On 16 November 2018, the 16th Meeting of the G20/OECD Task Force on Long-term Investment took place at the OECD Conference Centre in Paris and was preceded by the OECD Workshop on Innovation, Standardization and Data Collection for Long-term Investment on 15 November 2018.

The meetings brought together academics, industry experts and public stakeholders to further advance the agenda on establishing infrastructure as an asset class, this time with a particular focus on developing ESG benchmarks, financial benchmarks, case studies on blockchain and G20 Infrastructure Data Initiative. The event benefited from a variety of experts contributing and intervening over the two days with concrete proposals to deliver on the G20 Roadmap to Infrastructure as an Asset and the G20 Quality Infrastructure agenda under the Japanese presidency in 2019. Takeaways from the Workshop and a detailed session by session summary are provided in this document (see also www.oecd.org/finance/lti)

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Introduction

Sustainable infrastructure investment was a priority at the G20 for the Argentinian presidency, as well as in other global fora and international organisations. It is also a major priority in current G20 initiatives under the Japan presidency in 2019. At the 2016 G20 Hangzhou Summit, Quality Infrastructure Investment (QII) was identified as key to ensuring economic efficiency in view of life-cycle costs, safety, job creation, capacity building and resilience against natural disasters. QII is essential for also addressing social, environmental impacts and aligning with economic and development strategies.

To facilitate a common understanding of sustainable standards for infrastructure, the elements of quality infrastructure, to the extent possible, need to be measured through appropriate indicators. This will require not only financial data, but also elements of sustainability (such as environmental, social and governance) and physical conditions to allow benchmarking and comparison. In this context, existing initiatives as well as the G20 Infrastructure Data Initiative (IDI) are aiming to support investors in identifying QII opportunities, seeking also to enhance the mobilisation of private financing for quality infrastructure by reducing information asymmetries. Improved data availability will also support governments and MDBs in their ambitions of providing quality infrastructure to maximise development impact.

This workshop on Innovation, Standardization and Data Collection for Long-Term Investment is supporting the IDI, providing an opportunity for members of the private and public sectors to come together in order to advance solutions on data collection, methodologies for analysis, and ultimately benchmarks to facilitate performance evaluation. Concrete proposals for ways forward, following the request of the G20 Argentinian presidency, provide deliverables of the Roadmap to Infrastructure as an Asset Class.

These proposals are building on recent discussions, events, and past research already completed through the IDI. New work to consider at this workshop includes two new reports from the OECD presented at the G20/OECD Task Force on Long-term Investment: Supporting the Infrastructure Data Initiative: Developing financial benchmarks and Moving towards a sustainable future: Blockchain technology as the digital infrastructure enabler. Both reports further elucidate sources of data and methodologies along with the role that innovation can play in providing insights into infrastructure benchmarking. This work is taking into account data already collected (e.g. accounting and cash flow).

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1. http://www.oecd.org/g20/roadmap_to_infrastructure_as_an_asset_class_argentina_presidency_1_0.pdf

2. Four Workshops on data collection were held over the course of 2017 and 2018 and further supported the G20/OECD Task Force on LTI. The Workshops were attended by over 400 participants in total and brought together members of the Task Force (i.e. representatives of the G20, OECD, Asian Pacific Economic Cooperation (APEC), and International Organisations (IOs) such as the Financial Stability Board (FSB), the World Bank Group (WBG), the Global Infrastructure Hub (GIH) and the European Investment Bank (EIB) with selected private sector stakeholders from the OECD Network of Long-term Investment, academics and other industry experts see www.oecd.org/finance/lfi
data, NAVs etc.) and existing initiatives with pre-agreed templates (as OECD, EDHEC, EFR, GIB, GEMs and SOURCE)³.

**Objective**

On 16 November 2018, the 16th Meeting of the G20/OECD Task Force on Long-term Investment took place at the OECD Conference Centre in Paris and was preceded by the OECD Workshop on Innovation, Standardization and Data Collection for Long-term Investment on 15 November 2018.

The meetings brought together academics, industry experts and public stakeholders to further advance the agenda on establishing infrastructure as an asset class, this time with a particular focus on developing ESG benchmarks, financial benchmarks, case studies on blockchain and G20 Infrastructure Data Initiative. The event benefited from a variety of experts contributing and intervening over the two days. The key takeaways from the Workshop discussions and a more detailed session-by-session summary are provided below.

The Workshop aimed at identifying existing methodologies to develop appropriate financial, economic and ESG-related performance indicators for infrastructure, which can help structure decisions and enhance sustainable infrastructure investment. The discussions at the Workshop were divided into four discussion rounds and one special session (ESG benchmarks, case studies on blockchain, financial performance benchmarks and G20 Infrastructure Data Initiative). Discussions focused on answering the following three questions:

**What data is needed?**

- Identification of the relevant ESG and financial data to allow investors to make informed investment decisions and policymakers to support sustainable infrastructure projects.

**What sources of data are available?**

- Analysis of the data gap between what data is needed and what data is available (both at public and private levels) to maximize synergies and avoid duplication of efforts.

**What kind of template allows for the collection of data?**

- Assuring an efficient and structured approach to collecting data across physical, ESG and financial indicators and feeding it into the benchmark building process.

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³ See also ITF Private Investment in Transport Infrastructure: Dealing with Uncertainty in Contracts
Key Takeaways

- To achieve **sustainability and resilience of ESG related projects**, having an aligned set of data, benchmarks and standards is crucial to accelerate the process. When credible and sustainable infrastructure indicators are publicly available, they can be used as a Public Good and integrated into useful systems and tools.

- The Environmental aspect of ESG can be translated into quantitative information, but the **link to financial performance remains yet to be empirically assessed**. Showing investors that environmental and social factors have a direct link to rates of return could convince them to invest more in sustainable infrastructure.

- ESG and sustainability dimensions need to be approached with the same rigor as financial benchmarks in investment. Infrastructure projects should have this information included in tenders and be monitored during the implementation stage.

- Although ESG tools developed by PRI, GRESB and GIB are available, **there remains a lack of consistency and gaps in applying ESG principles**.

- In the next decade, there is expected to be a huge growth of data almost without limit. In this backdrop **data and information should be shared across a wide-range of stakeholders**, between public institutions and governments, investors, creditors, academic researchers and regulators.

- **Blockchain could be a way to broadly standardise** how infrastructure assets and services are delivered and managed, helping support investment by **creating a more standardised class of investment**.

- **Blockchain is a digital infrastructure enabler in three aspects**. Financially, blockchain can build trust and provide predictability between stakeholders. Visibly, blockchain can also provide consistent and reliable data for stakeholder information. Blockchain also acts as the infrastructure of new market and business models.

- While it is true that infrastructure benchmarking can lower the cost of financing and greater transparency for investors, research suggests that **efforts to de-risk the supplier side (i.e. constructor) or provide it with more information could significantly reduce overall project costs**.

- Looking at **quality benchmarks** there needs to be a framework that looks at whole life of projects, including the whole life performance of projects, costs, assets and state of the industry. This would lower risks and uncertainties around ** mega project delivery** and support private investment.

- **Quality benchmarking can help project delivery by comparing the cost, schedule and performance of a project against other similar projects**. Showing visible benefits to the community is important because otherwise there are risks in relation to public intervention and erosion of value.

- **Good governance** is necessary for good infrastructure. It is essential for planning, selecting and delivering the right infrastructure on time and on budget. The infrastructure governance
indicator aims to measure the processes, tools and norms of interaction, behind these decision-making processes.

- **Deep and liquid financial markets in particular need investor diversity**, which is facilitated by diversity in information sources, analytical insight and risk appetite.

- **In financial benchmarks**, because data often remain at fund-level rather than asset-level, they are incomplete and hence gaps exist.

- There has been a **huge growth of private unlisted infrastructure, which has grown rapidly raising about USD 1 trillion**. Its proportion is smaller to listed infrastructure but more new capital has been raised in the last decade. In addition, investor allocations are on average approximately one percent with many having a zero percent allocation.

