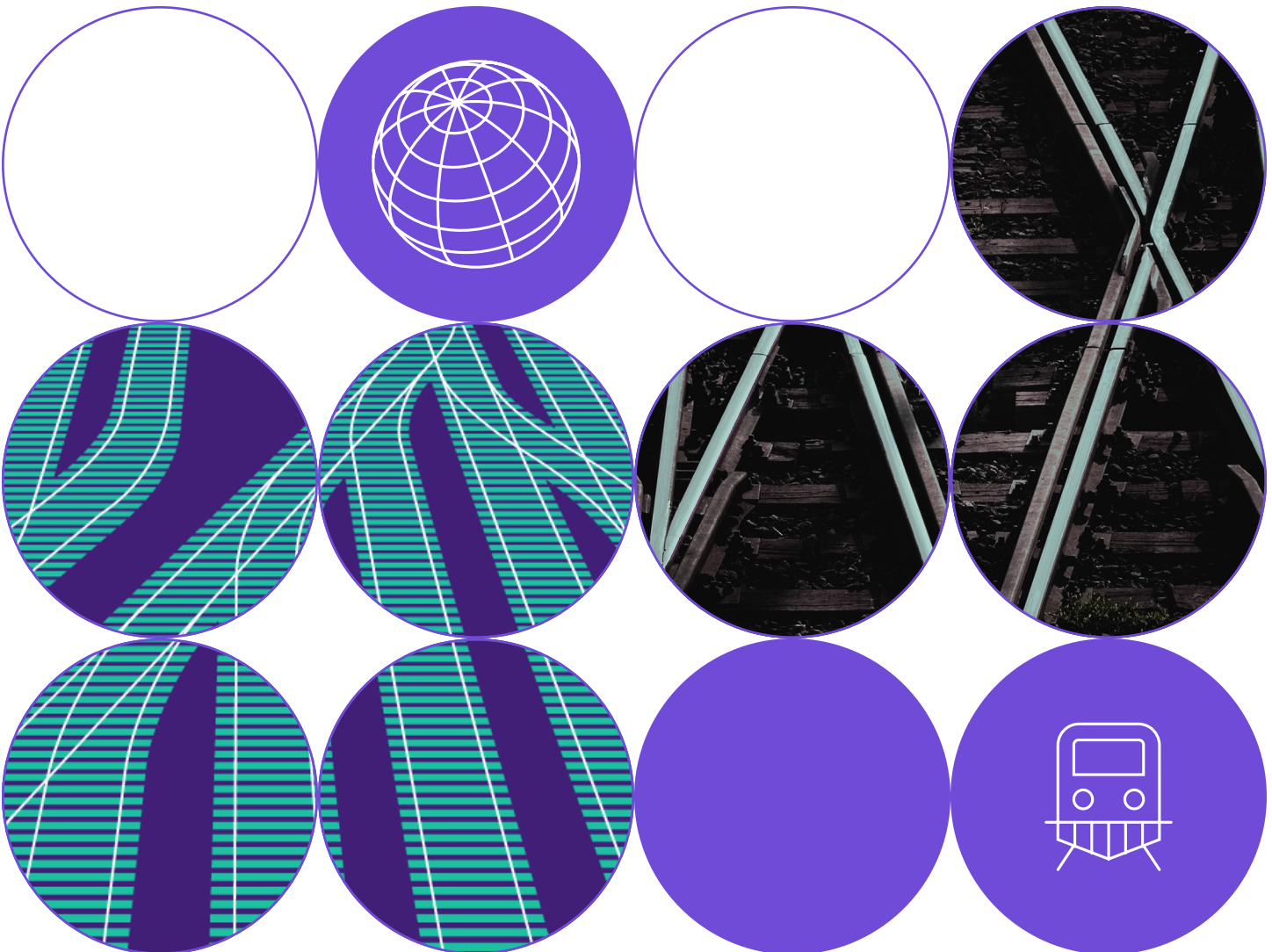


ISSUE 1

# Risk of Derailment: What Is Driving Disputes in Global Railway Projects?





# Foreword

Rail sits at the intersection of public ambition, political reality and the practical challenges of delivering large, complex infrastructure. Across global markets, governments turn to rail as a catalyst for economic growth, urban resilience and decarbonisation. At BRG, we see that the same projects designed to advance these objectives often encounter structural hurdles—misaligned incentives, political constraints and delivery risks—that can trouble even the most well-intentioned programmes.

