

KEYNOTE INTERVIEW

Financing infrastructure for tomorrow with technology



*Digital technologies could improve or transform infrastructure projects and the operation of assets, say AIIB's **Joachim von Amsberg**, **Thomas Walenta** and **Paul Lam***

The infrastructure and construction industries have been slow to embrace technologies that could improve the efficiency of building and running assets while also providing a better user experience. So, what are the barriers to adoption and where could technology be best applied today and in the future?

We spoke to the Asian Infrastructure Investment Bank's vice-president of strategy, policy and budget, Joachim von Amsberg, senior investment officer for private equity, Thomas Walenta, and strategy and policy officer for digital and technology, Paul Lam, to uncover experiences in related investment and engagements in the ecosystem.

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Q Why do digital infrastructure and technology applications in infrastructure matter to you as a multilateral development bank?

Joachim von Amsberg: Our mandate and mission is to finance and invest in infrastructure for tomorrow. We have a commitment to sustainability: environmentally, addressing issues like air and water quality, biodiversity, pollution and climate change; financially and economically, focusing on projects

with a sound return potential that raise economic growth and productivity; and socially, helping provide inclusive access, especially to those currently excluded from infrastructure services.

Digital infrastructure and technology are playing an increasing role as a foundation of the growing digital economy and providing efficiency, inclusiveness and sustainability to infrastructure sectors. We do this by bringing private capital into the space and bringing infrastructure and technology together.

Q How do you see the development of digital infrastructure and infratech?

JvA: We see digital infrastructure with two perspectives – hard and soft infrastructure. The former is the basic physical infrastructure before we can harness benefits from technologies, such as fibre networks, data centres, towers, satellites and so on. Digital infrastructure is increasingly becoming the kind of traditional infrastructure that offers very important public goods, yet in low- and middle-income countries access to this is limited which causes a digital divide.

One investment we made which addresses this is with a satellite operator that brought high-speed internet access to thousands of remote islands across Indonesia. Populations here are generally poor and the internet offers the potential for job creation and e-commerce opportunities through regional co-operation and provides access to healthcare and education. We financed this directly. It was one of the first such deals financed as a public-private partnership, so we were able to mobilise other sources of capital to the project and bridge that digital divide.

We also invest in the soft infrastructure to bring digital capability and solutions to infrastructure assets that have historically been slow to adopt digital technology. In energy, that might mean smart grids and low-cost storage to help with renewables' intermittency. In urban environments, it might mean investing in the digital innovation required to roll out shared, electric and autonomous vehicles. Infratech also encompasses other scientific and engineering technologies, like new building materials, modular constructions and so on. However, for very good reasons, digital technology applications in infrastructure are the focus for now.

Q Infrastructure sectors have been slow to adopt digital solutions and technologies. What are the obstacles?

JvA: For us as a multilateral development bank (MDB) focused on Asia, one of the issues is that technological

Q Infrastructure and technology are often seen quite differently. How do you marry the two?

Paul Lam: Apart from providing capital to infrastructure projects with technology applied, our focus is also to facilitate the application of technology to infrastructure by helping to facilitate an ecosystem that brings together stakeholders from both the infrastructure and technology sides. This includes improving knowledge, connecting constructors, operators and designers with technology businesses to share ideas, ensuring there is a good regulatory dialogue and mobilising investment and finance.

To understand the technology landscape better, we have conducted proprietary research into hundreds of technologies related to infrastructure sectors, ranging from energy to transportation, from water to urban development. The result is a comprehensive solution mapping that helps both our staff and clients to better identify potential opportunities.

While it is not the case that all technology can be and will be applied in every project, by simply identifying and being aware of technology at the planning and financing stage, we can allow more future-proof design to mitigate against the risk of needing to retrofit systems. In cases like water pipes and roads, it is very expensive to fit sensors after it is built. It is also very difficult to recollect all the data and information afterwards if it was not properly managed from the start. We need to fit them at construction stage to meet tomorrow's needs – in the future if you have roads crossing borders, for example, there will be a digital twin enabling better asset management, and integrated systems with sensors that inform border control that cars or trucks are coming and facilitate a faster clearance.

progress has often happened in advanced economies and so we need to offer support that brings this to our markets.

We are investing in markets where income levels are low – the populations do not necessarily have the means to fund innovation in infrastructure and so we need to find ways of allowing people without the money to participate in digital technology. Emerging markets also suffer from a perception among investors that they are higher risk; it is our job to mitigate these risks, invest at scale and join partnerships that make these opportunities more accessible to institutional investors – we can do this through debt instruments and bonds and by securitising emerging markets infrastructure.