- It is important to develop comprehensible, consistent and reliable data sets, and **G20 Infrastructure Data Initiative offers an opportunity to materially improve quality and quantity of data** to the benefit of investors, researchers and policy makers.

- Getting a perfect set of data is an expensive and long process, requiring access to projects’ financial plans to source data to be computed into a standard financial plan. This can be pursued by the engagement of academia, for example an international consortium of universities, which can also support the G20 IDI to generate an unbiased research on long-term investments.

- **The role of government in disclosing information** is also important. The ideal financial plan for infrastructure projects defined within the G20 IDI can be adopted by governments when they sign or support projects.

- A proposal is **to incentivise corporations to share information about their infrastructure investments by offering them, in exchange, models through which they can measure impact**, in a format that encourages an engagement with impact investors. This would enable to address the twin challenges of the lack of transparency around infrastructure projects, and the lack of robust models for measuring impact.

- **Implementation of the G20 IDI will require a simplification and standardization of data.** According to GIIA global asset database, fifty investor members equate to 1,160 infrastructure assets across 48 countries and 6 continents. Referring to the **3 Cs of big data (current, consistent and comparable) requirements**, it is important to think about ways to identify these differentials regarding data.
Session Summaries — November 15

ROUND I — Developing Environmental, Social and Governance (ESG) Benchmarks for Sustainable Infrastructure

Infrastructure investment is vital to the achievement of the SDGs, including the transformational changes required to limit climate risks in line with the Paris Agreement, ensure water and food security and safeguard terrestrial and marine biodiversity and ecosystem services, while enhancing societal and economic productivity and resilience. At the same time, according to international standards of Responsible Business Conduct (RBC), investors should seek to avoid adverse impacts of their activities and relationships on society and the environment, including in relation to human rights of impacted communities, labour rights of workers, climate and biodiversity.

Sustainable infrastructure investments will often seek to balance both these objectives: maximising positive impacts of the investment while preventing or mitigating the negative ones. Such investment may also be specifically designed to minimise — and in some cases eliminate — pollution and degradation of the environment while enhancing resilience to disasters and extreme events. Because many infrastructure assets are long-lived, design that takes into account the pathways needed to avoid or mitigate environmental or social impacts and achieve sustainable development can also reduce future costs and operational, legal or market risks. Regarding social wellbeing, infrastructures that have a strong positive impact on productivity, while not jeopardising the environmental preconditions of future wellbeing, will help build resilient and sustainable societies, providing prosperity and reducing economic inequality and poverty.

The convergence of ESG benchmarks and collection of ESG data is essential to ensure that infrastructure financing is aligned with broader policy outcomes. A growing number of investors are taking into account the potential impact of climate change on the long-term financial performance of assets, seeking to integrate ESG considerations into their investment processes. In this regard, investors are becoming more interested in understanding the impact, both positive and negative, that infrastructure investments can have on society and the environment.

For example, GIB, ISCA, ISI (Envision), SIF-SOURCE and GRESB are all working together on the PPIAF Project for the World Bank Group on "Promoting Sustainable Infrastructure Through Data Collaboration" which is working on (1) alignment of infrastructure ESG indicators globally, (2) stakeholder endorsement, and (3) data management. There is considerable overlap and synergy between this project and the ESG part of the IDI.

The aim of this session is to discuss the relevance of sustainability performance and RBC in the context of infrastructure investment. Specifically of interest, the data and metrics necessary to deliver sustainability and RBC outcomes targeted by the broader policy orientations on the one hand, reflected by the SDGs, but also by investors own fiduciary duties on the other.

Questions for the panellists will be: How is sustainable infrastructure currently defined and benchmarked? How can benchmarks and data collection efforts ensure convergence with international, government-backed standards of RBC such as the OECD Guidelines for Multinational Enterprises? What are the existing initiatives and what needs to be done to scale them up? How can
future new projects contribute to overcoming the benchmarking challenge? What is the potential role of policy makers, the OECD?

REFERENCES

- OECD report on G20 data gap - Breaking silos: actions to develop infrastructure as an asset class and address the information gap

- GRESB: Benchmarking Infrastructure ESG Performance: see https://gresb.com/gresb-infrastructure/ and ppt in attachment from Rick Walters and Tomoko Takagi TOR

- OECD report on Investment governance and the integration of environmental, social and governance factors

- OECD guidance Responsible business conduct for institutional investors: Key considerations for due diligence under the OECD Guidelines for Multinational Enterprises

- OECD Due Diligence Guidance for Responsible Business Conduct

- OECD Guidelines for Multinational Enterprises

- UN PRI Infrastructure Investor Responsible Investment Due Diligence Questionnaire https://www.unpri.org/download?ac=5307

Key messages

Moderator: Tyler Gillard, OECD

- GIB (Global Infrastructure Basel): The recent Global Infrastructure Forum 2018, main aim was to enhance coordination among the MDBs and their development partners to better create sustainable, accessible, resilient and quality infrastructure for developing countries. One major outcome of this Forum was that project-related data should report on unified minimum standards. Creating ways to have an aligned set of data indicators is crucial to accelerate the process of building sustainable infrastructure.

Benmarks are necessary tools to define Infrastructure as an Asset Class. The initiative by EDHEC and GRESB to statistically correlate ESG and financial performance is an important step. In order to achieve sustainability and resilience of ESG-related projects, there needs to be more aligned benchmarks and standards. When credible and sustainable infrastructure indicators are publicly available, they can be used as a public good, and integrated into useful systems and tools. The objective of this initiative is also to create credible comparability while reducing the risk of green washing.

The standard for Sustainable and Resilient infrastructure (SuRe) encompasses sixty-one criteria, including human rights, labour rights, climate and stakeholder engagement. There are 14 main
themes within SuRe, including climate, pollution, anti-corruption, among others that map out the sustainability and resilience features of an infrastructure project.

- **Stanford University**: The Stanford Global Project Centre (GPC) is an interdisciplinary research centre that seeks to facilitate the understanding of financing, developing and governance of strategic assets in today’s global economy. It is also a part of a new initiative on clean energy finance with the Woods Institute at Stanford. In talking about ESG performance benchmarks, the Governance (G) has made quite a lot of progress. The Social (S) has a lot of qualitative information, but without being translated into quantitative information, it often stays out of strategic decisions. The Environmental (E) can also be translated into quantitative information, but the link to financial performance still remains to be assessed. Many investors understand that environmental and social factors are risks, but showing that they have a direct link to returns would be even more convincing to them to invest in sustainable infrastructure.

A recent working paper written by Soh Young In, Ki Young Park and Ashby Monk (Is Being Green Rewarded by the Market?) shows a link between investing in companies with lower revenue-adjusted greenhouse gas (GHG) emissions and superior financial performance (an investment portfolio preferring these companies shows positive abnormal returns of 3.5-5.4 percent per year between 2010 and 2015).

Doing a similar study on infrastructure would be powerful. However, it would require gathering data at the asset or project-level. Focusing on a few quantitative indicators such as GHG emissions on a large number of projects worldwide could support studies showing a clear link between financial and environmental performance. These studies can show that environmentally-friendly investments are aligned with investors’ fiduciary duty. This type of study should also be completed by ESG performance benchmarks that take into account qualitative and quantitative information.