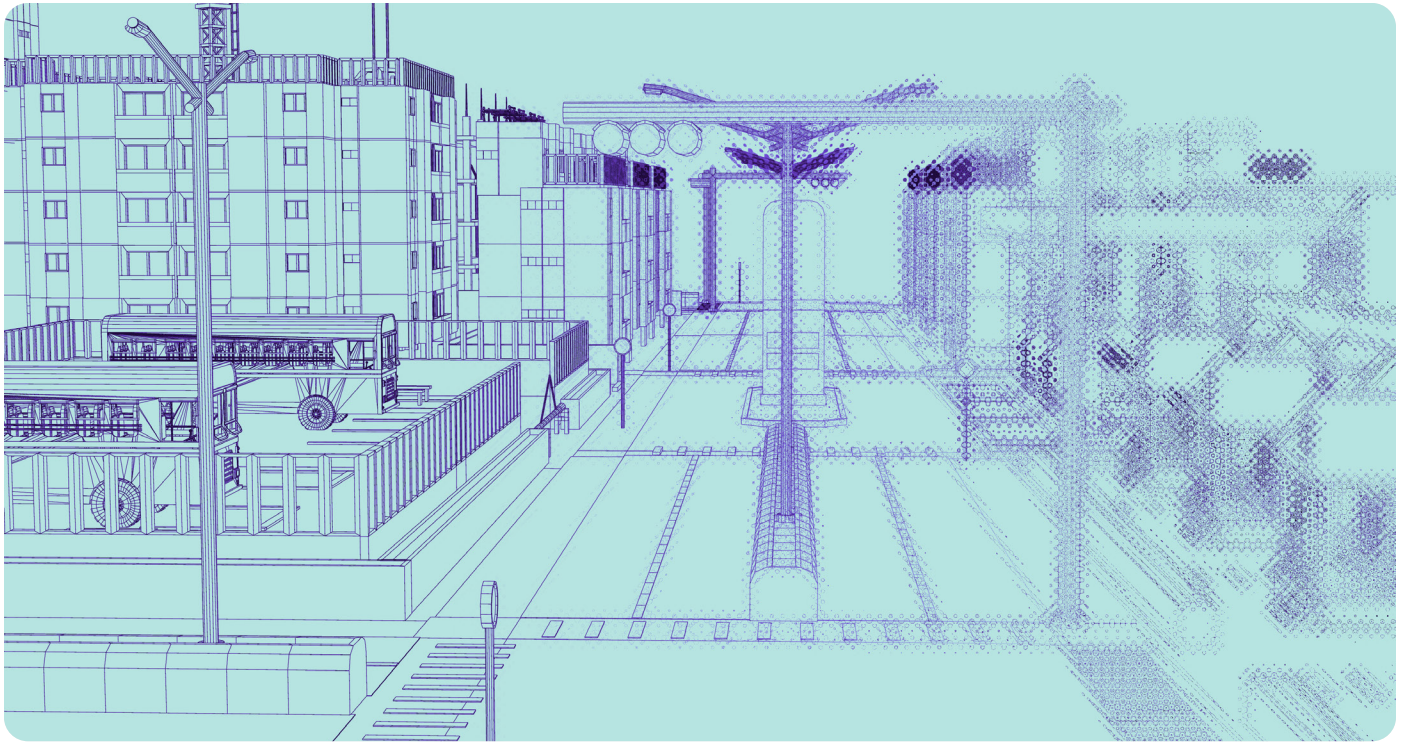
This first report in BRG's *Global Infrastructure Series: Transport* examines these challenges through a lifecycle lens, drawing on insights from industry practitioners, legal specialists and technical experts across Europe, Asia-Pacific, North America and the Middle East. A clear pattern emerges: Disputes in rail often arise not only from construction issues, but also from matters including planning, procurement, risk allocation and long-term management of multidecade contracts.

