

PART 3 TRENDS IN LOGISTICS

TRANSFORMATION / POTENTIAL / SUSTAINABILITY



Executive summary

1. **Megatrends – Focus on ecology and industry 4.0** p. 3
2. **Ecology – sustainability as a goal, the investor in focus** . . . p. 3
 - 2.1. **Trade-off between tenants and investors?** p. 3
 - 2.2. **The path to sustainable real estate** p. 4
 - 2.3. **Certification of buildings** p. 5
 - 2.4. **Example development: Illescas Green Logistics Park** . . p. 6
3. **Industry 4.0 – chance or risk?** p. 7
4. **Supply chain/management – logistics as a central component of the networked global economy** p. 8
 - 4.1. **The transformation of the supply chain and the impact on building requirements** p. 8
5. **The potential of Mediterranean ports** p. 9
6. **Conclusion** p. 11

Management summary

- This is the third and final paper of Aquila Capitals analysis of the European and particularly the Southern European logistics property market.
- Previous published papers:
 - PART 1: EUROPEAN LOGISTICS REAL ESTATE MARKET – FROM A NICHE TO AN INSTITUTIONAL ASSET CLASS**
 - PART 2: SOUTHERN EUROPEAN LOGISTICS REAL ESTATE MARKET – DYNAMIC AND CATCH-UP EFFECTS**
- Building on parts 1 and 2, in this paper the megatrends digitisation and ecology come into focus as well as upcoming potential especially for the Southern European market.
- Again, the value- and supply chain is in the centre of the consideration, because effects are bundled there.
- Sustainability is one of Aquila Capitals main targets. In addition to the implementation of the green logistics strategy, apparent conflicts of interest between tenants and investors are also examined and appropriate solutions are presented.
- Industry 4.0 offers tremendous potential. Logistics will change from a pure service provider to a central and extremely valuable component of the global economy.
- Particularly Southern European countries can benefit from ports in the Mediterranean Sea. The existing growth will also sustainably strengthen the demand for logistics infrastructure

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1. Megatrends – Focus on ecology and industry 4.0

In addition to the effects of economic and social changes on the logistics industry and especially on the corresponding real estate segment, the industry as a whole is also subject to and committed to the digital and ecological rethinking of our time. The aim is to consider the resulting developments and potentials in the investment process in a sustainable manner in order to position in the market with ideal solutions. In line with this approach, the megatrends in the logistics sector¹ already introduced in Part 1 (cf. Part 1, Chapter 3, Table 1) will be taken up repeatedly.

Table 1: Mega trends in logistics and their impact on the demand for space and the transformation requirements in the logistics segment²

| | Demand for space | Transformation |
|---------------|------------------|----------------|
| Globalisation | ++ | ++ |
| E-Commerce | +++ | +++ |
| Urbanisation | ++ | ++ |
| Supply-chain | +++ | +++ |
| Ecology | - | +++ |
| Industry 4.0 | (+) | +++ |

In contrast to the demand for space explained in Part 1, the transformation of the sector is influenced in many ways by all megatrends, so that an isolated consideration is challenging. In particular, the following section deals with the areas of ecology and industry 4.0, focusing on their effects on the sector from the perspective of the real estate industry. In addition, online trade plays a major role, especially due to the substantial changes that have taken place within traditional supply chains. As in the previous analyses of the logistics market, the central point of reference will again be the value and supply chain. There the effects meet and are increasingly reorganised, resulting in a comprehensive upgrading of logistics services.³

2. Ecology – sustainability as a goal, the investor in focus

The fifth Assessment Report of the UN Intergovernmental Panel on Climate Change (IPCC) states that buildings are responsible for almost one third of global final energy consumption and about one fifth of all greenhouse gas emissions.⁴ Accordingly, the potential to reduce the climate-damaging effects of the sector and to generate positive effects is enormous. The Aquila Group's long-term commitment to

sustainable investment criteria, combined with its expertise in real estate development, provides the ideal framework for the implementation of our green logistics strategy. In addition to the social and environmental aspects, the focus is on the economic requirements and the related interests of our investors. However, our long-standing commitment to the renewable energy sector and our activities in infrastructure projects and areas relating to climate change in general show that these are not contradictory but closely related objectives.

The social, political and, not least, economic rethinking of climate change was initially gradual, but is gaining momentum. The resulting changes influence public perception and lead to further development of the regulatory framework at the political level.

“Only when emissions have a price our behaviour will change.”

