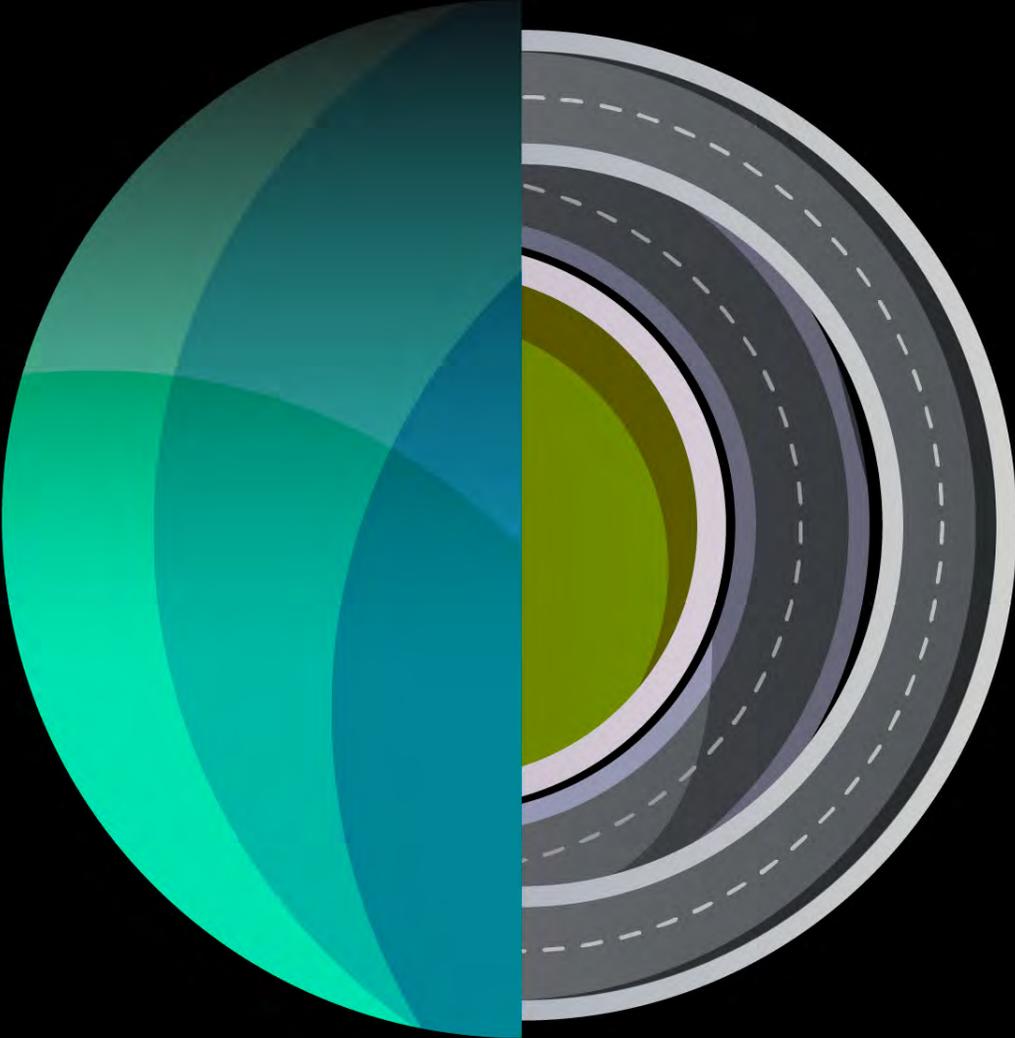


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Infrastructure development
as economic stimulus for
emerging markets