- **PRI (Principles for Responsible Investment)**: There has been great progress in ESG performance benchmarks yet there is still more work to be done. Two of the prominent issues with regards to ESG performance benchmarks are: first, ESG benchmarks are not completely clear but they are gradually taking shape; and second, the growing interest of investors on positive real-life impact to create more ESG benchmarks is creating a greater possibility for sustainable development outcomes. Some individual issues such as climate are moving forward more consistently and quickly than other issues. Social sustainability, in comparison, is more difficult to benchmark and it requires more research to see how contributions can be better understood. Second, the increasing focus of investors in achieving positive real-life impact gives a good reason to move ESG benchmarks towards creating sustainable outcomes. Most benchmarks currently focus on ESG processes and performance, however, there is little on the overall impact or sustainable outcomes of infrastructure, particularly in relation to initiative such as SDGs. By better understanding the impact of infrastructure investments and how better ESG performance and processes can help generate more positive impact, investors’ attention to the SDGs could increase, and enable ways to make them more directly relevant and investable for private investors.
There is a real need to get more infrastructure investors thinking in terms of long-term sustainability. That includes making sure that there are tools that help investors fully understand underlying ESG risks and opportunities. These tools are in fact available, such as the PRI’s Infrastructure Investor Responsible Investment Due Diligence Questionnaire or those developed by GRESB and GIB among others. However, use of these tools is still insufficient and thus there remains gaps and a lack of consistency in applying ESG principles. It is great to see that different organisations are coming together today to ensure greater consistency among ESG data providers and in the taxonomy around sustainability and impact (such as the work being carried out by the EU).

**GRESB (Global Benchmark for Real Assets)**: The GRESB Infrastructure Assessment covers ESG issues and is composed of two assessments, one at the fund-level and the other at the asset-level. The GRESB Infrastructure Asset Assessment has 39 ESG indicators across 7 aspects, covering management and performance. GRESB also seeks alignment with the most important ESG frameworks such as GBI, PRI, TCFD and SDGs.

In developing ESG benchmarks for sustainable infrastructure, adopting the best indicators for both fund and asset assessments will be important. This should be done in a way that minimises reporting burden, otherwise asset owners simply will not report.

There is about USD 1.1 trillion in private unlisted infrastructure investments globally based on a study by the OECD. GRESB currently covers about 45 percent of this by Gross Asset Value and is moving to cover private listed infrastructure; however, there are still gaps in infrastructure data, most notably with the huge proportion of infrastructure owned by governments. The ways to align and work together are major questions going forward.

Identifying commonality in the language used and alignment of indicators and metrics is also important. GRESB is working with industry partners to progress alignment, most notably through the PPIAF (World Bank) project with GIB, ISI (Envision), ISCA (IS) and SIF-SOURCE. GRESB is also working with LTIIA and EDHECInfra on a study to investigate the link between financial and ESG performance of infrastructure assets. Whilst there is much debate about what defines sustainable infrastructure, it should not stop collective effort in measuring sustainability (ESG) performance. As an industry, there is more to achieve by cooperating on alignment and sharing data, and GRESB is ready to support this.

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4 Managers and operators annually complete the GRESB Assessments providing data on the ESG performance of their assets and portfolios. GRESB validates, scores and benchmarks ESG performance data, providing business intelligence and engagement tools to investors and managers. Alternatively investors use GRESB data and analytical tools to manage ESG risks, seek opportunities and engage with investment managers.

5 See last session summary
SPECIAL SESSION — OECD LTI Update and Launch of Case Studies on Blockchain and Infrastructure

Future work for the G20 and update on recent LTI events and initiatives include outcomes of the 5th OECD Green Investment Financing Forum, Seminar on QII organized on the 12th and 13th of September in Tokyo, Japan and the G20 Global Infrastructure Connectivity Alliance meeting.

The application of new technologies and innovation in the procurement, financing and delivery of infrastructure services is of growing importance for policymakers. Technology can help to improve the efficiency of infrastructure, and also support the quality of services. Technology also has the potential to tremendously impact how future infrastructure services are utilised. The application of blockchain for infrastructure procurement, administration, usage and financing is one such emerging area which will be explored in the greater context of the IDI and ongoing G20 initiatives.

The aim of this session is to discuss the case studies on blockchain included in the OECD report Moving towards a sustainable future: Blockchain technology as the digital infrastructure enabler. Based on the understanding that blockchain could be a way to broadly standardise how infrastructure assets and services are delivered and managed, this session will explore the potential benefits of using blockchain for infrastructure data management, which would help support investment by creating a more standardised class of investment.

REFERENCES

- OECD Moving towards a sustainable future: Blockchain technology as the digital infrastructure enabler
- GICA (2018), Summary, Global Infrastructure Connectivity Alliance First Annual Meeting, organised jointly by the WBG and OECD, January 25-26 2018

Key messages:
Moderator: Joel Paula, OECD

- Deloitte Blockchain Institute: Blockchain is a network of computers, connected via the Internet, in which users at any one computer can receive or send peer to peer data, identity and value. With the use of blockchain, there is no need for intermediaries or single entities to make business processes.

There are three case studies that illustrate blockchain’s benefits. First, is a blockchain-enabled decentralised financing platform – this enables the tokenisation of infrastructure assets and the ability of executing financial transactions. Such a platform includes a full range of investors, which enables microfinancing as well as institutional investor participation. It also provides transparent and reliable information on project characteristics and market information. The
second case study in the presentation looks at blockchain-based solutions for carbon emissions markets. Blockchain could be used for the creation and tracking of emissions certificates, allocation of emissions certificates, certificate trading by participating companies, and compliance checks and market regulation. By using the blockchain, there is full transparency that comes from use of certificates creation and destruction. Such a system would provide better transparency and eliminate the need for intermediaries, providing faster settlement of transactions, as well as efficient identification and reliable tracking of certificates. The third study looks at lifecycle contract management in infrastructure projects. By centralising contract management across all parties on a digital distributed ledger, all the relevant parties are up-to-date on transactions, providing transparency in multi-party contracting, a single source of truth for current and legally binding contract and creation of trust through consensus.

Blockchain is a digital infrastructure enabler in three aspects. Financially, blockchain can build trust and provide predictability between stakeholders. Visibly, blockchain can also provide consistent and reliable data for stakeholder information. Blockchain also acts as the infrastructure of new market and business models.

- Ocean Protocol: One of the prominent changes in the 4th Industrial Revolution includes reshaping and innovation of society by the Information and Computer Technology (ICT), and in particular transformation that derive from a rise of decentralized technologies and protocols, such as blockchain, especially in combination with Artificial Intelligence (AI).

In the next decade, there is expected to be a huge growth of data almost without limit. For instance in 2010, there was 1 zettabyte of data, and in 2025 there is expected to be over 160 zettabytes of data. In this backdrop of fast growing data availability, Ocean Protocol Foundation is helping to envision a world where data and information are comfortably shared across a wide-range of stakeholders, between public institutions and governments, investors, creditors, academic researchers and regulators.

Several use cases demonstrate the active collaborations and success stories. First, the Ocean Protocol is launching a network called the Ocean Network that unifies the entire process flow: from data creation, curation, to asset discovery and query, to information analysis. The open platform seamlessly integrates with legacy and emerging systems comprising standard templates, repositories and AI technologies and a wide range of unique data assets. The three layers, ecosystem, open platform and services, enable effective exchange of information with the platform acting as a ‘glue’ between ecosystem providers and services. Second, the Ocean team is working on pilot projects to test in six market sectors. With a wide range of data, technology and regulatory stakeholders, these pilots seek to illustrate unified data and information sharing, overcoming policy, governance, business and technology challenges. For example, there is a use case from healthcare, treating Parkinson disease by using AI models to detect and better treat patients.

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6 A zettabyte is a measure of storage capacity and is 2 to the 70th power, also expressed as 10^21 or 1 sextillion bytes.
**ROUND II — Developing Benchmarks for Economic Efficiency and Transport Infrastructure for the G20 Infrastructure Data Initiative**

Analysis from multilateral development banks and governments reveals that better development outcomes from investment require strong governance of public investment throughout its life-cycle; and that the quality of public investment management (i.e. debt sustainability and financial integrity, anti-corruption, stakeholder engagement) is linked to growth outcomes. Conversely, poor public-sector capacity in the infrastructure space is a major reason why projects fail to meet their time and delivery objectives, or attract external financing. The answer to this challenge is a strengthening of the entire governance architecture for investment and maintenance in order to deliver the right strategic infrastructure on time, within budget, and in a manner that commands the confidence of the market and civil society. The OECD Framework for the Governance of Infrastructure aims to provide guidance on addressing governance challenges. Several Divisions of the Public Governance Directorate are aiming to provide further guidance, working with member countries. At the OECD Network of Economic Regulators (NER), for instance, work is under way to understand investment and maintenance needs based on an improved understanding of asset conditions, with a view to provide the best possible regulatory incentives and tools for infrastructure managers to invest in and maintain assets sustainably. Developing the right benchmarks will allow better understanding and measurement.