(Ursula von der Leyen; Speech opening the plenary session of the European Parliament; 16.07.2019)

2.1 Trade-off between tenants and investors?

In the subjective perception, positive effects on society, working conditions and environmental pollution are initially associated with higher costs. Original considerations therefore focused on the competing goals between investors and tenants, whose respective success is nevertheless directly dependent on each other. In the analysis, the needs of the investors - characterized by constantly increasing sustainability criteria and the future performance of the facilities within the long-term investment horizon - were therefore set against the requirements of logistics service providers, since their competitive market environment is characterized by very low margins. This contrast, however, can only withstand very short-term consideration. In line with the dynamic change in the general conditions, the over fulfilment of current regulations, which are sometimes associated with higher initial investments, can be regarded as an insurance against future (medium-term) regulatory changes. From this perspective, the investment and use of a sustainable building in the medium term, e.g. by introducing an EU-wide CO2 tax, represents a competitive advantage. In this case, investors benefit from stable value development and tenants from stable service charges. Beyond this central point, it should be noted that comparatively higher investment costs in the energy efficiency of buildings generate positive financial effects in the long term through the resulting savings potential.

¹ Zanker, Claus: Branchenanalyse Logistik (2018) / Vgl. Metaanalyse Kersten, et. al. (2014)

² Illustrative

³ Dregger et. al. (2017) // Hybride Dienstleistungen und Wandel der Arbeit 2017 / S. 16-17

⁴ Klimawandel: Was er für das Bauen bedeutet, und was der Bausektor darüber wissen muss (2014)

The reputation of companies is increasingly measured by their responsible actions. By covering the entire depth of value creation, Aquila is in direct contact with all the players involved as a project developer, lessor and investment manager and offers flexible solutions to meet a variety of specific requirements effectively and in the long term.

BOX 1⁵

„APG Asset Management NV, the Netherlands' biggest pension investor, and the Church of England are cutting their holdings in state-backed utility Korea Electric Power Co. over its lack of action on carbon emissions, the Financial Times reported, citing people it didn't identify.

APG has sold most of its 60 million euro (\$65 million) stake, while the Church of England is considering a divestment at the end of the year, according to the FT. APG managed 529 billion euros in pension assets as of August, according to its website.

Coal and natural gas-reliant companies such as the South Korean utility, known as Kepco, are coming under increasing pressure from investors seeking to get out of sectors linked to climate change. In a high-profile push last month, BlackRock Inc., one of the world's biggest asset managers, unveiled a set of climate-related changes to its investment processes, a topic that dominated the agenda at this year's World Economic Forum in Davos.”

BOX 2⁶

Group-wide environmental protection program GoGreen with new global goal: zero emissions by 2050

Sustainability has long been one of the most important issues of our time. Our contribution to a more sustainable world is green logistics. To shape a sustainable future, we think in big dimensions: With our new climate protection target we want to reduce all logistics-related emissions to zero by 2050.

2.2 The path to sustainable real estate

Figure 1: Steps to achieve a sustainable building

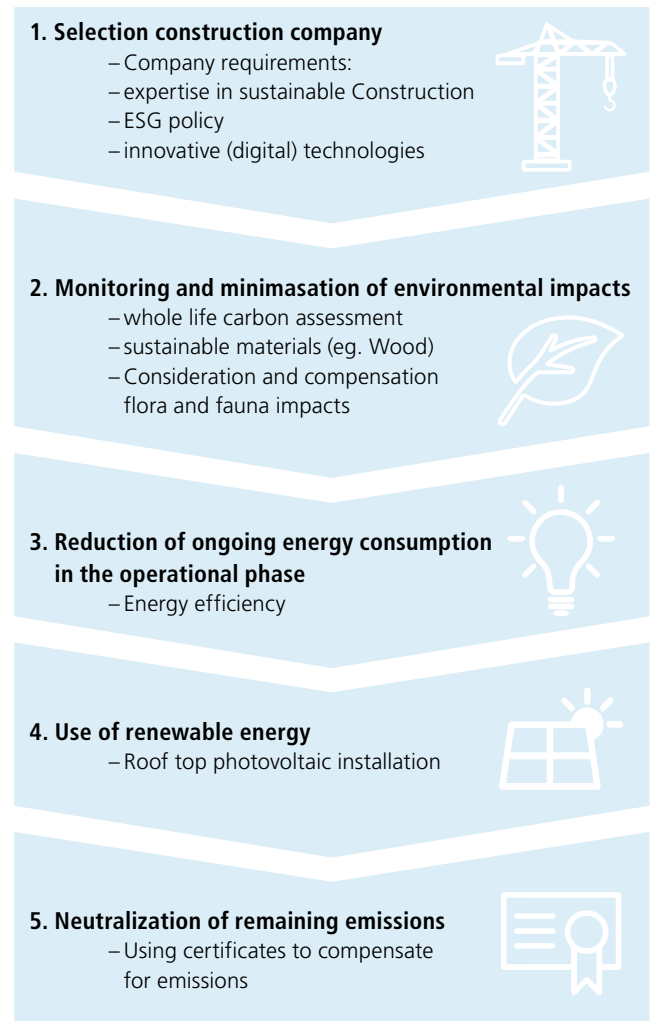


Figure 1 illustrates the comprehensive and multi-layered approach of the Aquila Group to achieve climate-neutral logistics properties.

