterion. In order to contribute to cognitive relief of a visitor, shopping centres need therefore to be large, bright and open with clear structure and zoning of the premises.

The increased significance of the Internet is accompanied by the rising relevance of multi-channel systems in stationary retail. In particular young people expect the option to seamlessly switch between channels (see Figure 9). Depending on the retailer‘s distribution strategy, shopping centres might have to take on an increased store function. In general it is to be expected that flexibility of retail space will gain more importance in order to implement the ever-faster-changing market conditions and requirements of customers and retailers.

Furthermore, experience, service and convenience-related components become more important for the customer at the agglomeration level than at single-stores. Thus, easy orientation in a mall is of higher importance than in a store; the same works for lounge areas with seating as well as for gastronomy.

The criterion ‚building is well integrated into the cityscape (urban surroundings)‘ offers a mean value of 3.57 and is therefore considered to be ‚important‘. Half of the survey participants rated this aspect 4 or 5. For only 5 percent this was ‚not important at all‘. A similar value was achieved for the aspect ‚sustainable construction and energy-saving operation of the building‘ (3,52). After all, this aspect was determined to be ‚very important‘ for 28 percent of respondents. Even the criterion ‚accessible/barrier-free design of the building‘ (3.46) is positioned in this category. 35 percent stated that this feature was ‚very important‘.

As shown in Figure 8, the mean values of these three criteria are similarly depending on the age group. Thus, all three aspects are most insignificant for the youngest group and, with the exception of the ‚sustainable construction‘, which is most important for the oldest group. In particular, the aspect ‚accessible/barrier-free design of the building‘ was strongly dependent on the age group.



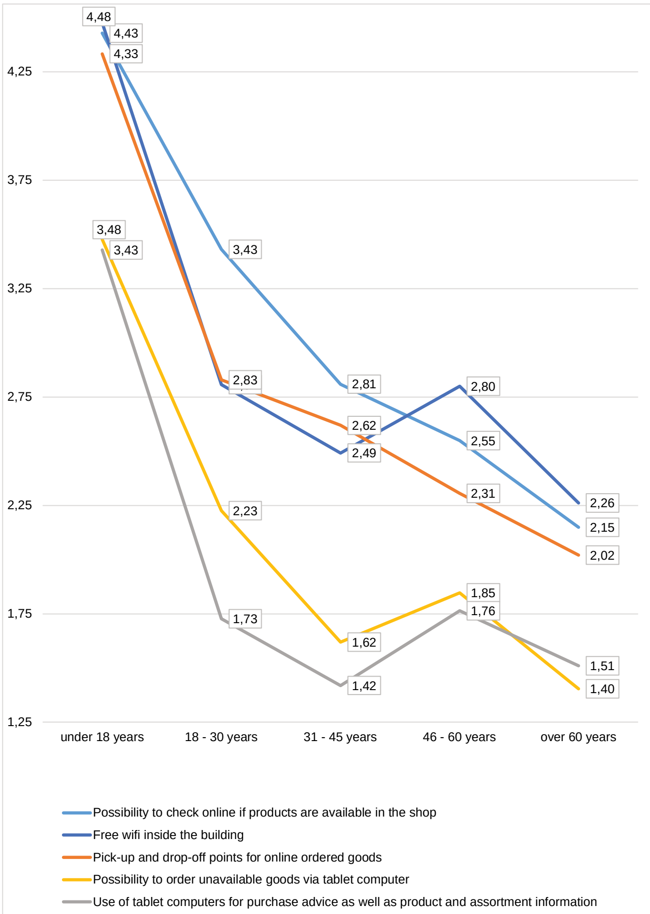


Fig. 8 (left): Importance of structural aspects (2/2) according to age group. Fig. 9 (right): Importance of digitization and multi-channel offerings according to age group.

6 REDEVELOPMENT OF RETAILSPACEAS AN OPPORTUNITY FOR REAL ESTATEINDUSTRY AND CITIES

The aim of this article was to elaborate the challenges arising from the structural change in the retail sector from the point of view of real estate development and the requirements for retail real estate in times of e-commerce. For this purpose, the concept of sustainability as user-oriented real estate development was utilised. The results of a survey using a shopping centre as an example indicated the relevant criteria from today‘s consumer's point of view. A large number of criteria were assessed differently depending on age, place of residence, but less on gender and household size. Depending on the customer target group, catchment area and local conditions, retailers and real estate need to be adjusted to be successful on the market in the long term. Obviously, in the age of online commerce brick-and-mortar retailing strongly needs to become more aware of its differentiation potential and deliberately apply and implement the respective criteria.

