

Infrastructure 4.0 as an Attractive Investment

Analysis of market conditions and investor requirements for the asset class
“Digital Infrastructure”

on behalf and with the support of:



Munich, in May 2021

Introduction

The study "Infrastructure 4.0 as an Attractive Investment" is a research project conducted by CFin - Research Center for Financial Services on behalf and with the support of Landesbank Baden-Württemberg to evaluate the project and investment field "Digital Infrastructure". The study confirms the increasing relevance of Infrastructure 4.0 as a precursor of digitalization as well as its major significance for institutional investors in the portfolio context. In addition, investor requirements for product and consulting services as well as success factors and obstacles of the asset class were surveyed.

The study results are based on a market analysis as well as a survey of 136 institutional investors

The theoretical framework of the study is based on a market analysis with a special focus on the four underlyings fiber optics, data centers, transmission towers and internet backbone (nodes). To analyze the requirements of institutional investors for products and project/financing partners, 136 experts from the investment departments of various types of investors (including insurance companies, asset managers and banks) were interviewed as part of a broad survey. In addition, in-depth interviews were conducted.

Infrastructure 4.0 with increasing importance for economy and society

Alongside transportation and energy infrastructure, digital infrastructure is an important cornerstone of social and economic life. Particularly in the lights of advancing globalization, the need for data processing systems is growing continuously. The relevance of Infrastructure 4.0 is strongly linked to the development of the manufacturing industry (see Figure 1). Whereas in the age of the emerging assembly line and mass production, there was an increased demand for energy and transportation infrastructure, since the automation of production steps and systems, there has been an accumulating need for an expansion of the digital infrastructure.

The relevance of Infrastructure 4.0 is strongly linked to the further development of the manufacturing industry

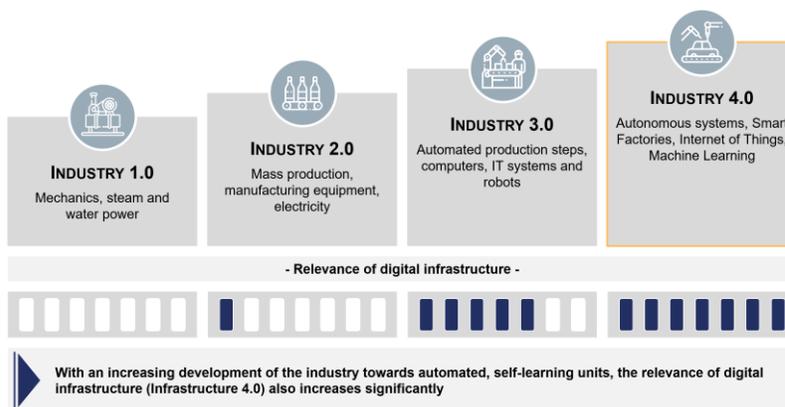


Fig. 1: Connection between Industry 4.0 and Infrastructure 4.0

Modern and innovative technologies, such as the Internet of Things or smart data, require ever higher data processing and storage capacities. As a result, wired and wireless transmission technologies are becoming increasingly important for project partners and institutional investors.

Projects with international partners in Europe

Implementation projects for various underlyings in the field of Infrastructure 4.0 are taking place worldwide, although the prerequisites and the perceived attractiveness differ from location to location. As part of a comprehensive market analysis, the DACH region, selected neighboring countries (including France), the British Isles, and Scandinavia were primarily examined.

Germany shows a divided picture of the state of market development. While the country is highly attractive for data centers, the values for fiber optic coverage are significantly below those of other countries - Scandinavia in particular scores highly here.

When examining selected individual projects, it is noticeable that the objectives are often driven by structural policy. In particular, broadband expansion is usually based on the goal of improving coverage - especially in rural areas. In addition, the positioning of BigTechs (e.g., Microsoft, Amazon) plays an important role. In Scandinavia in particular, U.S. high-tech companies are showing a great deal of commitment. Microsoft, for example, is taking advantage of the attractive

U.S. BigTechs show a high level of commitment in the data center sector

environmental conditions to build data centers in Sweden, in cooperation with the local energy company Vattenfall to strengthen its market presence in Europe.