⁵ BNEF (2020)

⁶ <https://www.dpdhl.com/de/nachhaltigkeit/umweltschutz.html>

Step 1 (Selection/identification of valuable partners):

Using the extensive network of the Aquila Group, with local presence in each case, the selection of the construction company is firstly made, taking into account relevant criteria. This company must have expertise in sustainable construction, have implemented its own ESG criteria (especially with regard to occupational health and safety and environmental standards) and offer the use of innovative (digital) technologies for efficient achievement of objectives.

Stage 2 (monitoring and minimisation of environmental impact):

The calculation of emissions over the entire life cycle of the property provides the basis for the selection of the ideal materials. Regional resources are used wherever possible. The use of building elements made of wood is preferred, taking into account regional availability from sustainable forestry. As a natural carbon store, wood elements have a correspondingly positive effect on emissions and also make a positive contribution to the fire resistance of the building. Furthermore, the respective flora and fauna are examined under consideration of the natural conditions in order to compensate for negative effects caused by the sealing of surfaces elsewhere. This process is accompanied by Aquila's team for forest investments, which is characterized by high expertise in wood procurement and in dealing with natural habitats.⁷

Stage 3 (reduction of ongoing energy consumption in the operational phase):

"The cleanest energy is the energy that is not consumed at all."⁸ The implementation of energy-efficient measures has high priority. With regard to the entire technical interior, the most modern standards are implemented in the buildings. In addition to energy-saving measures, e.g. with regard to lighting with LEDs, intelligent planning and design of windows and ventilation systems will create a positive working atmosphere for employees in addition to significant cost savings. The Aquila Energy-Efficiency-Team supervises the optimal implementation of these measures with a high degree of experience and technical know-how. For continuous monitoring and the identification of further saving potentials, measuring systems are implemented, which also provide exact information about the energy actually consumed.

Stage 4 (use of renewable energy):

Renewable energies represent a core competence of the Aquila Group. The aim is to equip all roof areas of the logistics properties with photovoltaic systems to make the energy consumption as self-sufficient as possible. This process is also accompanied by Aquila's Energy Efficiency Team, which has successfully implemented similar projects many times before. If the energy consumption of the building exceeds the potential of the own production, we offer the

tenants attractive possibilities to purchase additional renewable energy. Aquila's Merchant Market Desk makes a valuable contribution in this field.

Level 5: (Neutralization of remaining climate-damaging emissions):

Aquila has already confirmed that it will neutralize remaining carbon emissions to achieve complete carbon neutrality of its logistics properties. This is being done with Aquila's subsidiary Klimainvest. Klimainvest generates recognised certificates for the respective emission savings by participating in global climate protection projects. By acquiring these certificates we can offset remaining emissions with savings elsewhere and thus make our contribution to the global reduction of emissions of climate-damaging substances.

2.3 Certification of buildings

As proof and as a self-check of our commitment, all logistics properties are subjected to an examination according to the globally recognised BREEAM or LEED standard.

Figure 2: Weighting of the categories assessed in BREEAM

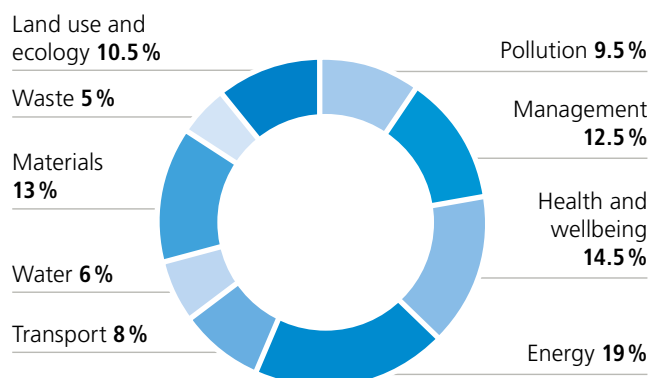


Figure 2 illustrates the different categories and their weighting used in the BREEAM assessment of building sustainability. In addition to the most important factor of energy demand and use, the focus is also on the framework conditions for workers in the buildings. In addition to the good working environment provided by daylight and an optimal supply of fresh air already mentioned as a positive side-effect, our overall planning also takes into account appropriate outdoor facilities and common rooms as well as the accessibility of the workplace by public transport. This example also has a very positive effect on potential tenants, as the sector suffers from a very large shortage of skilled workers and can therefore benefit greatly from ideal working conditions.