We observe similar dynamics across regions. Political objectives can outrun the enabling environment required to support them. Optimism bias can distort demand forecasts and risk assessments. Procurement processes may lack the competitive discipline or scope clarity needed for smooth delivery. And once the ribbon-cutting has passed, insufficient contract-management capacity can allow small issues to compound into major disputes. Conversely, rail projects succeed when governments and investors understand the full risk landscape, design robust commercial frameworks and navigate the complex interplay of regulatory, financial and technical factors.

We can expect further acceleration of geopolitical risks throughout 2026, as acutely illustrated by the war in Iran, continued supply chains shifts and expansion of rail systems into new markets. The need for disciplined planning and resilient delivery models will only increase. We hope this report will equip stakeholders across the public and private sectors to anticipate these challenges and engage more effectively with the realities of modern rail delivery.

**Mustafa Hadi**

**Managing Director, BRG**



# Project Identification: Structural Realities

## Enabling Environments

Risks exist before a metre of track is laid or a single tunnel dug. Many disputes that surface during the lifecycle of a rail project arise not from technical incapacity but from weak enabling environments—the political, regulatory, technological, legal and geographic conditions that must be anticipated before delivery begins.

These project-related conditions vary by region. To illustrate, we contrast Europe, Asia-Pacific and the Middle East.

## Europe

Europe's rail network is among the most advanced in the world: a technologically sophisticated system supported by a mature ecosystem of engineering consultancies, operators, suppliers and financiers. Yet it is also marked by long-term government disinvestment increasingly at odds with the European Union's (EU) ambitious climate goals.

"Funding is mainly financed by state budgets with limited contribution from access charges", says Francesco Lo Passo, a managing director at BRG. "Network operators face a trade-off in their decisions. They choose between either raising debt to pay investments—reimbursed when they receive public funding—or paying investments late once they have received state contributions".

Despite targets to expand high-speed rail and digitalising networks, the EU risks ceding leadership in rail manufacturing and systems integration to countries such as China and Japan, much as it has in solar panel technology, electric vehicles and semiconductor manufacture. It is notable that just as the EU unveiled an action plan for a high-speed rail network in November 2025, it also approved Chinese-manufactured trains for passenger services for the first time.

According to Miguel Caramello-Álvarez, an EU competition and regulatory lawyer and partner at Andersen in Brussels, the current stagnation reflects a combination of regulatory complexity, political fragmentation and structural constraints affecting the rail sector.

“Rail is one of the most capital-intensive industries in Europe. For any investor—public or private—long-term visibility and regulatory stability are essential”, Caramello-Álvarez states. He notes that the European rail sector relies heavily on operators with long-term industrial commitments. These operators carry significant responsibility for fleet investment, service continuity and delivery of public-service obligations. Ensuring regulatory stability and long-term policy visibility is critical for sustaining investment in the system.

Simultaneously, limited rolling stock availability—partly due to manufacturing bottlenecks and restricted supplier capacity—together with persistent gaps in technical standardisation and interoperability further constrain the sector’s ability to expand services and accelerate upgrades.

“Rail is one of the most capital-intensive industries in Europe. For any investor—public or private—long-term visibility and regulatory stability are essential”.

**Miguel Caramello-Álvarez**

Partner, Andersen

## Asia-Pacific (APAC)

The rail landscape in this large region is diverse, spanning some of the world’s most advanced—and also most capacity constrained—rail systems. Japan, China and Singapore operate high-performing, high-tech networks with strong government backing.

At the same time, large emerging markets such as India, Vietnam, the Philippines and Thailand face land acquisition hurdles, bureaucratic constraints and heavy reliance on multilateral finance.