The relevance of Infrastructure 4.0 as an asset class is increasing significantly

Institutional investors attest a very high attractiveness to Infrastructure 4.0 as an asset class. A total of 80% rate it as (very) attractive, while 19% remain neutral. This puts the asset class well ahead of other alternative forms of investment such as private debt (51%) private equity (45%) or transport infrastructure (39%). Only energy infrastructure is rated slightly more popular (91%).

Infrastructure 4.0 will be very popular as an asset class in the future

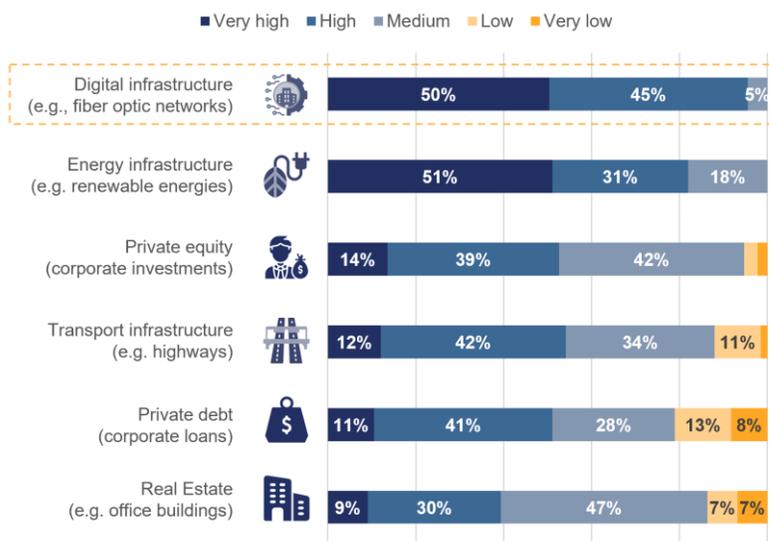


Fig. 2: Importance of various asset classes in 10 years' time

In terms of future importance as an asset class, however, Infrastructure 4.0 clearly occupies the top spot (see Figure 2). 95% of respondents rate its importance in the next ten years as (very) high, 5% as medium. Both energy infrastructure (82%) and transport infrastructure (54%) are significantly behind.

Attractiveness varies by underlying and region

The investment options in the field of digital infrastructure are diverse. The perceived attractiveness of various underlyings

differs significantly (see Figure 3). Fiber optic networks are rated as (very) attractive by 94%, while data centers (63%) and cell towers (57%) are clearly behind. Investments in the internet backbone (nodes) are rated least attractive (38%).

Investment in fiber optic networks is rated most attractive, followed by data centers and cell towers

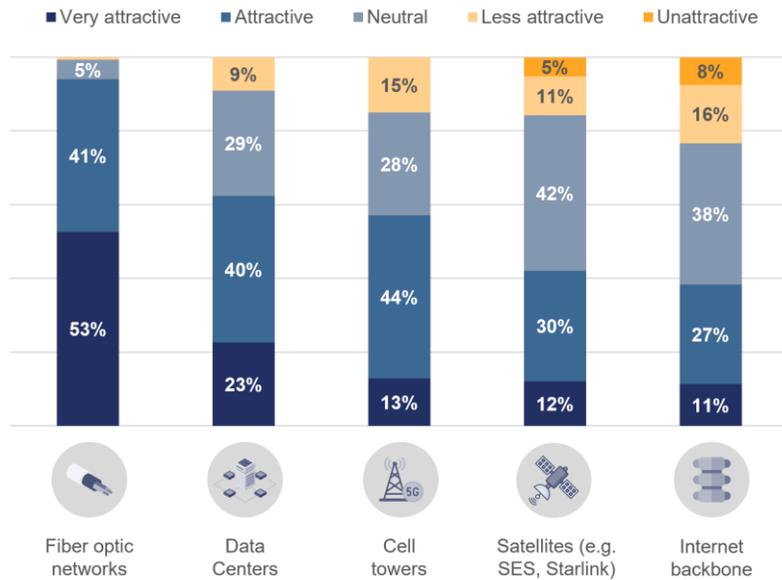


Fig. 3: Attractiveness of various underlyings

There are also regional differences in terms of attractiveness (see Figure 4). Institutional investors rate the DACH region as the most popular market for project financing with an Infrastructure 4.0 underlying, closely followed by selected neighboring countries. North America and Scandinavia also rank highly. Asia is rated as moderately attractive, with a rising trend.