⁷ Cf. <https://www.aquila-capital.de/sachwertanlagen/forstwirtschaft> and https://www.aquila-capital.de/fileadmin/user_upload/PDF-Dokumente/2020-02-21_ACTIF_IMPACT_Report.pdf
⁸ Brigitte Zypries on the occasion of Energy Efficiency Market Report (2017)

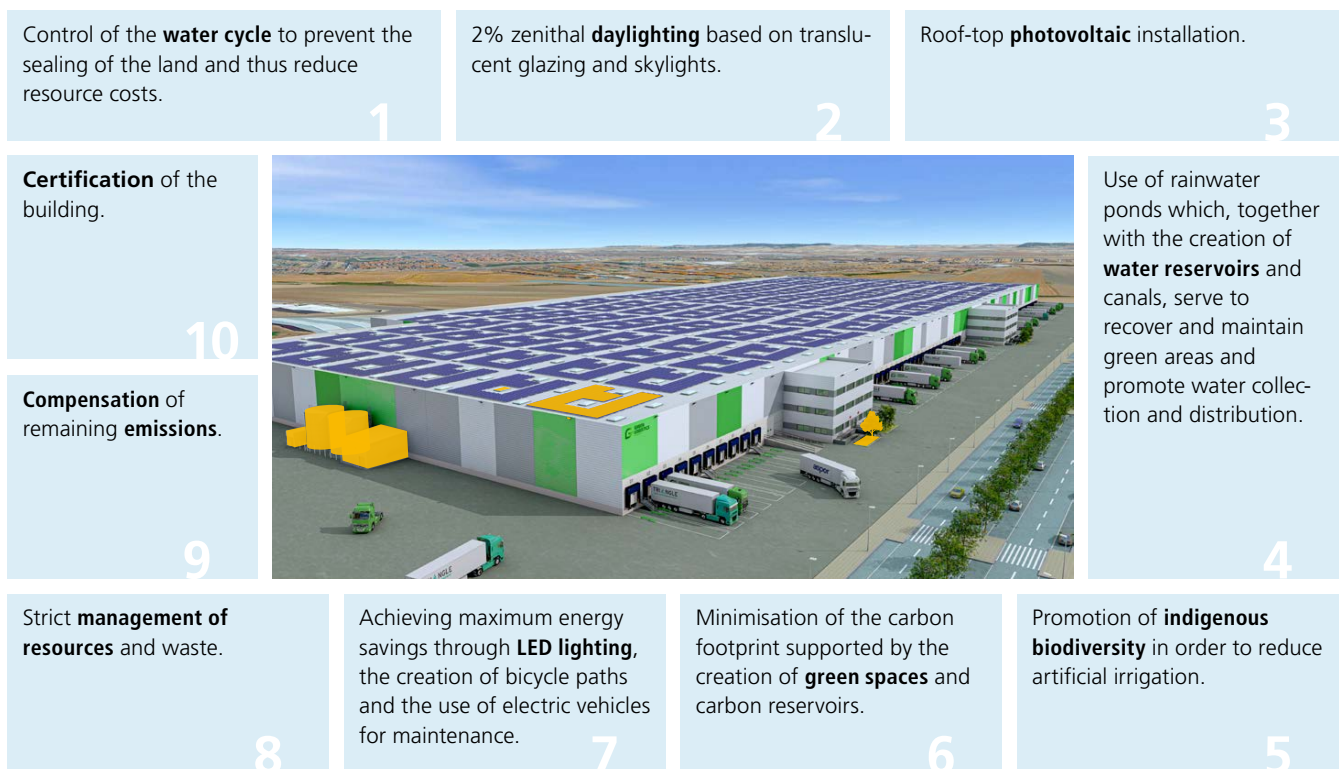
2.4 Example development: Illescas Green Logistics Park

Illescas Green Logistics Park is to be located within the Plataforma Central Iberum, Spain's first eco-industrial park, integrated with its environment and designed for energy saving, research and the application of new technologies to achieve maximum sustainability.

It will form part of the second stage of the Plataforma Central Iberum development, already fully operational, which is planned to become

the first industrial logistics park to adopt carbon footprint compensation measures with the aim of achieving Zero Emission status following the elimination of its carbon footprint.

The installations of the Illescas Green Logistics Park will be equipped with the latest technology so that it can become one of the most efficient companies of the future:

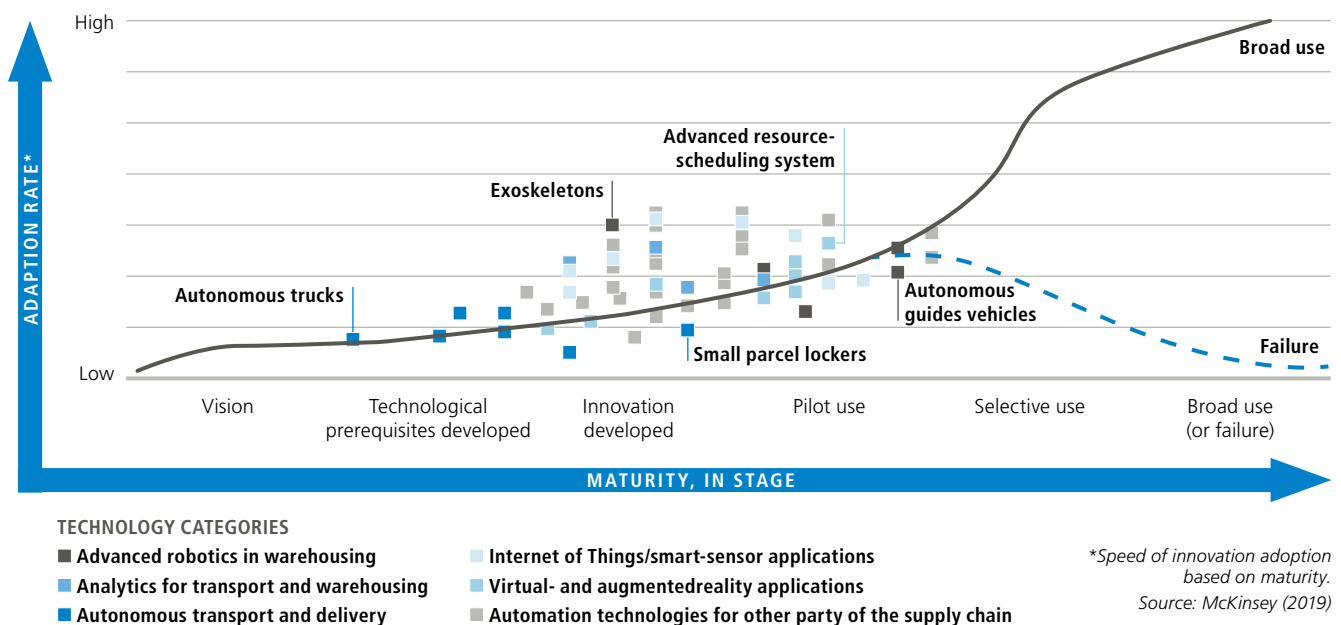


3. industry 4.0 – chance or risk?

Industry 4.0 generally stands for a technology-induced vision of future networked and automated production systems. Although the inflationary use of the term digitisation increases uncertainty to a certain extent - while disruptive transformations have so far failed to materialise - far-reaching changes in value creation processes seem foreseeable in the medium term. As a link in global value chains, the logistics industry is at the centre of future developments.

As in any a priori analysis, uncertainty is a decisive factor which we believe should be countered with moderation but with the appropriate flexibility. As can be seen in Figure 5, no standardized or dominant technology is currently foreseeable whose requirements will fundamentally determine future processes and framework conditions.

Figure 3: Dozens of logistics technologies are under development ⁹



The first projects are being implemented, particularly in the area of financially strong online retailers, due to the small size of the products. Our approach is based on a lively exchange with potential tenants in order to take into account the corresponding requirements while ensuring a high degree of flexibility.

The example of the industry giant Amazon shows that the use of autonomously driving vehicles reminiscent of suction robots on the one hand provides an answer to the shortage of labour by carrying out simple tasks and on the other hand does not place any additional demands regarding the logistics hall.¹⁰ This also has positive effects

on the long-term letting of buildings. The tenant investments for operational use of a building will increase, anchoring the tenant to the building and hence the landlord.

With the building focus on regional distribution centers, we are pursuing a defensive strategy with regard to the strong and extremely dynamic changes in the industry and the corresponding supply chains. This background becomes clear in the following chapter when we take a closer look at the transformation within the supply chains.

⁹ McKinsey (2019)

¹⁰ <https://www.businessinsider.com/amazon-introduces-new-warehouse-robots-2019-5?r=DE&IR=T>

4. supply chain / management – logistics as a central component of the networked global economy

The supply chains and the corresponding organisation, the so-called supply chain management, form the central link. All five megatrends from Table 1, which lead through the entire logistics series (Parts 1-3), converge here. For globalisation and the ever-increasing vertical production and trade interdependencies that accompany it, efficient logistics and the necessary reorganisation of supply chains are indispensable. In this context, an ever more finely tuned interlocking of companies and sectors requires a deeper integration of logistics services into the entire value-added process. E-commerce and urbanization pose great challenges to logistics processes but lead to a similar development on the customer side. The increasing shift from B2B to B2C services is also leading to a significantly deeper penetration of logistical processes in this area. The direct interaction with the end customer that was previously reserved for the retail trade is increasingly being transferred to the logistics industry, especially through online trading. This extremely dynamic and fluid growth in demand for logistics solutions, caused by both producers and consumers, is being joined by the ecological challenge of our time. The urgently needed decarbonisation of supply chains must take place simultaneously and, in this context, poses further challenges to the industry, to which we are making our contribution with green logistics properties.

These challenges, however, represent an enormous opportunity when taking into account the remaining megatrend Industry 4.0. The significant expansion of logistics processes within the value

creation and supply chains – from raw materials to the end customer – makes it possible to collect huge amounts of data. Data is the currency of our time and included in the generic term Industry 4.0 are Big Data Analytics and artificial intelligence. If the enormous amounts of data can be evaluated with the help of the most modern methods and innovations, logistics will change from a pure service provider to a central and extremely valuable component of the global economy. The resulting forecasts and information subsequently enable significantly more efficient processes and drive the integration of logistics into all areas even further.