“In emerging markets, macroeconomic and institutional volatility make it harder to forecast outcomes reliably, which in turn amplifies valuation uncertainty when disputes occur”, says Joel Woodward, an associate director at BRG in Bangkok.

Dan Waldek, an international arbitration partner at law firm HSF Kramer, describes disputes as “the commercial reality” of rail projects in emerging markets.

In delivery models where a state government is coordinating projects divided into works packages—as many projects in this region are—disputes proliferate, Waldek says. “On some of the big rail corridors virtually every contract package ends up in arbitration. It’s not an efficient use of time or resources, but it needs to be accounted for in the project planning at the outset—in terms of both commercial and legal arrangements”.

“In emerging markets, macroeconomic and institutional volatility make it harder to forecast outcomes reliably, which in turn amplifies valuation uncertainty when disputes occur”.

**Joel Woodward**

Associate Director, BRG

## Middle East

The Middle East rail environment is defined by a unique combination of state-driven ambition, rapid greenfield development and centralised decision-making. The Persian Gulf states have delivered large, integrated metro and intercity systems at remarkable speed, supported by strong political will, abundant capital and turnkey delivery models, often from leading contractors in the APAC region.

Political instability, such as regime change or sanctions, can interrupt projects in this region in ways that are difficult to allocate contractually, says Stephen Hibbert, a UAE-based independent arbitrator and mediator who was previously general counsel overseeing the Qatar Railways Company and helped design, build and deliver the Doha Metro project completed in 2019.

“Generally, these events will trigger force majeure provisions in contracts, but where there is a creeping set of circumstances rather than one dramatic event, that is difficult”, he says.

Hibbert highlights that during the 2017 blockade of Qatar, the Doha Metro experienced major supply chain disruptions after land, air and sea routes were cut off. Alternative suppliers had to be secured, and force majeure provisions embedded in the original contracts proved critical in mitigating contractual exposure.

The underlying political relationships among regional countries can be present in major Middle East projects. Hibbert adds that Gulf Cooperation Council and regional countries know of the need to ensure political stability among themselves as part of the jurisdictional foundation for any major project.

Most recently, the first half of 2026 has seen war break out in Iran and wider conflict across the Middle East. Though the ultimate impact on the infrastructure sector remains to be seen, damages, supply chain disruption and ensuing complications are expected.

## United States

According to Kim Hillenbrand, a director at BRG, policy and regulatory actions are introducing both structural change and uncertainty across the US rail network, reshaping freight flows and operational dynamics.

“Tariff policy and shifting trade relationships have altered import and export patterns, driving selective nearshoring and onshoring which impact the overall supply chain”, Hillenbrand says. “At the same time, evolving regulatory requirements are recalibrating how railroads plan, invest in and operate their networks”. He points to contributing factors including more stringent hazardous materials rules, federally mandated minimum train crew sizes and emerging US Surface Transportation Board initiatives such as environmental review streamlining.

“Tariff policy and shifting trade relationships have altered import and export patterns, driving selective nearshoring and onshoring which impact the overall supply chain. At the same time, evolving regulatory requirements are recalibrating how railroads plan, invest in and operate their networks”.

**Kim Hillenbrand**

**Director, BRG**

In the near future, the US transportation network may see a significant shift. A proposed merger between Union Pacific and Norfolk Southern could substantially reshape the network and the broader North American supply chain. If consummated, the transaction would create the nation's largest—and first truly transcontinental—Class I freight railroad, linking major population centres and ports from coast to coast under a single operating system with improved supply chain resilience and strengthened intermodal competition with long-haul trucking.

However, the proposed merger would be subject to intensive regulatory scrutiny by the Surface Transportation Board and a range of stakeholders. Approval could signal a renewed era of large-scale consolidation within the freight rail industry, with possible downstream competitive and structural effects.

Overall, Hillenbrand takes a positive view of the region's rail network outlook, finding a clear upswing marked by rising ridership and improving financial performance across both public and private operators.

"This resurgence has spurred the creation of new services and significant capital investment across the sector, with both public agencies and private developers advancing projects that expand capacity and improve reliability", Hillenbrand says.