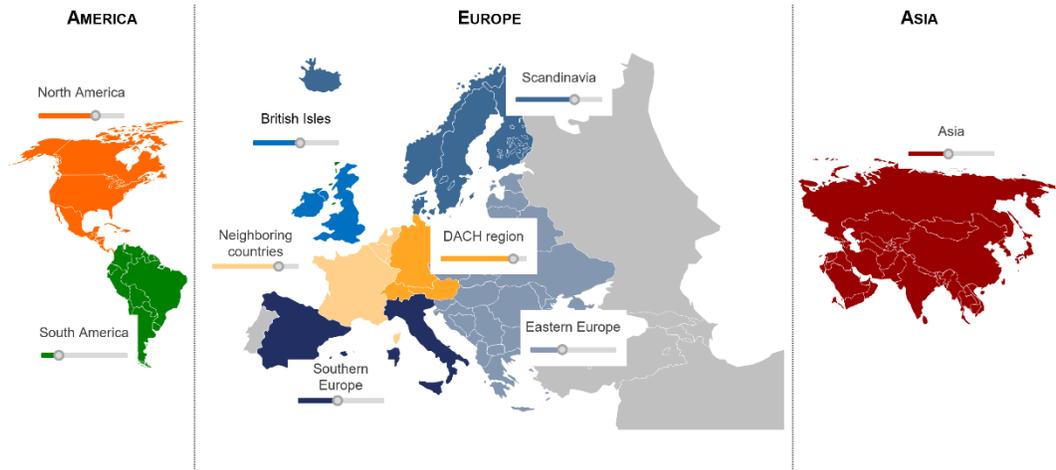


Fig. 4: Regional attractiveness of Infrastructure 4.0

Investors who already invest in digital infrastructure place a high focus on the DACH region and neighboring countries. Institutional investors without previous exposure show an increased interest in Scandinavia (+15 percentage points), the British Isles (+18 percentage points) and Asia (+16 percentage points), which is why it can be assumed that these markets will become of growing relevance in the future.

Involvement of institutional investors will continue to increase in the future

A significant proportion (40%) of the institutional investors surveyed already have experience with the infrastructure 4.0 asset class, and around twice as many (83%) have experience with investments in energy infrastructure. The proportion of those who are not currently investing but are planning to do so in the future can be seen as an indicator of high future potential. At around half (47%) of all investors, this figure is comparatively high for Infrastructure 4.0. In addition, the majority of investors with existing exposure (87%) plan to expand their portfolio share.

A large proportion of institutional investors plan to expand their Infrastructure 4.0 exposure

The focus of investment is on the underlying fiber optics and data centers, which are in the majority of cases held via funds (62%) and equity investments (43%) (see Fig. 5). Investors without existing exposure are more often planning to invest via direct investments in shares (+16 percentage points) and debt (+14 percentage points). This is typical of a young, emerging

market segment: as market size and attractiveness increase, so do individual investment options and vehicles.