However, considering the increasing market saturation of brick-and-mortar retailing, the intense competition as well as the growing importance of e-commerce, a significant number of retail properties will not last in the long term solely by location-appropriate adaptating to current customer requirements. In particular for poor location qualities, owners and investors need to consider changes of utilisation. From an economic point of view, this is only reasonable if sustainably higher rents can be achieved with a different utilisation at the respective location. Therefore, taking a more holistic view on sustainable appraisal, it becomes necessary to take not only construction costs into account but losses of rent as well.

7 REFERENCES

BASTIAN, Antje: Erfolgsfaktoren von Einkaufszentren. Ansätze zur kundengerichteten Profilierung. Wiesbaden, 1999.

BAUGESETZBUCH (BauGB)

BESEMER, Simone: Shopping-Center der Zukunft. Planung und Gestaltung. Wiesbaden, 2004

BÜHLER, Thomas: City-Center. Erfolgsfaktoren innerstädtischer Einkaufszentren. Wiesbaden, 1991.

BULWIENGESA 2018: RIWIS Online. General Definitons. URL: https://www.riwis.de/online_test/en/info.php3?cityid=&info_topic=allg, access 15/12/2018.

BUNDESVERBAND E-COMMERCE UND VERSANDHANDELe.V (Bevh): Frühjahr-Umfrage 2016: Mobiler Einkauf und Bezahlung mit Smartphone und Tablet 2016. URL: https://www.boniversum.de/wp-content/uploads/2016/07/Boniversum_bevh_Mobiler-Einkauf-und-Bezahlung-mit-Smartphone-und-Tablet_2016.pdf, access: 06/09/2018.

BUNDESINSTITUT FÜR BAU-, STADT- UND RAUMFORSCHUNG (BBSR 2017): BBSR-Online-Publikation Nr. 08/2017. Online-Handel –Mögliche räumliche Auswirkungen auf Innenstädte, Stadtteil- und Ortszentren. URL:https://www.bbsr.bund.de/BBSR/DE/Veroeffentlichungen/BBSROnline/2017/bbsr-online-08-2017-dl.pdf;jsessionid=BD28ECA97131D2A88444D785EE0FE33D.live21304?__blob=publicationFile&v=3, access: 10/12/2018.

BUNDESINSTITUT FÜR BAU-, STADT- UND RAUMFORSCHUNG (BBSR 2018): Stichwort „Nachhaltige Stadtentwicklung“ URL: https://www.bbsr.bund.de/BBSR/DE/Stadtentwicklung/StadtentwicklungDeutschland/NachhaltigeStadtentwicklung/Stadtentwicklung_node.html, access 20/12/2018.

BUNDESINSTITUT FÜR BEVÖLKERUNGSFORSCHUNG: Bevölkerungsentwicklung 2016. Daten, Fakten, Trends zum demografischen Wandel. Wiesbaden, 2016

DEKA: Makro Research Immobilienresearch Spezial. Online-Boom. Auswirkungen auf Handel und Logistik. April 4, 2018. URL: https://www.deka.de/site/dekade_deka-gruppe_site/get/documents/dekade/Publikationen/2018/Immobilien/Research%20Spezial/20180405_IS_Online-Boom.pdf, access: 15/12/2018.

GEHRCKENS, Mathias; BOERSMA, Thorsten: Zukunftsvision Retail – Hat der Handel eine Daseinsberechtigung? In: Digitalisierung des Handels mit ePace. Innovative E-Commerce-Geschäftsmodelle und digitale Zeitvorteile. Hrsg. Gerrit Heinemann, Kathrin Haug und Mathias Gehrckens. Wiesbaden, 2013, S. 51-55

GEYWITZ, Viktoria: Entwicklung nachhaltiger Hotelimmobilien unter besonderer Berücksichtigung der Nutzeranforderungen hinsichtlich Objektkonzeption und Standort. Dissertation. Technical University of Munich. Munich, 2017.

HANDELSVERBAND DEUTSCHLAND (HDE 2018a): HDE Handelsverband Deutschland: Online Monitor 2018. URL: https://einzelhandel.de/online-monitor, access 10/12/2018

HANDELSVERBAND DEUTSCHLAND (HDE 2018b): HDE Zahlenspiegel 2018, Berlin 2018.