The International Transport Forum (ITF) laid out in its report *Private Investment in Transport Infrastructure: Dealing with Uncertainty in Contracts* the need to understand better how contract design and other factors drive project cost and other outcomes. It is important to not only optimise the cost of financing, but also the principal that needs to be repaid. This requires benchmarking with a focus on non-financial dimensions. The ITF has a proposal on an international benchmarking initiative in partnership with universities that would start with motorway projects as a proof of concept.

Recently the Infrastructure and Projects Authority (IPA) in the UK began a similar initiative and process (e.g. determining the data collection concept jointly with the data owners) locally, albeit with a more narrow focus – tunnels. The National Infrastructure Commission in the UK is also calling for more evidence and data for quality infrastructure in its recent national assessment.

Building on these initiatives there is an opportunity to join forces with the OECD and other relevant organisations to launch an international benchmarking initiative across sectors looking beyond transport. The objective of this session is to seek support from the G20 members to the benchmarking initiatives presented.

More specifically, feedback is welcome in nominating motorway infrastructure management organisations (motorway companies and agencies) that would participate in the ITF/IPA/OECD benchmarking initiative. With regard to tunnelling, beyond the transport sector organisations with tunnelling projects executed in the last 15 years from other sectors should also be nominated (e.g. tunnelling is also done for sewers, power/electricity transmission).
Key messages:

**Moderator: Lorenzo Casullo, OECD**

- **OECD**: The Governance Directorate of the OECD is preparing an infrastructure governance indicator. This presentation focuses on two of the seven steps required to develop the indicator: (i) developing the framework and (ii) selection of indicators and sub-pillars. The indicator will build-up on ten dimensions or “success factors” previously identified by the OECD Public Governance Directorate in the flagship OECD report on the governance of infrastructure, *Getting Infrastructure Right*.

  Good governance is necessary for good infrastructure. It is essential for planning, selecting and delivering the right infrastructure on time and on budget. The infrastructure governance indicator aims to measure the processes, tools and norms of interaction, behind these decision-making processes. Countries can use the framework to assess the adequacy of their infrastructure management systems. It is important to clarify that the indicator will not measure individual infrastructure projects, stock and flows of infrastructure. Building up on the Infrastructure Governance Framework, the Governance Directorate proposes four sub-pillars for the index: (i) enabling framework; (ii) performance and VfM; (iii) environment and social impact; and (iv) strategic vision and planning.

- **ITF (International Transport Forum)**: The debate on establishing infrastructure as an asset class and the infrastructure data gap only focuses on enabling investors to price risks more efficiently. However, it does not address the fact that infrastructure suppliers also face risks. While it is true that infrastructure benchmarking can lower cost of financing and greater transparency for investors, research suggests that efforts to de-risk the supplier side or provide it with more information could significantly reduce overall project costs. The inability of suppliers to address and price their risks adequately, due to a lack of information and data, results in higher principles that have to be repaid, which in turn inflates the amount of investment (and financing cost) that is needed to realise a specific project.

  It is thus not just investors, but also suppliers who face challenges. While an investor can indeed fall back on historical cash flow data to help decide on a general portfolio strategy, infrastructure suppliers have to deal with risk and uncertainty on a project-by-project base. As illustrated in the ITF’s work with UCL (University College London) and practitioners, much can already be achieved today. Through a better understanding of how procurement and contract design drive project...
outcomes, it is believed that reductions in cost are possible. There is a case for de-risking suppliers as well. The ITF thus recently partnered with UCL, QUT (Queensland University of Technology) and is engaging several countries to launch an initiative of supplier-side focused data collection exercise or the establishment of a transport infrastructure benchmarking forum at the ITF.

One of the immediate practical benefits is that the existence and robustness of benchmarking data would allow a better grip on opportunistic practices such as Abnormally Low Bids.

At present the IPA (Infrastructure Project Authority) has already started a benchmarking pilot on tunnels as a proof of concept. In Australia, ITF’s partner at QUT is in discussions to start a similar project on road infrastructure. Data could come directly from data owners, such as in transport who are generally infrastructure managers, public and private, or there could be local hub organisations, which promote local benchmarking initiatives. The benchmarking forum should be a tool to enrich existing local benchmarking initiatives and showcase the value of benchmarking to those organisations and countries who do not yet have an extensive programme in this area.

- **IPA (Infrastructure Projects Authority):** The IPA comprises a range of experts who work with government and industry to support major projects and improve the project delivery system. Benchmarking can help project delivery by comparing the cost, schedule and performance of a project against other similar projects.

  At the launch of the Transforming Infrastructure Performance (TIP) last year, the IPA began its journey of benchmarking. This has four key objectives: (1) cost and schedule benchmarking; (2) benefits realisation; (3) performance measurement; and (4) international benchmarking. The IPA Benchmarking team has developed a benchmarking framework to support the development of consistent and reliable benchmarks which conform to a common standard, which will be published in January 2019. To demonstrate and pilot this approach, IPA also hosted a ‘Tunneling Benchmarking Session’ with industry experts from multiple sectors and client organisations. However the initial outputs from the first set of data was not sufficient to fulfil the benchmarking purpose. Addressing this issue, IPA developed a data collection template to ensure that the data provided was consistent. This resulted in significantly better data. This data, which has also been anonymised, along with the analysis drawn from it, was shared with those organisations who had participated in the data collection. Participants were pleased with the results and are keen to partake in further similar exercises. IPA is looking to work collaboratively with OECD members and the ITF to extend this benchmarking work internationally.

- **Meridiam:** Meridiam invests in transport, energy and social or environmental infrastructure from the inception of projects through construction, and manages the assets subsequently for 25 years. It also has not yet divested itself of any assets since its creation in 2005. For the past few years, Meridiam has developed a systematic approach to both economic and ESG performance benchmarks, embedded at every stage of decision making process and have mainstreamed this throughout its investment and asset management procedures.
In order to develop benchmarks for economic efficiency and transport infrastructure for the G20 Infrastructure Data Initiative, Meridiam thinks that there needs to be a framework that looks at whole life of projects, including the whole life performance of projects, costs, assets and state of the industry. Regarding the quality of infrastructure, it needs to look at the asset quality of infrastructure. Keeping a high quality level of infrastructure, for example fully maintained, is important. Meridiam would like to add that showing visible benefits to the community is also crucial because otherwise there are risks in relation to public intervention and erosion of value.

- **EDG Energy**: The discussion today seems to be disconnected from what actually happens within client organisations. There needs to be a stronger link between investors, bankers, analysts and client organisations to build projects. EDF Energy is currently building two nuclear reactor units at Hinkley Point C for a cost of £20 billion.

The Hinkley Point C Project is being delivered through EDF project delivery model and command centre structure. This is being developed to support the establishment of the EDF Nuclear Performance Model (eNPM) which will provide delivery with consistency for future EDF customers globally. The HPC project aims to deliver first, two operating EPR reactors at the HPC site in Somerset; second, the digital assets and data to hand over to operations; and third, the project delivery model to capture the delivery process and set the benchmark for megaproject delivery across the EDF Group globally. As experienced for all nuclear new build projects, it has been difficult to gain funding and investment from the private sector.