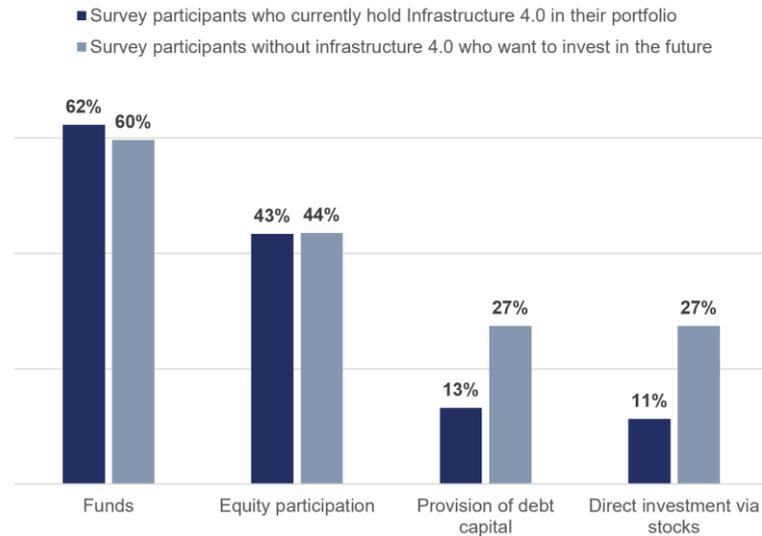


Fig. 5: Investment design

Sustainability as an important catalyst

Various factors have an impact on the attractiveness of Infrastructure 4.0 as an investment option (see Figure 6). In first place, institutional investors name the aspect of sustainability - 92% of investors consider this to be positive. Subsequently, certain demand drivers (e.g. Internet of Things) are rated as catalysts by 87% and the reputation of the asset class by 82%. The risk-return profile is also a success factor, with stable returns and planning certainty being more important than high value growth potential.

Complex reporting requirements (67%), the illiquidity of the investment (66%) and a lack of market transparency (56%) are identified as the major obstacles to the asset class by the majority of respondents.

In addition to attractive products, support services are particularly important in the Infrastructure 4.0 segment

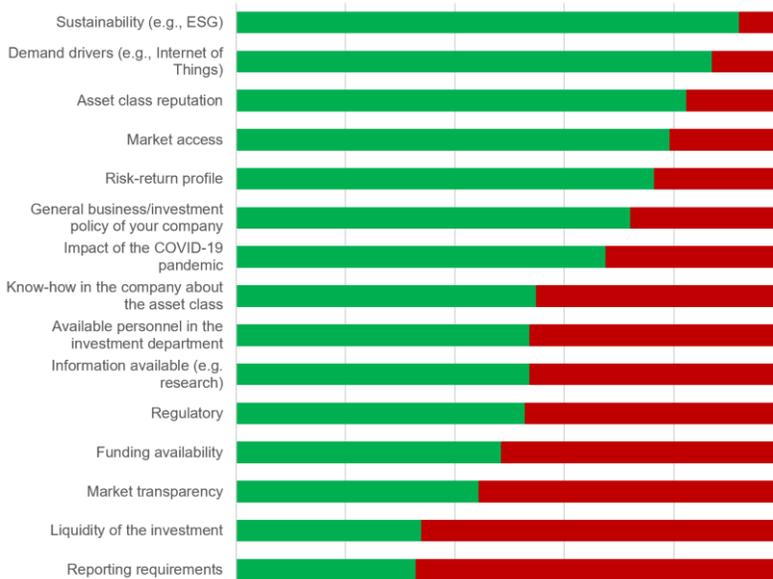


Fig. 5: Success factors of Infrastructure 4.0 as an asset class

Many investors would outsource the investment process to a partner

These results show that institutional investors require a high level of support in terms of service and interfaces (e.g. reporting applications) in addition to a high-quality product offering, to actively use the asset class. This aspect is also reflected in the assessment of their own expertise. Only around a quarter (27%) rate their expertise in selecting Infrastructure 4.0 as (very) high. Accordingly, around half would outsource the process to third parties.

For the future, a further establishment of Infrastructure 4.0 can be expected

Conclusion

Institutional investors consider underlyings from the Infrastructure 4.0 sector to be a very attractive investment area. In particular, fiber optics and data centers are in the focus here. In the coming years, the importance will continue to increase and exceed energy and transport infrastructure in terms of relevance. Accordingly, it can be assumed that both the number of active investors and the corresponding portfolio share will continue to rise in the future. In particular, the strong reputation of the asset class, coupled with demand drivers and sustainability aspects, will ensure growing popularity.

Detailed results of the study

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