Public policy and regulation are also often a barrier – even where there are policies that seek to encourage innovation, the regulation often does not support that and there needs to be a

recognition that you cannot copy traditional regulations found in infrastructure sectors to digital sectors.

Another issue is that a conducive ecosystem that brings technologies and infrastructure together has not yet emerged, plus infrastructure is not like e-commerce or fintech where the innovation ecosystem is more established with very adaptive consumers – it has more complicated procurement practices, more conservative decision makers where assets are seen as stable income generating assets with low risks. Further, there has traditionally been a focus on getting projects completed with the lowest costs, as opposed to ongoing delivery of outcomes with end-user needs in mind.

Q What is needed in the market to overcome some of these obstacles?

JvA: Many of the technologies we are talking about are not rocket science or

necessarily disruptive – except for the satellite project I mentioned earlier, perhaps, which indeed literally uses a rocket – such as predictive maintenance and building information management (BIM). These are established technologies that when applied could result in significantly better outcomes, but the lack of channels, incentives and awareness is slowing infrastructure down in reaping the benefits from technology. A collaborative platform to connect stakeholders, share experiences and show benefits is essential.

Obviously there needs to also be financing and policy support. Our role is also to mobilise capital towards infrastructure enabled by technology in our region. Government regulation and public policy directly affect every project. The fact that our shareholders are the governments in question should provide comfort to investors when we become involved with a project.

We want to help our markets to leapfrog so that projects are designed and created for tomorrow. It helps that we are just five years old because that means we have an openness to working with new sectors and we see ourselves with a start-up mentality. We have no ambition to run the whole sector alone; we are looking for partners to work with in a collaborative fashion.

Q How are you financing infratech to generate impact in practice?

Thomas Walenta: We are seeing the confluence of technological progress and the world waking up to the seriousness of climate change. Technology is now maturing that supports the energy transition while many countries start to realise that their actions so far are not sufficient if they are to reach the goals of the Paris Agreement.

We recognise there is a lot to be done on financing climate change mitigation and adaptation enabled by technology, and that governments cannot finance this without private capital bringing in technologies for energy

efficiency in areas such as cooling systems.

As an example, we are partnering with The Lightsmith Group, in its inaugural climate resilience fund. The fund invests in digital technology and solutions that improve climate resilience of water, energy, transportation and many other sectors.

The fund is an efficient way of mobilising capital towards this goal by using capital provided by various governments and MDBs as well as institutional investors, such as insurance companies. Lightsmith's first investment is in a technology company using solar powered "hydropanels" to harvest moisture from the air and convert it into clean drinking water for households, businesses and entire communities.

Beyond digital solutions that enable sustainability, the scale of change needed means we will see more significant technological transformations, all of which will require investments. Just as the solar PV segment has matured and become a low-cost energy source, we will see similar maturation, scaling and increased competition in other technologies such as energy storage and, further out, green hydrogen. All of these will be important investment opportunities going forward.

Q What future trends do you see for digital infrastructure and infratech?

JvA: A big change is around the investment landscape – new needs and different demands will emerge. For example, people will move away from car ownership or move to electrical vehicles, which will quantitatively and qualitatively change the demands and require very different infrastructure investment related to transportation. Meanwhile, the increased internet activities and rise of artificial intelligence and data analytics will drive exponential demands in digital infrastructure such as fibre and data centres.

TW: We will see the expansion of

“The lack of channels, incentives and awareness is slowing infrastructure down in reaping the benefits from technology”

JOACHIM VON AMSBERG

technology to meet the needs of emerging markets and developing economies. We have seen that targeting these markets is financially viable and that it offers huge potential to leapfrog.

We need to be very careful and prudent about these new opportunities by also taking into account emerging issues regarding cybersecurity and data protection as assets digitalise, new forms of education and other types of social infrastructure as labour markets adapt to digital economies, as well as new ways to look at mobility as more services are offered digitally.

Paul Lam: With upcoming trends in technology, there will be a call for more active management on infrastructure and thoughts about new growth drivers and business models enabled by technology. Potential technology disruption will also change the risk profile; not so long ago, investors in coal power generation would not have had to think about the cost of stranded assets.

In the same vein, we will no longer be building a road, for example, that stays there for 30 years without any risks of disruption given the prospect of EV and self-driving. This will lead to increasing uncertainty and complexity to governments and investors, but also willingness to learn more about technology and how it can enable infrastructure for tomorrow. ■