Part of developing the HPC project delivery model, EDF Energy would like to understand lessons-learned and operating experience from mega projects globally and apply this to continuously improve nuclear new build delivery across the EDF Group. The EDF Energy is currently engaged in benchmarking activities with the similar scale mega projects in the UK (London 2012, Crossrail, HS2, etc.) and globally (Vogtle and Summer Nuclear New Builds, ITER fusion reactor, Airbus etc.). EDF would like to see the requirements and benchmarks that include the indirect costs and client costs and standardisation across the industry that would lower risks and uncertainties around mega project delivery and support private investment.

**ROUND III — Developing Financial Performance Benchmarks for the G20 Infrastructure Data Initiative: Making the Case for Financial Benchmarks**

Efforts are needed to identify existing methodologies to develop appropriate ESG-related performance indicators for infrastructure, while also identifying gaps in data and information that could further support the creation of benchmarks and performance measurement criteria for QII. In this regard, the Infrastructure Data Initiative is addressing the issue of establishing infrastructure as an asset class through data collection and improving the availability of infrastructure investment data and aims to create a centralised and publicly available repository on historical long-term data on infrastructure at an asset level.

The IDI intends to provide much needed information about the performance of infrastructure against a range of metrics, including financial, economic and environmental and social measures.
The OECD and GI Hub has been tasked with exploring “Pillar 2” of the IDI, which covers the role of institutional investors in contributing to the IDI. A new paper from the OECD (“Supporting the Infrastructure Data Initiative”) sets out how better data can inform policy makers and investors, and lead to more efficient infrastructure investment markets, proposing a template for data collection.

An initial focus of the IDI is to explore the metrics and data outputs that would be of most relevance to institutional investors, and to consider the willingness of institutional investors, including investors with direct or indirect exposure to investments, to participating in the IDI.

REFERENCES

- OECD (2015), Policy Framework for Investment
- OECD (2016), G20/OECD Guidance Note on Diversification of Financial Instruments for Infrastructure and SMEs, endorsed by G20 leaders in 2016
- OECD (2017), Breaking Silos: Actions to Develop Infrastructure as an Asset Class and Address the Information Gap
- OECD (2017), Summary Record - Workshop on Infrastructure as an Asset Class and Data Collection for Long-term Investment, 2 November, 2017. Also see presentations and agenda

Key messages:

Moderator: Raffaele Della Croce, OECD

- Imperial University: There has been huge growth in private unlisted infrastructure, which has grown rapidly raising about USD 1 trillion. Its proportion is smaller than listed infrastructure but more new capital has been raised in the last decade. In addition, investor allocations are on average approximately one percent with some not investing. There has been a lack of data and track record among reasons to not to invest. On the other hand, the real estate sector has better long-term return benchmarks that allow investment risk to be assessed and correlations with other asset classes to allow portfolio allocation choices.

In financial benchmarks, a major problem is that there are limited and incomplete data on infrastructure. Because data often remain as fund-level rather than asset-level, they are incomplete and hence problems exist. Additionally the private nature of unlisted infrastructure is not public in domain and remains confidential. In this context the G20 IDI offers an opportunity to materially improve quality and quantity of data to the benefit of investors, researchers and policy makers. Some of the important questions to ask are: first, what data is required; second, what kind of data is available; and third, what we can do about data.

In answering the first question, the data can be divided into three categories: asset-level, project-level and fund-level. On the asset-level, we can look at debt or equity. The project-level can focus
on the levered project equity returns or project debt returns. Lastly for the fund level returns, we can look at portfolio of either project equity or project debt investment returns. Using a model to predict the values that we want to get can also be a good idea for this initiative.

EDHEC has 500+ projects. A number of other measures, particularly credits, are based on default rates. Imperial suggests that potential dataset requirements include representativeness, granularity, data adequacy, timeliness and open access. When looking at granularity of projects, it is important to note that infrastructure projects are varied depending on the dissimilar geography and timeliness (early, middle or end stage of project). It is possible to work with the MDBs who have approximately over 800 projects in their equity funds and create benchmarks.

– **Università Bocconi**: In order to obtain reliable data to develop financial performance benchmarks, it is important to develop comprehensible, consistent and reliable datasets. This is because using non-consistent data can lead to wrong evaluations. An example can be provided by the level of cash flow used to calculate the IRR (Internal Rate of Return). Getting a perfect set of data is an expensive and long process, requiring access to projects’ financial plans to source data to be computed into a standard financial plan. A dual approach could be used at the very beginning: sourcing data from projects’ financial plans and from already existing databases, which in some cases cover only certain issues.

In this respect, the first approach can be pursued by the engagement of academia, for example an international consortium of universities, which can also support the G20 IDI to generate an unbiased research on long-term investments. Academia based in a country can also be advantageous in searching for projects and data not provided by G20 IDI partners.

The role of government is also important. The ideal financial plan for infrastructure projects defined within the G20 IDI can be adopted by governments when they sign or support projects. In this regard, it is urgent to ask for the support of governments to introduce the obligation to provide information to the G20 IDI, because many projects are still procured through traditional contracts, not Public Private Partnerships (PPP). For these reasons, the data from traditional contracts are not included in private databases. These data however are relevant since long-term investments are important to close the infrastructure gap, and thus the long-term investments should be able to understand how to approach infrastructure delivered under the traditional public finance mechanism.

– **University of Oxford**: There are two observations and one proposal for the discussion of today’s panel. First is the role of corporates as a source of investment. According to McKinsey, around two thirds of infrastructure investment by the private sector – approximately USD 1 trillion per year – is made by corporations. Many of the corporations are from OECD member countries. In this regard, it will be interesting to explore what incentives could encourage corporations to share more information about their investments in infrastructure. Second, the importance of impact investors. According to the Global Impact Investment Network, there is around USD 23 trillion of impact investment assets under management, which is growing at over 10 percent per year. These funds are under-invested in the infrastructure assets. Many corporations in fact would like to have impact investors on the register.
A proposal to suggest is to incentivise corporations to share information about their infrastructure investments by offering them, in exchange, models through which they can measure impact, in a format that encourages an engagement with impact investors. This would enable to address the twin challenges of the lack of transparency around infrastructure projects, and the lack of robust models for measuring impact. When there are appropriate incentives and rational self-interest, they could offer the best opportunity. The Innovative Infrastructure Investment Programme (in3) at Oxford is testing this proposal at present through a pilot study in Mexico, and searching for other countries to do pilot studies.

Moody’s: The G20 IDI is welcomed by Moody’s, as it will provide new information and insight to infrastructure market participants. However there are practical challenges in the initiatives. Despite these challenges, Moody’s thinks that efforts such as this that help catalyse private sector investment in infrastructure are worthwhile.

Although there are clear benefits from the development of a comprehensive, standardised infrastructure data set, Moody’s highlighted certain drawbacks of over-reliance on a single source of data. Deep and liquid financial markets in particular need investor diversity, which is facilitated by diversity in information sources, analytical insight and risk appetite. Over-reliance on a single source of data based on a single notion of infrastructure would likely reduce infrastructure investor diversity.

Moody’s presented a brief update on their latest research on the credit performance of unrated project finance bank loans and Moody’s-rated infrastructure debt securities. Moody’s 2018 reports include a study comparing projects in advanced economics vs. emerging markets, and a study that finds that green projects demonstrate lower default risk.

ROUND IV — Implementing the G20 Infrastructure Data Initiative

Key messages:
Moderator: Brer Adams, GI Hub

LTIIA (Long-term Infrastructure Investors Association)²: LTIIA represents a subset of investors in unlisted or project finance infrastructure. In qualitative perspective, its members consider the sustainable infrastructure agenda as common responsibility of all the actors in the infrastructure value chain. LTIIA also believes that ESG and sustainability dimension need to be approached with the same rigor as financial benchmarks in investment. Infrastructure projects should have this information included in tenders and be monitored during the implementation.