4.1 The transformation of the supply chain and the impact on building requirements

Rapidly growing online trade is significantly strengthening the consumer orientation of supply chains. In order to gain current competitive advantages, the duration of delivery dominates the competing low-price orientation. As a result, the demands for proximity to the end customer are increasing. However, this development is contrasted by very limited space availability and bottlenecks in the infrastructure within European conurbations.

Figures 6 and 7 illustrate the reorganisation of the consumption-oriented supply chains by means of the additionally required building structures.

Figure 4: Supply chain interaction retail to end customer

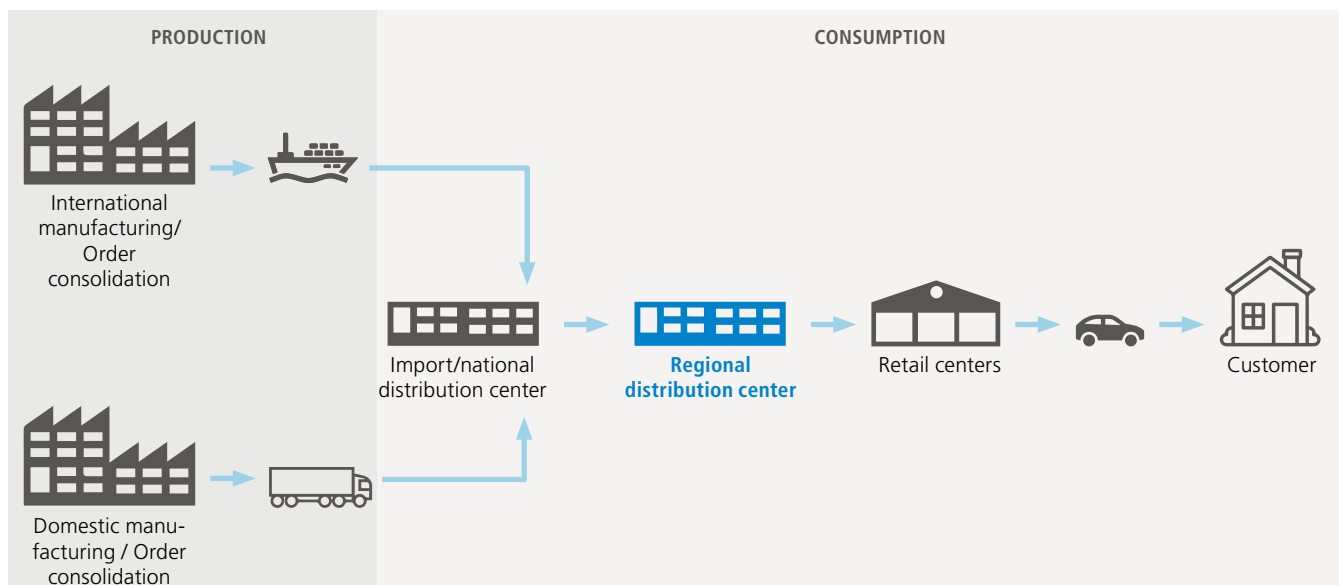
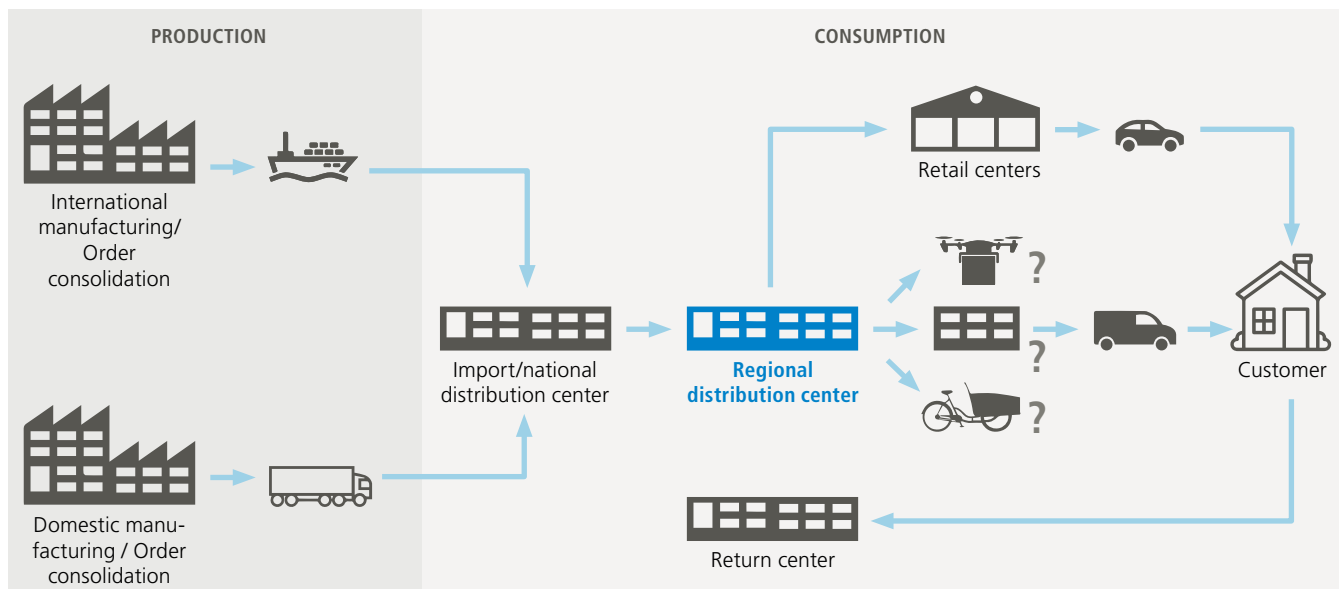