Introduction

As COVID-19 continues to inflict damage on developing country economies, renewed infrastructure investment will be essential to economic recovery. Sustainable infrastructure projects, including modern energy, transportation, and telecommunication systems can accelerate economic growth and job creation. The construction and operation of new roads, bridges, airports, and seaports can help countries more efficiently transport goods and people while more economically transacting a variety of business services. Increasing access to internet services and reliable telecommunications systems catalyzes economic growth and development in rural and urban areas, and small businesses as well as larger corporations. Productivity from business, industries, and communities alike rely on affordable and reliable sources of power. Consequently, reliable, resilient, and self-sustaining infrastructure assets lead to a virtuous cycle for economic prosperity and development. Infrastructure investment globally could lead to a 0.3% increase in global GDP, and create up to three million jobs per year, many in emerging markets, according to the Italian Institute for International Political Studies. In developing countries, which have limited treasury funds, an IMF study estimates multiplier effects resulting from infrastructure projects could be worth up to 1.6 times initial investments within two years¹.

Yet for developing countries, creating sustained economic growth through infrastructure spending will not be easy. Many continue to feel the impact of disruptions to global trade and investment due to the COVID-19 pandemic, while subsequent variants of the virus pose a clear threat to economic progress, particularly in areas of high population density and limited healthcare. Facing lower tax revenues caused by recessionary pandemic impacts on local economies, many low- and middle-income countries (LMIC) have increased debt levels to fund ongoing budget requirements, creating additional economic risks and funding constraints. The IMF has warned that the number of LMICs at risk of financial crisis has risen during the pandemic from 15 to 35. Their challenges include limited access to debt markets, relatively high domestic interest rates, large informal economies, and little fiscal policy cushioning.²

Difficult economic conditions necessitate an urgent but robust response. Developing innovative infrastructure solutions is one of the best approaches to achieving renewed growth and economic development in LMICs. To maximize impact, infrastructure projects need to act as growth multipliers, yielding sustainable returns worth several times the initial investments in the form of better and more jobs as well as improved trade, productivity, and social outcomes.³ LMIC governments must prioritize projects that are sharply targeted, bankable, designed to minimize repayment risks, transparently procured, efficiently funded, and operated by credible entities, while minimizing fraud, waste, and abuse. This paper outlines several market factors and recommended approaches to guide LMIC governments and development partners in infrastructure project selection, design, and construction during the current challenging economic environment.

Prioritizing the right infrastructure projects

Given constrained budgets and limited funds for capital appropriations, LMIC governments are under pressure to analyze where and what type of investments are most needed—prompting the usage of project selection and evaluation tools—and to validate that projects are optimally structured to mitigate risks before tender. Developing country governments must prioritize the highest yielding projects and sectors, working with private sector partners as developers, builders, operators, owners, financiers, or combinations of these roles, as well as engage in creative deal structuring that attracts private sector participation.

Despite the global recession, infrastructure project finance markets remained robust in 2020 and reached \$277B in total debt volume, just an 11% decline on record from 2019 project finance levels.⁴ Emerging markets in Africa, Asia, and Latin America remained attractive for project sector developers and finance providers, especially in the renewable power, transportation, telecommunications, and recycling sectors. Private partners seek infrastructure projects that provide a reasonable investment return, but also that address and mitigate the primary project risks encountered during construction and operation. This includes addressing the core infrastructure project risks identified in Table 1 below through effective project design and use of risk mitigation techniques:

Table 1: Core infrastructure project finance risks to be addressed

Risk factor	Description
Country	Risk factors include political stability, local currency convertibility, sovereign risk ratings by independent agencies, domestic support for the project, macroeconomic conditions.
Construction	Includes mitigation against cost and time overruns by contracted parties as well as performance by government enterprises engaged in the construction supply chain.
Market	Factors include adequacy of the local market for the infrastructure service and sufficiency of pricing to repay project investment costs. In emerging markets, buyers are often state-owned enterprises that lack an investment grade credit rating, a market risk needing to be addressed in project structuring.
Regulatory	Risk that changes in host government regulation or policies will adversely impact an infrastructure project, including unclear or missing regulations that create greater risk of successful project development or implementation.