Looking ahead in 2026 and beyond sees passenger rail trends pointing towards continued corridor development, expanded state partnerships, increased private-sector participation and federal and state funding aimed at modernizing infrastructure and enhancing service frequency. However, questions remain on how deferred maintenance, capacity constraints and freight-passenger conflicts on shared infrastructure will be addressed.

## Cross-Cutting Early Stage Risks

Regional differences matter, but certain structural risks are common to rail projects regardless of geography.

All projects must begin by addressing foundational questions: What is the demand for this project? What is the project's risk profile? What are the likely returns?

On these considerations, BRG Managing Director Peter Bird finds, "Disputes arise when risk allocation is unclear. Bias—either optimistic or pessimistic—distorts these answers, seeds later disputes and limits potential".

**“Disputes arise when risk allocation is unclear. Bias—either optimistic or pessimistic—distorts these answers, seeds later disputes and limits potential”.**

**Peter Bird**  
Managing Director, BRG

## Too Much Optimism: Ridership Bias

Demand forecasting is central to financial viability. Landmark [research](#) by Danish geographer Bent Flyvbjerg in the early 2000s showed that urban rail projects often exceed cost estimates and carry fewer riders than projected.

Although modelling has improved, research suggests optimism bias persists. A 2024 [study](#) based on 164 large-scale transit projects in the US found that average ridership was 24.6 percent lower than forecast, with around 70 percent of projects overpredicting demand.

“The numbers in these reports look great on paper—until construction starts”, Waldek says. He adds that inaccurate ridership analyses have resulted in “unexpected, totally unrealistic numbers” being incorporated in the planning stage and viability studies for some projects.

Bird notes that optimism bias can arise from misaligned incentives: Developers and project financiers like banks earn fees for delivery.

“The numbers in these reports look great on paper—until construction starts. [Inaccurate ridership analyses have resulted in] unexpected, totally unrealistic numbers” being incorporated in the planning stage and viability studies for some projects”.

**Dan Waldek**

Partner, HSF Kramer

“Bankers cannot assess the ridership risk themselves, so they need to rely on a ridership study conducted by a third party”, says Bird. “Financial considerations may favour optimistic forecasts”. He indicates that besides overarching macroeconomic risks, ridership and construction risk are the most important risks affecting a project.

Providing the North America perspective, Hillenbrand finds ridership outlooks have reason to be healthily optimistic:

“Amtrak has continued to post strong post-pandemic demand on core corridors such as the Northeast Corridor and state-supported routes, while privately operated Brightline has demonstrated robust ridership growth in Florida and momentum behind its expansion model.

“Commuter rail systems, including the Virginia Railway Express and others nationwide, are benefiting from service expansions, schedule adjustments and renewed public investment as travel patterns stabilise”.

## Too Little Optimism: Risk Bias

Conversely, risk assessments may be uniquely conservative in emerging markets.

Data from the [Global Emerging Markets Risk Database](#) indicates that loans for infrastructure projects in emerging markets repay at roughly the same rate as similar loans in richer countries, and the money recovered when things go wrong is often higher—meaning these projects are far less risky than many investors assume.

Together, these dynamics show that disciplined data analysis at the project establishment stage is foundational. As Waldek puts it, allowances must be made for unexpected or unforeseen circumstances when allocating risk.

# Project Preparation and Procurement

During preparation and procurement, the employer brings a rail project to market, structures risk allocation, evaluates bidders and formalises contract frameworks designed to endure for decades of performance.

Many delivery failures originate not in construction, but rather in weak procurement discipline and insufficient capability during the tender process.

