PRIVATE CAPITAL

Investing in Digital Infrastructure

Discussion

July 15, 2022

Guy Haselmann, Head of Thought Leadership at MetLife Investment Management, recently sat down with Syed Ahmed, Director of Infrastructure and Project Finance to discuss global opportunities in the rapidly growing area of digital infrastructure. A few of the key topics discussed are the scope, scale, opportunities, and challenges, along with a look at the project financing aspects.

Guy: **During our last conversation we discussed social infrastructure. Today, I'd like to pivot to digital infrastructure. Let's start with what that is and what types of projects might fall under a digital infrastructure label?**

Syed: Digital infrastructure (DI) are the things that interconnect physical and virtual technologies. They are the basic services to the information technology capabilities of an organization, city, region, or nation. In the 21st century, they are the basic services necessary to maintain a thriving economy and quality of life of a modern nation.

The projects my team and I look at involve building and financing the infrastructure that allows these services to work seamlessly, quickly, and consistently. The projects include such things as internet networks, fixed broadband, mobile telecommunications—towers and operators, satellite communications, data centers, Wi-Fi networks, cloud computing, and long-distance fiber optic cable.

DI is relatively young. It was not until the late 1990's when mobile telephony and internet use took off and became an established asset class suitable for project finance. It has come a long way in a short amount of time, but still has a long way to go.

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Guy: **It seems to me that DI effects just about everyone?**

Syed: Yes. Just think about some of the services modern societies have. There are billions of mobile phone subscribers, more than 5 billion with access to television and tens of millions of new internet users each year. Think about the hundreds of millions and maybe billions of people who use satellite services for navigation, checking the weather forecast or watching TV from isolated areas.

The global international telecommunications network might be the largest and most sophisticated engineering feat ever created. You use it every time you log on to the web, send an email or text message, listen to the radio, watch television, stream your favorite tv show, order something on-line, or travel by plane, ship, or rail. And, every time you use a mobile phone.

Guy: **It seems obvious that assembling the right digital infrastructure platform is critical for businesses and governments success and competitiveness. Did the COVID-19 pandemic have an impact in speeding up or slowing down the momentum?**

Syed: Demand and investment opportunities are growing exponentially. The working from home approach adopted by almost every nation to stem the spread of the pandemic brought into focus the need for a fast and reliable internet and mobile connection.

Prior to the pandemic, general satisfaction meant a relatively stable connection, after the pandemic there was demand for and insistence of speed and reliability. The greater use of social media and cloud-based technology has also been driving the need for more data and bandwidth. Also, during the pandemic, preferences switched toward electronic payments and teleworking. Today, a huge opportunity set is present simply because the demand for digital infrastructure project finance continues to far outstrip capacity.

Yet, there have also been some widely discussed limitations and negatives such as the hit to the financial capacity of governments and operators, the decrease in the availability of skilled workers, and the disruptions with supply chains. In addition, inflation and availability of raw materials is causing several challenges for the industry as a whole.

Guy: **Is the opportunity today for developed nations basically in upgrading to the newest technologies, such as to G5 from G4 and such? And how wide is disparities gap with developing nations?**

Syed: The UN"s latest "Global Connectivity Report 2022"[1] has taken a granular look at the progress of digital infrastructure over the past 30 years with its focus mainly on access to the internet. The report says that "the potential for social and economic good remains largely untapped" because one-third of humanity remains off-line, and many users only enjoy basic connectivity. In Africa for instance, "only 2% of the population is *adequately* connected".[2] The disparities gap is wide amongst nations and is often wide within nations too.

The International Telecommunication Union is a United Nations specialized agency for information and communication technologies whose mission statement is "to connect all the world's people wherever they live and whatever their means". It is run by a remarkable women named Doreen Bogden-Martin.[3] I point out their important work, because the global economy and its citizenry benefit if the digital disparities between developed and developing nations shrinks.

So back to your question, the internet offers significant economic benefits and the potential to enhance welfare for all individual throughout their lives. As the report suggests, it enables new forms of communication, entertainment, expression, and collaboration. It enables access to services where traditional services are lacking, access to an enormous amount of knowledge, learning resources, and job opportunities. Having access not only affects people who work, but it unlocks a huge gateway within education benefiting students all the way from pre-K to grade school and universities.