Other key considerations factoring into project prioritization include:

- Identifying and selecting reputable and experienced local partners, customers, and project counterparts by host country governments, where applicable;
- Careful planning and analysis of all funding sources available, including public sector sources and development bank funding, which will improve the likelihood of mobilizing a greater number of high impact projects;
- Identifying projects with completed pre-feasibility or feasibility studies validating resource potential, market demand, and other key parameters to unlock quicker results given project plan maturity;
- Tendering for project partners through transparent, competitive mechanisms that mitigate risks of favoritism or collusion with vested interests;
- Establishing supportive regulatory and legal enabling conditions to manage and reduce risk in order to attract the desired capital; and
- Focusing on sustainability and resilience to select projects that are better future-proofed for multiple potential downturn scenarios.

Prioritizing LMIC Infrastructure Projects for Investment

Under USAID's Private Capital Group for Africa (PCGA) program, Deloitte compiled a comprehensive **database and visual pipeline of 100+ priority power generation projects across the continent**. Deloitte conducted overviews of the resource potential, sector stakeholders, and legal and regulatory frameworks in priority LMIC countries; analyzed key constraints inhibiting project financing, and identified private sector funding sources. The PCGA database **assisted to develop USAID's Power Africa Tracking Tool**, which currently tracks **900 power sector transactions** with the potential to add over **84,000 MW of new generation capacity** in Sub-Saharan Africa.



Developing sustainable, resilient infrastructure

Investing in sustainable infrastructure in LMICs, where vulnerability to climate change is often greatest, can foster economic resilience and boost local economies and living standards. The World Bank Group has identified that the net economic benefit of building more resilient infrastructure in LMICs would be \$4.2 trillion, with an impressive leverage of \$4 in benefit for each \$1 invested.⁵ Countries are using climate modeling to assess and forecast potential scenarios such as rising sea levels, altered weather patterns leading to extreme heat and drought conditions, and changing societal needs brought about by natural disasters, extreme weather, human illnesses, or blights on crops. Climate impacts will demand new infrastructure maintenance schedules, better disaster readiness planning, and infrastructure assets hardened to withstand more extreme and unpredictable conditions. It will also demand investments in specific defensive infrastructure such as sea walls and wetlands, which, along with forests, act as natural water supply regulators and filters. Proper water systems will be an essential element of resilient infrastructure, and the World Resources Institute estimates that every \$1 spent on sanitation services in LMICs yields over \$6 in benefits, while vastly improving resilience to illnesses among local populations.⁶

Donor organizations and private sector financial institutions are increasing their commitment to resilience and sustainability. The United Nations set the tone with the Sustainable Development Goals,⁷ which mandate improvements around clean energy, sanitation, health, well-being, equality, and education as components of any new infrastructure project. For private capital, infrastructure investment is increasingly viewed through the lens of environmental, social, and governance (ESG) topics. BlackRock, the world's largest asset manager, is one of several funds publishing climate-related ratings across funds investing worldwide and divesting from investments in hydrocarbons and other sectors designated as detrimental to carbon emissions reduction.⁸ Global lenders including Citibank include climate risk assessments in infrastructure credit analyses. National and regional governments including those in the United States, Canada, the United Kingdom, France, and Germany, are integrating climate risk assessments and sustainability thresholds into government-financed infrastructure and stimulus projects.

The following guidelines are important considerations for LMIC governments and development partners to incorporate into structuring sustainable, resilient infrastructure projects:

1. Maintain sustainable fiscal and borrowing levels

According to the Center for Strategic and International Studies⁹, institutional investors and asset managers operate investment portfolios totaling over \$120 trillion. In order to access these funds for infrastructure investments, LMICs will need to absorb significant levels of capital. However, under pressure to service external debt obligations, governments typically respond to high debt levels and financial instability by diverting public funds away from more productive investments such as infrastructure. LMICs can develop sound and sustainable infrastructure development strategies by adopting robust and transparent public investment management systems. No project can be deemed sustainable without adhering to the fiscal and budget constraints of a country. To achieve long-term sustainability of financing for infrastructure development, LMICs should validate that new debt incurred for infrastructure does not undermine the host country government's ability to finance planned budgetary obligations. The project should contribute to economic growth, thereby increasing the economy's productive capacity and covering the public costs of the investment.