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² Founded in 2014 by institutional investors in infrastructure sharing the same long-term DNA, LTIIA works with a wide range of stakeholders including infrastructure actors, policy-makers and academia on supporting long-term, responsible deployment of private capital to public infrastructure around the world. LTIIA’s major activities include: public advocacy and engagement with policy-makers and regulators; investment in research and innovation for the benefit of infrastructure investors; and identifying and sharing best practices on long-term investing in infrastructure
stage. Contractual obligation to have this information is encouraged. LTIIA is encouraging its members to share their relevant available project financial data for the purpose of helping market analyses. About half of the members have contributed, despite the fact that it is a sensitive issue for members as it involves confidential information.

One and a half years ago, the EDHECinfra chair funded by LTIIA published a first set of private infrastructure market equity indices covering Europe between 2000 and 2016. This is the first stage of an ambitious applied research project to create and compute fully-fledged private infrastructure equity investment benchmarks.

Several research papers are scheduled to be published in the next few weeks by LTIIA which include: “Systematic drivers of unlisted infrastructure valuations: 20 years of evidence” and “The relationship between ESG characteristics and financial performance in unlisted infrastructure investments”. The analysis has been conducted by using public data, but also about up to one third from data contributed by our asset manager or owner members.

- **GIIA (Global Infrastructure Investors Association):** Implementation of the G20 IDI will require a simplification and standardization of data. According to GIIA global asset database, fifty investor members equate to 1,160 infrastructure assets across 48 countries and 6 continents. Referring to the 3 Cs of big data (current, consistent and comparable) requirements, it is important to think about ways to identify these differentials regarding data. Capturing different datasets and what to do with them is another question to answer. Having data is a way for governments to get confidence with private sector performance and make decisions to support financial market to function well.
## Annex I: Agenda

**Workshop on Innovation, Standardization and Data Collection for Long-Term Investment and Meeting of the Steering Committee of the Infrastructure Data Initiative**

**Thursday 15<sup>th</sup> of November 2018**

**10:00 – 18:30**

**OECD Conference Centre, Paris, France**

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<th>Time</th>
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<td>10:00 – 10:10</td>
<td><strong>INTRODUCTION</strong></td>
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<tr>
<td></td>
<td>• Damien Dunn  Chair, G20/OECD Task Force on Institutional Investors and Long-term Financing and Australian Treasury</td>
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<td>• André Laboul  Special Advisor to the OECD G20 Sherpa and Senior Counsellor, OECD Directorate for Financial and Enterprise Affairs</td>
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<td>10:10 – 11:10</td>
<td><strong>Round one: Developing Environmental, Social and Governance benchmarks for sustainable infrastructure</strong></td>
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<td></td>
<td>• Tyler Gillard  Head of Sector Projects, Responsible Business Conduct (RBC) Unit, Directorate for Financial and Enterprise Affairs, OECD</td>
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<td>• Caroline Nowacki  Researcher, Global Projects Centre, Stanford University</td>
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<td>• Daniel Wiener  President, Global Infrastructure Basel (GIB)</td>
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<td>• Rick Walters  Director, Infrastructure, Global Real Estate Sustainability Benchmark (GRESB)</td>
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<td>• Simon Whistler  Senior Manager, Real Assets, Principles for Responsible Investment (PRI)</td>
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<td>11:10 – 11:40</td>
<td><strong>Special session: OECD LTI Update and launch of case studies on blockchain and infrastructure</strong></td>
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<td>• Joel Paula  Policy Analyst, Long-term Investment Project, Directorate for Financial and Enterprise Affairs, OECD</td>
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<td>• Raffaele Della Croce  Lead Manager, Long-term Investment Project, Directorate for Financial and Enterprise Affairs, OECD</td>
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<td>• Peter Wiedmann  Senior Manager, Blockchain Institute, Deloitte Consulting</td>
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<td>• Paul Galwas  DEX Chief Security Officer and Irene Lopez de Vallejo  Director of Partnerships, Ocean Protocol</td>
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<td>11:40 – 12:30</td>
<td><strong>Round two: Developing benchmarks for Economic Efficiency and Transport infrastructure for the G20 Infrastructure Data Initiative</strong></td>
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<td>• Lorenzo Casullo  Policy Analyst, Network of Economic Regulators, Public Governance Directorate, OECD</td>
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<td>• Ana Maria Ruiz  Policy Analyst, PPPs Network, Public Governance Directorate, OECD</td>
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<td>• Dejan Makovsek  Project Manager, International Transport Forum</td>
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<td>• Julia Prescot  Partner, Meridiam</td>
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<td>• Aleister Hellier  Benchmarking Programme Manager, Infrastructure and Projects Authority, UK</td>
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<td>• Melanie Sachar  HPC Project Delivery Model Lead, EDF Energy</td>
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<td>12:30 – 14:00</td>
<td>Lunch</td>
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<td>14:00 – 15:30</td>
<td><strong>Round three: Developing Financial Benchmarks for the G20 Infrastructure Data Initiative (Part I): Making the Case for financial benchmarks</strong></td>
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<td>• Raffaele Della Croce  Lead Manager, Long Term Investment Project, Directorate for Financial and Enterprise Affairs, OECD</td>
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<td>• Simon Wilde  Senior Financial Advisor, Office of the Gas and Electricity Markets (OFGEM), UK</td>
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<td>• Veronica Vecchi  Professor in Long-term Investment and Financial Management, Università Bocconi</td>
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<td>• Alex Money  Director, Innovative Infrastructure Investment, University of Oxford</td>
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<td>• Andrew Davison  Senior Vice President, Infrastructure, Moody’s</td>
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<td>15:30 – 15:45</td>
<td>Coffee break</td>
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<td>15:45 – 16:30</td>
<td><strong>Round four: Developing Financial Benchmarks for the G20 Infrastructure Data Initiative (Part II): Implementing the Initiative</strong></td>
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<td>• Brer Adams Senior Director, Global Infrastructure Hub</td>
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<td>• François Bergère Executive Director, Long-term Infrastructure Investors Association (LTIIA)</td>
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<td>• Jon Phillips Director, Corporate Affairs, Global Infrastructure Investors Association (GLIA)</td>
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<td><strong>End of the Workshop</strong></td>
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<td>16:30 – 18:30</td>
<td><strong>Meeting of the Steering Board of the Infrastructure Data Initiative [Close Doors]</strong></td>
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<td>(open to members and observers only, including World Bank, EIB, ADB, IMF, IFC, AFDB, ISDB, EBRD, AIIB, IADB, NDB, LTIIA, FSB, UN and GI Hub)</td>
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Annex II: About the G20 Infrastructure Data Initiative

In the context of the G20 IDI, the OECD, the Global Infrastructure Hub (GI Hub), with key members of the public sector such as national and sub-national governments, MDBs, and also academia, along with key members of the private sector such as institutional investors such as pension funds, insurance companies, asset managers and banks, are coming together in order to develop a platform for the sharing of infrastructure data. The IDI is evolving into several work streams, including combining the efforts of MDBs and leveraging the existing frameworks described in the Global Emerging Markets (GEMs) risk database, along with further cooperation with the private sector. These initiatives are based on previous work that identified a lack of high quality data on the performance of infrastructure projects, including across financial, economic, and ESG dimensions, which has posed a major barrier to investment.8

The term “infrastructure as an asset class” is becoming an umbrella-term at key international fora such as the G20, G7 and APEC where several important policy initiatives are coming together, all with the purpose of promoting bankable projects and private sector participation. The 2018 Argentinian Presidency of the G20 has developed a roadmap for infrastructure as an asset class, and Objectivre which is organised into three overarching pillars with the principal objectives of: i) improving project development; ii) promoting standardisation; and iii) improving the investment environment for infrastructure.

The IDI intends to gather infrastructure investment performance data with the intent to share it through a central hub/platform, with appropriate anonymity and secure protocols that address issues of confidentiality. Information to be collected would be relevant for many types of end users, including private investors, construction companies, asset operators and policy makers. This data would benefit everybody and would still achieve the OECD goals of better defining infrastructure investment, informing policy makers and facilitating private investment in infrastructure. In this context, choosing a method to analyse the data is not necessary, allowing instead the broader set of stakeholders to perform this work.