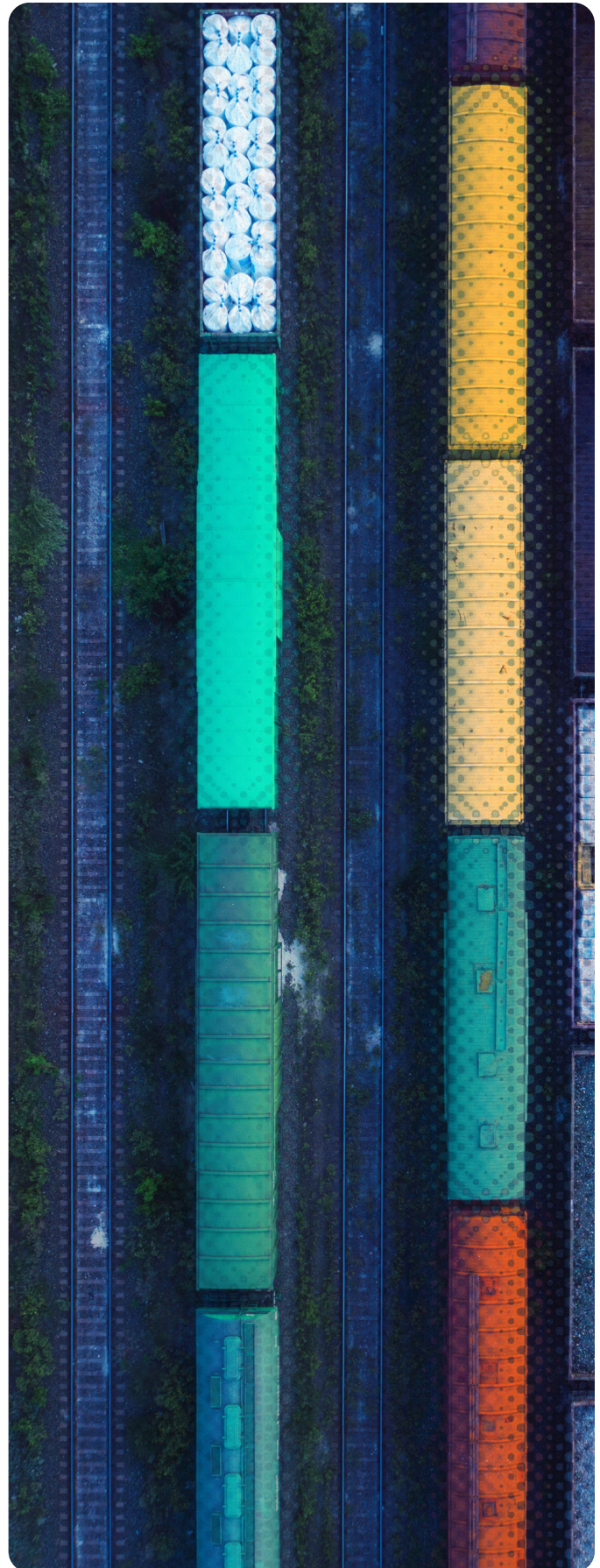
## Competitive Landscapes

The most important determinant of whether a project represents value for money is whether the procurement phase is genuinely competitive, but competition can be curtailed by various factors.

In emerging markets, rail is often offered as government-to-government contracts. These offers can be attractive in countries where Western lenders are reluctant to finance megaprojects. For example, leading Chinese providers have successfully built end-to-end rail systems [throughout Africa](#) on this model, ensuring long-term access to the region. Political leadership in these emerging markets countries often is directly involved in procurement stage.

It is important to consider the mixed impact of China's role in funding the infrastructure boom in African countries. As the 2022 Chatham House report [The response to debt distress in Africa and the role of China](#) finds:

Over the last 22 years, Chinese finance has contributed to an infrastructure boom in many African countries. However, the pace of lending slowed after 2016 as commodity prices and GDP growth rates declined, with Chinese loans to African governments dropping... China has built a large stock of debt across the African continent, and now faces the challenge of managing these investments amid economic woes linked to the legacy of the COVID-19 pandemic and the war in Ukraine, which have heightened the prospects of default in some African nations.