2. Utilize transparent tender processes to procure infrastructure

Sustainable infrastructure development requires coordinated efforts between domestic and international private actors, public sector officials, bilateral development agencies, and international financial institutions (IFIs). Due to the complex nature of infrastructure finance and development, it is vital that governments develop clear and transparent mechanisms for governing infrastructure finance and enabling transparent procurement processes. Infrastructure is considered a public good in most countries, and public-sector officials are often tasked with managing these investments. However, these investments require large components of limited LMIC government budgets. Government officials may be inclined to pursue non-transparent or expedient alternatives to procure infrastructure projects. These alternatives frequently increase debt burdens on overstretched sovereign budgets, without providing safeguards or performance guarantees to confirm an infrastructure project is built with quality and yields the long-term benefits desired and expected. In addition to ensuring transparent procurement processes, LMIC governments should prioritize best value over lowest price for procurements to help achieve the greatest benefits over a long-term horizon from infrastructure investment.

3. Invest in maintenance and quality of operations to uphold sustainable infrastructure

The long-term sustainability of infrastructure assets relies on their ability to withstand external events and adapt to changing conditions. However, it is equally as important to ensure proper operations and maintenance investments through an asset's lifespan. Infrastructure investment and development does not stop once the project is complete; infrastructure projects require regular operations and maintenance to ensure long-term viability and resilience. Without investments in continuous operations and maintenance over time, infrastructure investments will degrade and fall into disrepair. According to the United Nations (UN), "Assets have to be managed adequately over their entire life cycles to ensure that initial investments in new infrastructure are sustained for present and future generations. Each phase of an asset's life cycle (planning, acquisition, use and disposal) requires policies and actions that draw on a unique set of human, material and financial resources." Asset management must follow a portfolio approach that takes the interdependency of infrastructure assets into account and maximizes the benefit of the infrastructure system as a whole.



Accessing alternative finance for infrastructure development

One of the key requirements to achieve the UN's 17 Sustainable Development Goals (SDGs)¹⁰ outlined in its 2030 Agenda is the development of well-functioning infrastructure, including efficient transportation systems, resilient power generation facilities, and sustainable water and sanitation networks. Infrastructure investments are key for sustainable development and inclusive growth.

LMICs face a growing gap between infrastructure capital requirements and available government budgetary funds for investment. The UN Conference on Trade and Development (UNCTAD) estimates that total investment in economic infrastructure including power, transport, telecommunications, and water and sanitation will need to rise to \$4 trillion annually until 2030 in order to meet existing LMIC infrastructure needs.¹¹ Current infrastructure financing levels are insufficient, with an estimated \$2.5 trillion annual funding gap to realize the SDGs in developing countries alone. The development of needed infrastructure will require increased availability in both public and private investment. Blended finance is one approach that can play a critical role in mobilizing private sector capital to bridge this financing gap. According to Convergence, blended finance is a structuring approach that allows organizations with different objectives to invest alongside each other while achieving their own objectives (e.g. financial return, social impact, or a blend of both) This approach has already mobilized more than \$140 billion for developing country investment.¹² Blended finance can address private sector constraints on LMIC investing related to high perceived risks and insufficient returns relative to investment requirements. Blended finance helps to facilitate investable opportunities in developing countries which leads to greater development impact. The need for effective partnerships in blended finance is currently very relevant and urgent with the COVID-19 pandemic causing an unprecedented health, human, and economic crisis.