Figure 5: Supply chain interaction logistics to end customer



The illustrations show the need for additional building structures, which are of increasing relevance in the competition for delivery times. However, the stability of the position of regional distribution centres is also apparent. These form the link between product-oriented and consumer-oriented supply chains. This type of building is characterised by large volumes and its peripheral location to metropolitan areas with very good infrastructure connections. It is of substantial importance for e-commerce in order to guarantee the supply of significantly smaller logistics units, limited by price and space availability and located closer to the centre. In addition, however, there is also a high demand from industrial users for supply, storage and further distribution for local production processes whose locations are characterised by similar location criteria. In contrast to various inner-city logistics projects, which lack standardization, are often still in pilot phases and depend on ongoing innovative changes, the regional distribution centers have a mature and stable position. Our strategy is focused on the development of these regional distribution centres, as we expect the least amount of change and, accordingly, a high degree of value retention and development over the long term. For investors with medium- to long-term investment horizons, these properties offer ideal development options, as they occupy an enormously important and established position within the supply chain and thus have a high secondary use and the ability to bundle the demand side.

5. The potential of Mediterranean ports

As early as April 2017, Eurogate CEO Thomas Eckelmann stated that the centre of the European trade in goods would shift from the North Sea to the Mediterranean in the medium term.¹¹ Eurogate is the European market leader in container handling. In addition to container terminals in Hamburg, Bremerhaven and Wilhelmshaven, the group operates four terminals in Italy, one each in Cyprus and Portugal, and a Moroccan terminal on the Strait of Gibraltar.¹² However, it is not only the Eurogate Group that is interested in the Italian Mediterranean ports in particular; China has already signed a letter of intent with Italy as part of the Silk Road project. In addition to several binding economic agreements, which include contracts with Italian companies, China will have the opportunity to invest in the ports of Trieste and Genoa.¹³

BOX 3¹⁴

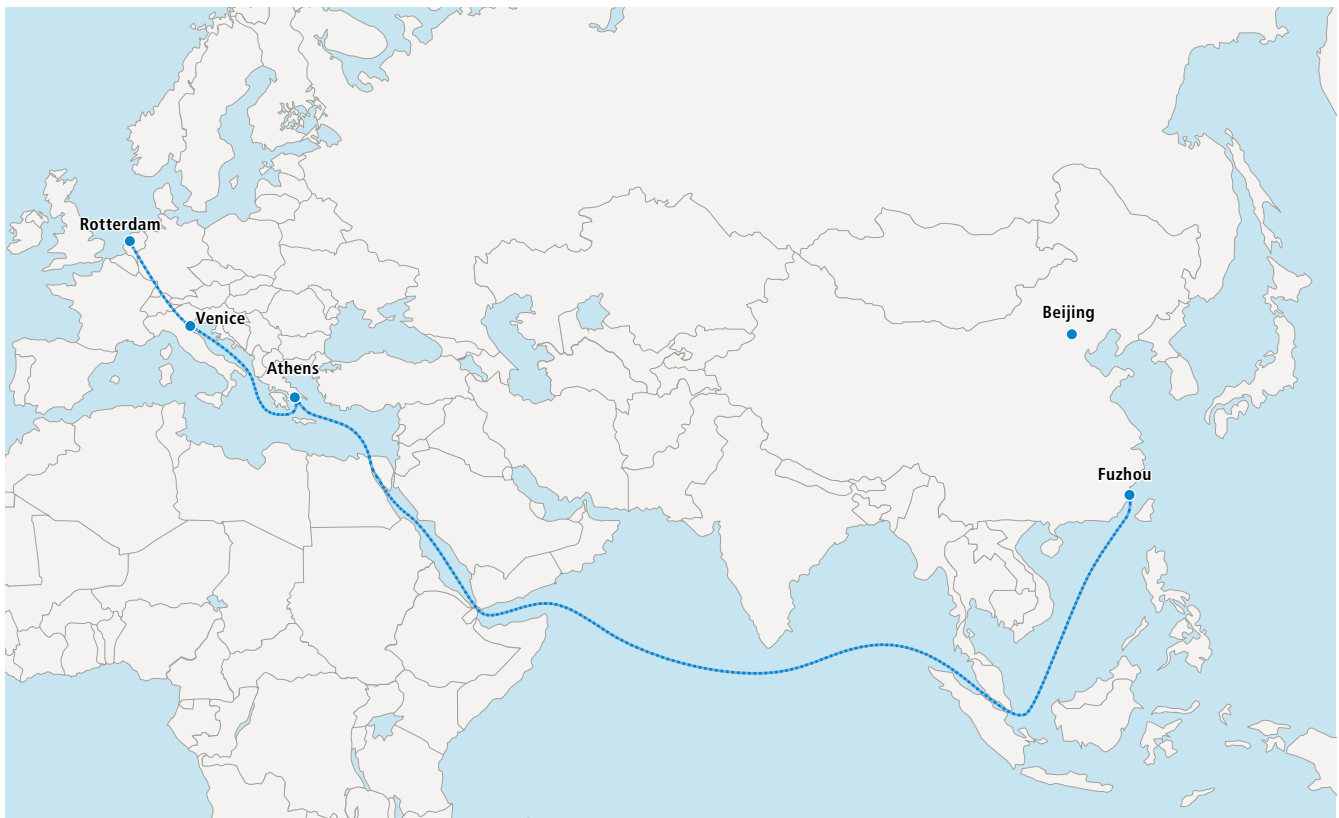
"Since the purchase by Chinese investors, Greece's largest port has been rushing from one record to the next. This has repercussions as far as northern Europe. Crisis? Not the port of Piraeus. While Greece has lost a quarter of its economic power since 2008 and has been on the brink of bankruptcy several times, container handling in the country's largest port has increased more than tenfold in the past ten years - an unprecedented Greek success story. Now the new conservative-liberal government wants to privatise more ports. The interest of foreign investors is great."