An additional important outcome of the IDI will be the development of best practices and standardised data collection methods which the G20 could consider endorsing.

Data scope of the IDI

The IDI has three primary goals in advancing performance evaluation of infrastructure:

- Financial Performance Benchmarks – these benchmarks will include measures on investment profitability metrics, such as return on assets, return on equity, dividend yield, and performance measures for debt investments. Benchmarks will also analyse risk events (i.e. default rates and recoveries) measured over a project’s life-cycle.

8 Leveraging on the work of initiatives such as the Global Infrastructure Basel Confederation as well as the European Financial Services Roundtable
• Economic and Financial Viability Impact Benchmarks – these benchmarks will measure the impact of projects, including their utilisation performance, delivery performance and performance penalties.

• ESG Performance Benchmarks – these benchmarks will deal with sustainability and inclusive growth impacts, governance and climate-related risk management.

IDI is guided by a Steering Group, including all the major MDBs, the GI Hub, the OECD, and other private sector associations. The Steering Group secretariat is provided by the OECD through the G20/OECD Task Force on Long-term Investment (LTI), with chairmanship of the EIB.
Annex III: Speaker Biographies

Speaker Biographies | November 15

Round I:

**Caroline Nowacki**

Caroline Nowacki is a researcher with the Global Projects Center at Stanford University. She studies Sovereign Investors’ investment strategies and innovation in infrastructure planning and financing. She holds a PhD from Stanford University, a M.S. in Civil Engineering from Stanford University and a M.S. in Management from ESSEC Business School, Paris. Caroline has four years of professional experience in research and business development related to real estate, sustainability and urban planning in China, Australia, France and the USA. She coordinated international collaboration projects to develop best practices in sustainable and smart cities. She co-authored a book on sustainable cities and many articles on sovereign investors, regional planning and infrastructure investing.

**Daniel Wiener**

Daniel Wiener is an economist and has a Master of Advanced Studies (MAS) in Culture Management (University of Basel). He is a professionally registered journalist, a moderator and a specialist in sustainable development. He co-founded ecos back in 1987 together with Lisa Freuler. His specialist areas are finance, urban and residential development, cultural change for sustainability and energy and mobility. Daniel Wiener is President of the Global Infrastructure Basel Foundation (GIB), Member of the Executive Board for the BASE UNEP Collaborating Centre, the swisscleantech commercial association and Member of the Board of Directors of Cargo sous terrain.

**Rick Walters**

Rick Walters is the Director, Infrastructure at GRESB and is an experienced sustainability professional with a diverse background covering more than 25 years’ experience in Sustainability, Investment, Engineering and Management. Previous to joining GRESB, Rick was a founder of the Infrastructure Sustainability Council of Australia (ISCA) and there led the development of its sustainability rating scheme, the first of its kind in Australia.
Simon Whistler

Simon Whistler heads the Infrastructure programme at the Principles for Responsible Investment. He leads the PRI’s engagement with infrastructure investors and other key stakeholders to support their understanding and integration of responsible investment into their investment processes. Prior to joining the PRI, Simon worked for over 10 years at a private consultancy, Control Risks. There he led the company’s political and social risk consulting business in Latin America, providing due diligence and strategic support to investors, multinationals and project developers in the region.

Moderation:

Tyler Gillard

Tyler Gillard is the Head of Sector Projects and Senior Legal Adviser in the Responsible Business Conduct Unit of the OECD’s Investment Division. He leads the OECD’s work on due diligence in the financial, textiles, mining & metals, oil & gas and agriculture sectors. Tyler joined the OECD in 2009 to lead the multi-stakeholder negotiation of the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas. He has since overseen the development of the OECD-FAO Guidance on Responsible Agricultural Supply Chains, the OECD Due Diligence Guidance for Meaningful Stakeholder Engagement in the Extractive Sector, the OECD Guidance on Responsible Supply Chains in the Garment & Footwear Sector and OECD best practice papers on due diligence in various financial products and services. He currently leads OECD efforts to develop a general Due Diligence Guidance for Responsible Business Conduct, relevant for all sectors of the economy. As part of the OECD’s implementation of these sectoral due diligence instruments, Tyler works closely with governments, the private sector and civil society to integrate these standards into relevant international processes, national laws, industry programmes and business practice.

Special Session:

Peter Wiedmann

Peter Wiedmann focuses on innovative business models and technologies. He is co-founder and responsible Manager at the Deloitte Blockchain Institute. During his more than 10 years of consulting, he was responsible for several large transformation projects. Before joining Deloitte in 2012, he worked for a large management consultancy group and in the Finance department of a large global bank.
Paul Galwas

Paul Galwas is Chief Security Officer at DEX, which provides tools and services to build the data economy through safe and secure data exchange. DEX is a founder member of the Ocean Protocol Foundation. Previously, at Digital Catapult, a UK Research Centre, he has provided input into multiple national policy and research strategies on data sharing, IoT, privacy and AI, worked on BSI security standards, and lead multiple collaborative research projects. He has worked on privacy, trust & identity, digital asset protection & sharing, IoT & distributed ledger security, and secure payment systems, and with UK and US Governments on classified mobile security. He was an early member of Open Group Jericho Forum, and the Trusted Computer Group, and collaborated with EARTO SRG, Open Group, ISF and IoTSF. Previously, Paul developed early data exchange, data modelling products, Wi-Fi technologies and mobile handheld systems, after spearheading 3D modelling and realistic imaging. He has a PhD and MA in science from Cambridge University, UK.

Moderation:

Joel Paula

Joel Paula is a Policy Analyst for the OECD project “Institutional Investors and Long-term Investment”, in the Financial Affairs Division of the OECD. The project aims to facilitate long-term investment by institutions such as pension funds, insurance companies, and sovereign wealth funds. Based on research produced for this project the OECD is contributing to policy discussions at the level of the G20, APEC, and the European Commission, in particular through the G20/OECD Task Force on Institutional Investors and Long-term Financing. Prior to joining the OECD in 2014, Mr. Paula worked for eight years in the institutional investment consulting industry at NEPC, LLC, an independent consultancy providing asset allocation, strategic planning, and manager due diligence services. He was educated at Bentley University and The Fletcher School at Tufts University, both in Boston. He is a Chartered Alternative Investment Analyst and is currently pursuing the Chartered Financial Analyst designation.

Round II:

Ana María Ruiz

Ana María Ruiz, a Colombian and US national, leads the Budgeting and Public Expenditures division’s work on Infrastructure Governance and Public Private Partnerships and is responsible for the Latin-American and the Caribbean Senior Budget Officials Network. Ana María is a trained lawyer and worked with the Colombian Administration in the fields of public-private partnerships, infrastructure and public transportation. She earned a Master in Public Administration degree from Science Po and The London School of Economics. Before joining BUD, Ana María was a capstone consultant for the Boston Consulting Group.
Dejan Makovsek

Dejan Makovsek spent almost 15 years advising government and the private sector with a focus on network industries. Prior to joining ITF Dejan worked as a management consultant with KPMG for 7 years, where he was engaged in a number of projects involving the appraisal and financing of investments in Slovene railway and power infrastructure, business restructuring, forensic analysis of failed projects, and others. In addition, he pursued academic research in the area of investment appraisal and PPPs. To date he published several scientific articles in distinguished international transport economics and policy related journals. He held invited lectures at University College of London, Paris School of Economics, World Bank, EBRD and other institutions. The focus of his work at the ITF is the economics of infrastructure investment. Recently he was involved in the OECD UK PPP review, led the project on risks and delivery options for a EUR 1.3 billion rail project in Slovenia, and several others. He’s also the project manager of the ITF Working Group on Private Investment. Dejan holds a Bachelor of Science and a PhD in Applied Economics from the University of Maribor in Slovenia.