While private capital flows are a critical component of blended finance, IFIs also play an essential role in closing financing gaps in infrastructure projects across regions and sectors, representing tens of billions of dollars annually of available capital. As examples, the African Development Bank (ADB) and the Islamic Development Bank (IsDB) have allocated over half their portfolios to infrastructure, and all IFIs are involved in developing project pipelines, while finding ways to mitigate risks associated with infrastructure investments.¹³ International donors also provide technical assistance to assist government agencies allocate infrastructure risks in a sustainable and balanced manner among developers, operators, financing providers, offtakers, and host country institutions.

Blended finance channels private investment into high-impact sectors, while at the same time delivering risk-adjusted returns. Blended Finance can be used across geographies and sectors using a range of different mechanisms and instruments, and requires the following key considerations¹⁴:

- **Combine financial support with technical assistance for project preparation** to reduce real or perceived project risk and increase project bankability. Blended finance should be used to improve the balance between perceived risks and financial returns for private investments. For example, a key factor affecting private sector decisions to invest in infrastructure in developing countries, including LMICs, is whether a project is commercially attractive or shows bankability. Several barriers may constrain the bankability of infrastructure projects including perceived risks associated with these investments, such as poor project preparation and market sounding and weaknesses in the local policy and legal enabling environment.
- **Commitment of governments to provide an enabling environment which is conducive to investment and management of the political, security, and macro-economic risks.** The commitment of the public sector to the long-term success of infrastructure projects will help ensure their sustainability. Obtaining this commitment could be a challenge where host government institutions lack necessary experience in procuring private investors for infrastructure projects. As such, the private sector and IFIs should provide governments with access to reliable market information and opportunities to help devise a suitable blended finance strategy that benefits their countries.¹⁵ In return, governments should utilize technical assistance provided by donors and IFIs to establish legal, regulatory, and institutional frameworks conducive to investment, build internal capacity to structure blended finance transactions, and develop and execute successful infrastructure projects.¹⁶
- **Transparency and accountability to build trust amongst stakeholders including, public and private sector and donor organizations.** The challenge with transparency of blended finance operations is that, in some cases, it can compromise commercial confidentiality. To address this challenge, OECD recommends sharing data and information on the impact achieved by a certain project or investee, without disclosing commercially sensitive data, such as revenues or sales.¹⁷

Blended Finance Support to Developing Country Priority Infrastructure

Deloitte advised the World Economic Forum and the OECD to design, launch, and operationalize the Sustainable Infrastructure Development Program (SDIP), to deliver blended finance for sustainable infrastructure by mobilizing \$100 billion of financing in the next 5 years to help bridge the gap for infrastructure projects in LMICs. SDIP is a coalition of institutional investors, banks, government agencies and IFIs. Through SDIP, Deloitte provided tools and support to prioritize and prepare infrastructure deals for consideration

Digital technology in infrastructure

In many countries and sectors, infrastructure construction and development is burdened by legacy processes and inefficiencies, and is ripe for technological disruption. Based on IMF sponsored research, on average countries lose 33% of infrastructure investment value due to construction or operational inefficiencies. In LMICs, investment value lost due to inefficiencies can surpass 50%.¹⁸ Improved project governance through the capabilities offered by digital infrastructure technologies and tracking systems have the potential to diminish lost investment value caused by corruption, delays, cost overruns, and general mismanagement associated with large, long term public infrastructure projects. Digitally-enabled public infrastructure governance regimes hold the potential to yield faster and more efficient projects, raising the general welfare and confidence in public institutions amongst all stakeholders. However, digitally-enabled projects and infrastructure also come with heightened risks surrounding cloud-based data management systems, legacy industrial control systems lacking sufficient security firewalls, and cybersecurity attacks. These risks were evidenced by the 2015 Ukraine power grid cyberattack that cut power to 225,000 customers in Ukraine, and by the recent 2021 halting of the Colonial Pipeline, a major U.S petroleum product delivery system, after the operator of the asset fell victim to a successful ransomware attack.¹⁹