These benefits can also be applied to businesses who gain efficiencies and productivity. Productivity equals profits. The direct benefits to governments through social advancement are obvious.

Guy: **What are some of the challenges in the journey to build digital infrastructure?**

Syed: You ask a simple question, but the answer is quite complex. So, to simplify the answer, let's just focus on connectivity and the data revealed in ITU's report - which is consistent with our work at MIM.

It shows significant differences between and within countries in terms of network availability and quality. Fixed broadband is a costly investment and is not available or is unaffordable for many. Mobile broadband offers greater flexibility and is less expensive and most rely of this technology to go online. However, in many rural areas, only 3G is available when meaningful connectivity requires 4G.

Furthermore, as the use of the Internet increases, so too does the exposure to the downsides of connectivity. Those downside aspects might include privacy infringements, cybercrime, or harmful content.

Building the infrastructure is only part of the journey. The net benefits are widespread but sustainable development needs the support of many of its enablers including government, along with proper governance, security, health, education, transportation infrastructure and widespread entrepreneurship.

Guy: **Let me pick that last answer apart a bit. Are you are implying that there is a large ecosystem that needs to work in unison for it to be successful?**

Syed: Absolutely. If, say, we wish to expand broadband networks to eliminate blind spots or to improve the quality of connectivity, then this might include reducing constraints on foreign direct investment to attract capital for upgrading or expanding digital infrastructure. It might mean lowering taxes on services to make it more affordable. It might mean proper regulation to enhance competitive markets and for predictability and reduced costs. And countries need to enact better data protection laws to safeguard privacy and social media companies who in turn need to monitor content to detect false and inciteful content.

Overcoming digital illiteracy is also critical in bridging the usage gap. In some areas funding school connectivity is a challenge particularly in many low-and-middle income countries where limited electricity is already a problem.

Guy: **Given the newness of many of the information and communication technologies that we are talking about, does your digital infrastructure projects also implement technologies to limit carbon emissions and greenhouse gases?**

Syed: Absolutely. As mentioned, digital infrastructure assets need reliable power and electricity to work. As the sector grows, the need for power will grow. It is anticipated that data centers and communications technology providers will account for 20.9% of electricity usage by 2030.[4] And consistent with MIM's approach, the sector is highly focused on sustainability. According to the ITU, digital technology companies accounted for over one-half of renewable energy purchased in 2020 and so they are having a huge impact on sustainable development and on scaling renewable energy markets across the world.

Connectivity helps reduce carbon emissions across economies, for example video conferencing for work and education reduces travel. Digital infrastructure also includes the vast untapped potential in renewables from solar, wind, hydro, and geothermal sources.

***Guy:* It appears to me that like several of your social infrastructure projects which as you said on our podcast "often improve societies quality of life, through amenities like modern hospitals or wastewater protections", digital infrastructure projects also have significant benefits to individuals, society, and the environment. While many projects are noble causes, there are as many, as you hinted, not financially sound investments, especially for debt investors. Tell me a bit about the investment, financial structure, and project finance side of this puzzle?**

Syed: Digital infrastructure financing is very interesting. Given the developments in the sector, we are seeing a rapid growth in the fiber and data center space. The growth presents us with two types of opportunities; ones that seem to make sense and have reasonable risk, and other opportunities that are chasing economics based on highly speculative parameters

- We believe the opportunities that are investable have one or more of the following characteristics:
- Visibility of revenues with the asset underpinned by one or more contracts from credit-worthy parties or it's an asset with monopolistic features
- Location of the asset benefits from strong market dynamics, connectivity, and access to customers/power
- Well known operators with significant experience within the space
- Construction and development risk transferred to a known counterparty

During the development phase, the assets are backed by significant equity capital. As the asset is developed and de-risked with less construction risk and visibility of cashflows, equity is often replaced with debt to match the risk profile of the asset.

While we view this sector as still in its infancy, we do think it will evolve and mature into its own asset class. The assets tend to have characteristics that span across project finance, structured finance, and real estate. Having the right capital structure to account for the inherent risks is often the key puzzle to solve for a sound investment.

Endnotes

1 Global Connectivity Report 2022 (itu.int)
2 IBID
3 BDT Director's Corner: Biography (itu.int)
4 https://energypost.eu/the-nexus-between-data-centres-efficiency-and-renewables-a-role-model-for-the-energy-transition/

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