¹¹ Taz, 02.07.2017; ¹² Eurogate.de (2020); ¹³ Tagesschau.de 26.03.2019

¹⁴ Handelsblatt.com, 03.09.2019

The perspective shift is already taken into account in European traffic development scenarios with a focus on the Brenner corridor.¹⁵ The European infrastructural investments in the network corridors (TEN-T, cf. Part 2, Chapter 3.4) will enable significant time savings in the future, as well as significant cost savings with the Brenner base tunnel and a shift of freight traffic to rail.

Figure 6: China's new Silk Road in the Mediterranean¹⁶



If the handling of Asian container ships takes place in Italy, the journey time (including the return journey) is reduced by about two weeks compared to transport to the North Sea (Rotterdam, Hamburg), while transport by rail, even to the northernmost point of Sweden, takes only 2–3 days.

In order to realise this strategy, further high investments in the ports and the infrastructure of the hinterland are necessary. In addition to private investment, e.g. by the Eurogate Group and other EU

infrastructure investments, Chinese capital will also ensure that expansion will continue to increase. The long-term consequence would also be a corresponding shift of feeder traffic from the Baltic and North Sea to the Mediterranean. In addition to overland rail transport, so-called short-sea connections are being focused on in order to shift freight transport from road to waterways in addition to rail, particularly for reasons of emissions (compared to truck transport) and the ambitious EU environmental policy.

¹⁵ TRIMOD im Auftrag des BMVI (12/2018)

¹⁶ Konrad-Adenauer-Stiftung (2018)

Figure 7: Intra-European short sea connections¹⁷



6. Conclusion

All in all, high infrastructural and especially logistical growth potential can be expected in Southern Europe in the medium to long term, which, in addition to the insights gained from Parts 1 and 2, underpins Aquila Capital's strategy of investing in Southern European logistics real estate.

Consideration of ecological aspects and the corresponding implementation of modern logistics buildings is the foundation for long-term success. Flexible designs that reconcile local characteristics and the interests of tenants, investors and society are a central component of our strategy.

The reorganization of the sector is a great challenge, but also offers opportunities. The penetration of the logistics sector into more and more areas makes it the central link in the economy.

The recovery of the southern European countries and the increasing importance of the ports open up great future potential.



¹⁷ www.kukla-spedition.com (2019)

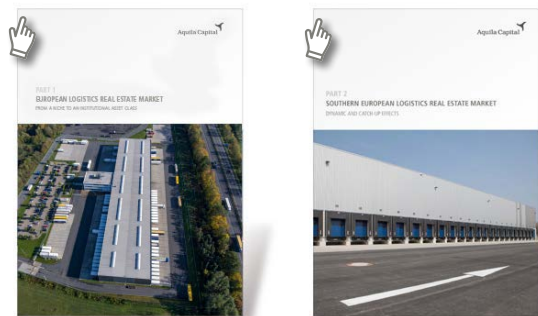
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(Southern) European logistics and by visiting our website:
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