HEIDER, Manfred: Einzelhandel im Umbruch. Neue Perspektiven der Standortberatung für die Stadt- und Regionalentwicklung dargestellt am Wirtschaftsraum Augsburg. Dissertation. University of Augsburg. Augsburg, 1997.

HEINRITZ, Günter/ KLEIN, Kurt E./ POPP, Monika: Geographische Handelsforschung. Berlin, Stuttgart,2003.

HENGST, Martina; STEINEBACH, Gerhard: Multi-Channel-Konzepte als Chance für eine nachhaltige und zukunftsfähige Entwicklung der Innenstädte? In: REAL CORP 2012. Re-Mixing the City. Towards Sustainability and Resilience? (Conference proceedings), pp. 513-522, Schwechat 2012

INSTITUT FÜR HANDELSFORSCHUNG (IFH): Vitale Innenstädte 2016. URL: https://www.ifhshop.de/studien/handel-allgemein/208/vitale-innenstaedte-2016, access 10/11/2018

KULKE, Elmar: Wirtschaftsgeographie. 2nd Edition. Stuttgart, 2006

MAYER-DUKART, Anne: Handel und Urbanität. Städtebauliche Integration innerstädtischer Einkaufszentren. Detmold 2010.

MÜTZE, Stefan: Volkswirtschaft/Research: Branchenfokus. Glückliche Zeiten für den deutschen Einzelhandel, S. 1-2. 2016

SCHAULE, Matthias Sebastian: Anreize für eine nachhaltige Immobilienentwicklung - Nutzerzufriedenheit und Zahlungsbereitschaft als Funktion von Gebäudeeigenschaften bei Büroimmobilien. Dissertation. Technical University of Munich. Munich, 2014

SEGERER, Matthias: Investitionen in Handelsimmobilien. Dissertation. Universität Regensburg, Regensburg, 2014.

SPERLE, Tilman: Was kommt nach dem Handel? Umnutzung von Einzelhandelsflächen und deren Beitrag zur Stadtentwicklung. Dissertation, University of Stuttgart, 2012

STATISTISCHES BUNDESAMT: Bevölkerung Deutschlands bis 2060. 13. koordinierte Bevölkerungsvorausberechnung. Wiesbaden, 2015.

STATISTISCHES BUNDESAMT: Bevölkerung und Erwerbstätigkeit. Ausländische Bevölkerung. Ergebnisse des Ausländerzentralregisters 2015. Wiesbaden, 2016.

STATISTISCHES BUNDESAMT, HDE (2017). Anteil des Einzelhandels an den privaten Konsumausgaben in Deutschland in den Jahren 2000 bis 2017. URL: https://de.statista.com/statistik/daten/studie/161796/umfrage/einzelhandelsumsatz---anteil-an-den-privaten-konsumausgaben-seit-2000/, access 23/12/2018.

STUMPF, Joachim: Marktentwicklung im Einzelhandel. In: Kompendium der Einzelhandelsimmobilie. Ein Praxis- und Rechtshandbuch. 2nd Edition. Wiesbaden, 2018.

UNITED NATIONS: World Urbanization Prospects. New York, 2014.

VERES-HOMM, Uwe; KÜBLER, Annemarie; WEBER, Natalie; CÄSAR, Estella: Logistikimmobilien - Markt und Standorte 2015 - Eine Studie mit der Unterstützung von Deka Ieditiommobilien GmbH, Goldbeck International GmbH, Jones Lang LaSalle GmbH, Kraftverkehr Nagel GmbH& Co. KG, LOG.IQ Gmbh & Co. KG. Editor FRAUNHOFER INSTITUT. Segro Germany GmbH. 4th Edition. Stuttgart, 2015.

VORNHOLZ, Günter: Einzelhandelsimmobilienmärkte und gesamtwirtschaftliche Einflussfaktoren. In: Einzelhandelsimmobilien. Marktsituation, Perspektiven, Trends. Freiburg, 2010.

ZENTES, Joachim; MORSCHETT, Dirk; FREER, Tatjana; KESSLER, Dirk; SCHU, Matthias: Erlebnis Handel. Läden im Aufbruch. Frankfurt am Main, 2015.

ZIMMERMANN, Josef: Die Immobilie als Gegenstand der Ingenieurwissenschaften in Praxis, Forschung und Lehre. In: Bauingenieur, No. 03-2015, pp.115-123. Düsseldorf, 2015.