Integrated project analytics allows enhanced management of infrastructure assets and equipment. Inefficiencies that arise from siloed components of infrastructure projects delivered across large geographies can be mitigated by integrating disparate data sources and Building Information Modeling (BIM) around a common standard, and producing metrics around performance and productivity. These practices prevent value loss from cost overruns and can improve cost recovery initiatives. Proper application of data and enterprise science allows the modeling of structured and unstructured infrastructure project and BIM data during construction, as well as external data sources, to produce real-time and predictive insights. Visualization tools and multi-dimensional prototyping help host country stakeholders and project developers to understand, comment, share, and act upon insights uncovered through analytics, and digestible communication and simulation of project data. Visualization also helps create organizational alignment by overcoming project siloes for increased delivery efficiency and effectiveness.

For LMIC infrastructure projects, innovative digital technology practices can provide tailored insights to all levels of government, the private sector, and civil society to track project progress and adherence to cost and performance targets. This can lead to increased productivity, improved safety, and more efficient operations. In an increasingly complex vendor landscape, creating integrated vendor ecosystems, developing contractor risk profiles, and analyzing procurement, ongoing construction spend, and performance allow for proactive management of infrastructure projects during construction and operation. This also helps mitigate risk exposure through each key transition in the project lifecycle.

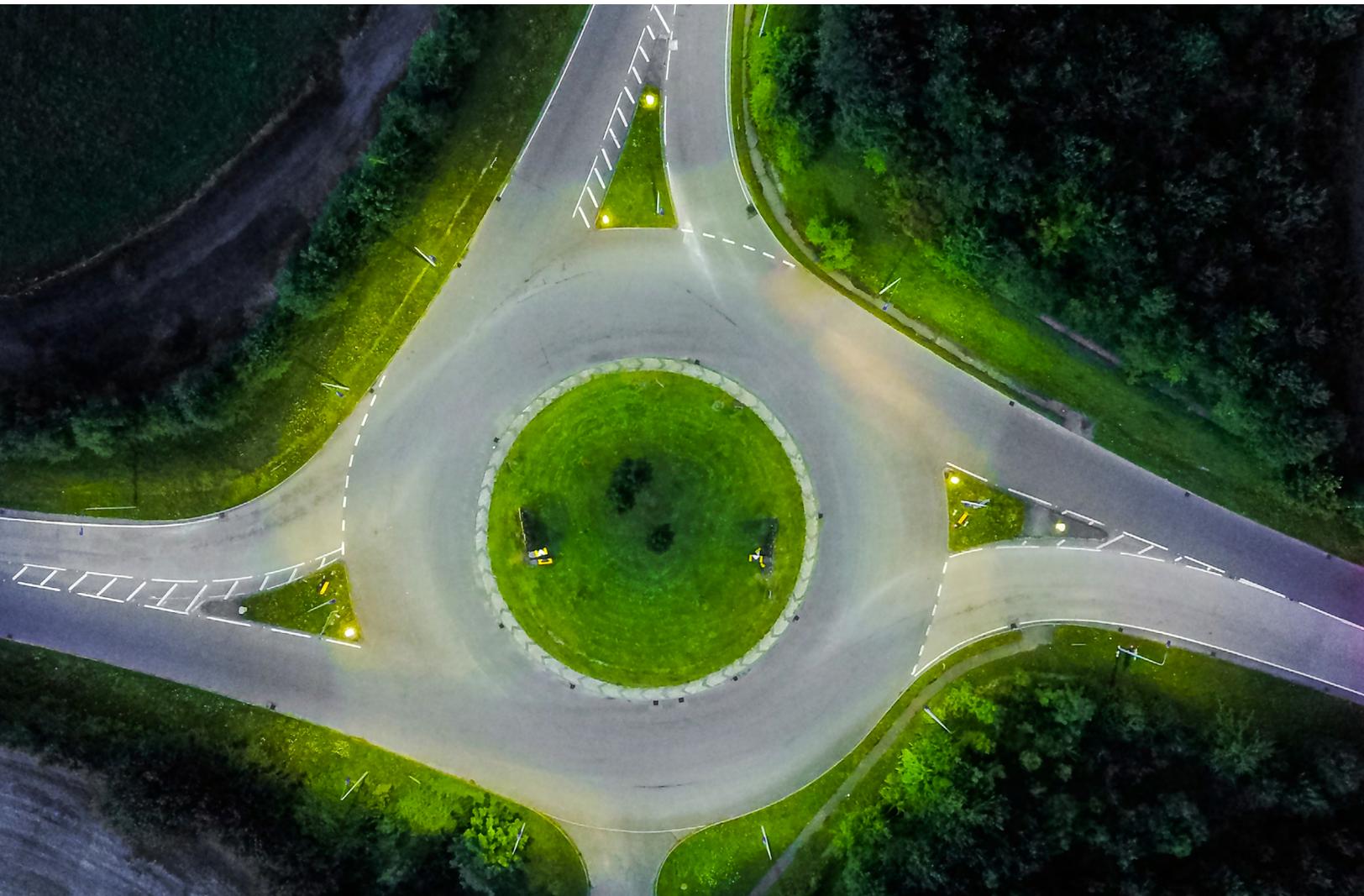
For both current and planned infrastructure assets, developing a robust cybersecurity defense program is critical to enhancing security and ensuring continuity of key services. As demonstrated by the utility and pipeline related attacks cited above, the energy sector in particular has been subject to high profile incidents that negatively impact customers and institutions dependent on uninterrupted access to service. While energy systems around the world are becoming more decentralized and comprised of distributed renewable energy assets, the increased digitization of energy systems remains inevitable and requires careful project and portfolio level planning to properly contain cyber-related risk. In addition, in many LMICs, current electricity systems run at a high cost relative to analogues in advanced economies.