Julia Prescott

Julia Prescott serves as a Partner and Chief Strategy Officer of Meridiam Infrastructure. She has recently been made a National Infrastructure Commissioner in the UK, is a member of the board of the Emerging Africa Infrastructure Fund, sits on the Advisory Committee of Glennmont Partners, a renewable energy fund, and on the boards of Infrastructure Africa Investments and Infrastructure Asia Investments – both Private Infrastructure Development Group (“PIDG”) companies. She is also Founder of Women Leaders in Infrastructure and is a member of the Board of the International Project Finance Association. Since joining Meridiam from its inception in mid-2005, Julia has been involved in Private Finance Initiative (PFI) and Public-Private Partnership (PPP) programs globally. She is in charge of Meridiam’s strategy. Having a particular interest in supporting ESG and Corporate Social Responsibility (CSR) issues, Julia has engaged in numerous sustainable and responsible investment initiatives. She is also a Visiting Professor at the Bartlett School, University College London.

Aleister Hellier

Aleister Hellier joined the IPA in January 18 to lead the newly formed Transforming Infrastructure Performance Benchmarking team. In this role, he has helped to formulate an IPA agreed benchmarking framework and approach and recently tested this new methodology for tunnels. Previously, Aleister worked for Turner & Townsend as a senior consultant specialising within benchmarking, data, programme performance and project controls.
Melanie Sachar

Melanie Sachar is the Hinkley Point C Project Delivery Model Lead at EDF Energy and acts as a link between the UK nuclear new build construction company and the larger EDF Group in France. Prior to this role she spent several years working in the UK and Canada in the nuclear Industry. Melanie developed the EDF Energy Knowledge Management Strategy and has benchmarked various megaprojects and nuclear new build projects globally to learn best practices and lessons learned.

Moderation:

Lorenzo Casullo

Lorenzo Casullo is economic adviser at the Regulatory Policy Division of the OECD in Paris, where he works on a wide range of regulatory issues, from infrastructure charging to customer engagement, as part of the Network of Economic Regulators (NER) team. Prior to the OECD, he has held consultancy and advisory roles with UK regulators, the European Commission, the United Nations as well as private sector clients. Lorenzo holds Master degrees from Cambridge University and City University in London (Regulation and Competition).

Round III (Part I):

Simon Wilde

Simon Wilde has 25 years investment banking experience with a focus on the infrastructure and utilities sectors. Major transactions include Iberdrola’s acquisition of Scottish Power, Cheung Kong Infrastructure’s acquisition of UK Power Networks and Macquarie’s acquisition of Galloper offshore wind stake. For the last 5 years, he has also been active in university teaching and research at Imperial and the University of Bath. He has published in peer-reviewed and practitioner journals on infrastructure finance and holds degrees from Cambridge, LSE and Bristol.
Veronica Vecchi

Veronica Vecchi is Associate Professor of Practice at the School of Management of Bocconi University. She teaches at Graduate and Post graduate level Financial Management, Infrastructure finance, Long Term Investments, Public Private Partnerships. She is Director of the Executive MBA of SDA Bocconi in Mumbai, India. She serves also as independent consultant for infrastructure projects and PPPs. He is authors of several publications on these topics.

Alex Money

Alex Money directs the Innovative Infrastructure Investment (in3) programme at the University of Oxford's Smith School of Enterprise and the Environment. A former fund manager, he has over 20 years of practitioner experience in investment and industry. Alex's research interests include water, energy, infrastructure, investment, and sustainable development. He also teaches on Oxford's undergraduate, postgraduate and MBA programmes, and is the director of two early-stage technology companies. Alex holds a master's degree with distinction in water science, policy and management, and a doctorate in economic geography; both from the University of Oxford.

Andrew Davison

Andrew Davison is a Senior Vice President in Moody’s Infrastructure Finance Group. Andrew is responsible for Moody’s strategic initiatives responding to market dynamics that are reshaping the development and financing of infrastructure assets across the globe. Andrew joined Moody’s in 2006 and led Moody’s EMEA Project Finance team from 2007-2012. He has a broad background in energy and infrastructure finance and has acted variously as lead debt arranger, financial advisor and principal on a range of profile transactions in the sector on behalf of previous employers: Hambros, SG, Enron and Scotia Capital. Andrew is a Fellow of the Institute of Chartered Accountants in England and Wales and holds an engineering degree from Trinity College, Cambridge.
Moderation:

**Raffaele Della Croce**

*Raffaele Della Croce* is a lead manager for the OECD project ‘Institutional Investors and Long-term Investment’, in the financial affairs division of the OECD. The project aims to facilitate long-term investment by investors such as pension funds, insurance companies and sovereign wealth funds, addressing both potential regulatory obstacles and market failures. Based on research produced for this project, the OECD is contributing to the policy discussions at the level of G20, Asian Pacific Economic Cooperation (APEC) and the European Commission, in particular through the new G20/OECD Taskforce on Institutional Investors and Long-Term Financing. As part of the OECD Futures Programme, Raffaele has also worked on the project ‘Transcontinental Infrastructure Needs to 2030/50’ in the advisory unit to the Secretary General. Before joining the OECD in 2010, he worked in the financial industry for eight years, mainly with Ernst & Young and Moody’s Investors Services in London. As part of international teams advising governments or private consortia, he has been involved in the analysis, structuring and negotiation of the largest transactions in the utilities and infrastructure sectors in Europe, Middle East and Africa region. Raffaele also serves in the advisory committee of the OECD Provident Fund. He was educated at University La Sapienza in Rome and Columbia University in New York.

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**François Bergère**

*François Bergère* held various responsibilities in the areas of management, financing and infrastructure: accounting, economic and financial control functions at the Court and as a member of the teams auditing of international institutions (UNDP, OECD, etc.), administrative and financial management, and then general management of Caisse des Dépôts' technical subsidiaries in the field of energy (SINERG) and the environment (SCET-Environment). From 1997 to 2002, he was in charge of the management of multinational investment funds for infrastructure projects in emerging Asia (AMI Fund), then in the OECD (Galaxy Fund). From 2005 to 2014, at the Ministry of the Economy, as Secretary General, then Director of the Public-Private Partnerships Support Mission (MAPPP), a service with national responsibility attached to the DG Trésor. From 2014 to August 2018, manager of the Public-Private Infrastructure Advisory Fund (PPIAF) in Washington, DC, within the World Bank Group. Since Sept 2018, Executive Director of Long Term Infrastructure Investors Association (LTIIA).
Jon Philips

Jon Philips joined Global Infrastructure Investor Association (GIIA) as Corporate Affairs Director in September 2016 with a brief to develop and implement its advocacy and engagement programme and to help build its membership base. GIIA now represents 70 of the leading institutional investors around the world along with many of the professional services firms that advise the sector. GIIA’s members – made up of fund managers, pensions funds, insurance companies and sovereign wealth funds – own and operate more than $500bn of infrastructure assets under management across 48 countries on six continents. Jon has spent over 25 years in infrastructure-related sectors spanning both the private and public sectors. Between 2005 and 2016, he was Communications & Stakeholder Relations Director for the Nuclear Decommissioning Authority (NDA), a UK government agency established to provide strategic leadership of the clean-up programme for 17 publicly owned nuclear sites. Working directly with governments, regulators and communities he helped develop the relationships necessary for NDA to secure and deliver its £3 billion a year programme. Prior to that, Jon spent 12 years at Heathrow holding a variety of roles including Director of Communications. Having helped secure approval for the £4.2 billion T5 project, Jon continued to lead on communications for the flagship project well into its construction phase.

Moderation:

Brer Adams

Brer Adams is a specialist in energy and infrastructure with considerable experience designing and managing private sector investments, combined with government policy development experience. Before joining the GI Hub, Brer was an associate director with Macquarie Bank, having worked in corporate advisory, alternative energy investments and corporate strategy. His work for Macquarie included leading principal investments in clean technology and environmental service sectors and undertaking project finance advisory in renewable energies and electricity transmission. Prior to this, Brer also served as an adviser to the South Australian government on energy, environment and health policy.