The inability to maintain proper digital controls undermines the financial viability of systems already under structural strain with the challenge of preventing a major cyberattack, compounded by recurring losses associated with theft, inaccurate billing, and insufficient collections. Unmet, the cost of neglecting digital infrastructure controls and cybersecurity across complex asset ecosystems has the potential to prolong national reliance on carbon-intensive, legacy fossil fuel systems, despite the increasing availability of cleaner and more affordable energy sources across many LMICs. A strong cybersecurity regime is also increasingly becoming a pre-requisite to attract investment from international commercial and financial partners with concerns about cyberattacks penetrating back to their own enterprise networks and information systems.

Mitigating LMIC Infrastructure Cyber Threats

As one of the world's largest cyber advisors, Deloitte's cyber experience with LMIC infrastructure priorities includes:

- **Georgia:** Spearheaded 2020 GSE cybersecurity review that identified and resolved multiple system vulnerabilities
- **Ukraine:** Implemented comprehensive data security/management review to analyze and strengthen cyber defenses of UGV, Ukraine's largest gas supplier



Steps to begin today

For LMICs, transparent investments in sustainable infrastructure projects can be an important policy solution to reverse the economic crisis created by the COVID-19 pandemic. Spending on infrastructure, when conducted well, results in a significant multiplier effect on the benefits derived. Successful infrastructure development will require careful planning, including:

01

Specific projects should be carefully prioritized, prepared, de-risked, and designed, with thorough oversight during tender, construction and operations phases.

02

Good sustainability practices and resilience should be integrated into project planning, including proper consideration of long-term fiscal requirements, transparent best value tender practices, and setting aside sufficient budgetary funding for operations and maintenance investments to maintain the quality and performance of infrastructure projects over time.

03

Private sector investment and know-how, utilizing blended finance and targeted technical assistance, is an effective approach to aligning investment requirements and societal benefits from prioritized infrastructure projects.

04

Modern digital technologies provide effective management and operational tools that lead to better, more efficient infrastructure projects that can better withstand threats from malign cyber actors, extreme weather events, and other disruptive forces.

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