Meanwhile, in developed markets like Europe, competition exists but is uneven. The EU liberalised rail two decades ago, but incumbents retain structural advantages in labour arrangements, rolling stock access and regulatory familiarity. New entrants must navigate complex national prescriptions layered atop EU law and compete for scarce stock and operating slots in a market constrained by rules against non-EU suppliers.

This results in a procurement landscape that is formally open but practically tilted.

## Scope Design

Beside the competitive landscape, two major factors underpin a deliverable rail project during the planning and procurement stage: intelligent packaging of the works and optimised interface management.

Rail projects are inherently multilayered. Civil works, tunnelling, stations, track, systems, signalling, rolling stock, MEP (mechanical, electrical and plumbing) and digital controls typically are divided across multiple works packages involving specialist subcontractors.

Packaging strategy is therefore a core risk-allocation mechanism. It must clearly delineate scope boundaries, allocate risk to the party best positioned to manage it and provide contractors with sufficiently early visibility to plan labour, plant and supply chains.

Packaging should also minimise interfaces—the points where responsibility for one part of the project transfers to the next contractor—wherever possible, Hibbert says.

“On every major project, without fail, the main sources of complaints or claims are at the interface points where the site being promised to the next contractor is not on time or in the state described in the tender”, he says.

If handover does not occur in time or the site is not in the condition promised at tender, delay can cascade. The issue is amplified where a specialist subcontractor’s works form part of the commission tests required for completion of the project. In rail, completion of a project does not simply mean the end of construction but the point at which the integrated railway has passed testing and commissioning, proving that the entire railway functions safely and reliably as an integrated system and can be taken over for operation.

“If the specialist subcontractor gets late access, it will delay the main contractor’s handover and can result in claims from the employer”, Hibbert says. “Liquidated damages may follow”.

Thus, relatively localised interface failures can escalate into project-wide delays.

### CASE STUDY Doha Metro

The \$30 billion, 31-station Doha Metro comprises 140 kilometres of tunnel and track under the city of Doha and into its suburbs. It was completed in seven years and has become the transport backbone of the city.

The Doha Metro deliberately limited interfaces and was structured around twelve major works packages. By contrast, a major airport project in the same region was divided into 126 packages.

Hibbert says several contractual mechanisms were used to reduce ambiguity at handover points:

- Specialist subcontractors were given access to a live database showing the as-built status of works at tender stage.
- Drawings defined precisely the condition of the site the subcontractor would inherit.
- Contractors were required to resolve interface issues between themselves rather than automatically escalating them as employer claims.

These measures recognised a structural reality: Disputes usually arise not from engineering failure but from misalignment at the boundaries between scopes, particularly where those boundaries affect the path to completion.

# Technology Timing

Preparation and procurement must also account for technological evolution. An urban light rail project can take at least seven years to deliver, at best. During that time, core elements of the technology used—access controls, passenger-information systems and signalling systems—inevitably evolve.

Fixing specifications too early risks embedding obsolete solutions and generating redesign and variation claims. One practical response is to separate tech-heavy components into provisional or deferred packages awarded later in the programme, Hibbert says. In the Doha Metro, over 40 percent of the major contract was structured as provisional, preserving flexibility as the project matured.

## Utilities and Access

Finally, preparation must recognise that contractors require access to the site that goes beyond its formal boundaries, including access routes from ports, laydown areas and coordinated utility relocation. If poorly mapped or inadequately investigated, utilities can become a major source of delays and disputes. The Sydney Central Business District (CBD) and South East Light Rail case study illustrates this dynamic.

## Early Preparation

Flyvbjerg argues in his 2023 book *How Big Things Get Done* that stakeholder conflict starts early—and long before construction. Rail megaprojects often begin with many unresolved interests (e.g. local communities opposing route alignments, contractors lobbying for scope changes) which can later turn into disputes.

The increasing adoption of dispute resolution boards (DRBs) is a beneficial development in avoiding and reducing disputes in major rail projects. DRBs have been effective in quickly resolving disputes and avoiding arbitration.

### CASE STUDY

## Sydney CBD and South East Light Rail

The 12.5-kilometre scheme ballooned from an original budget of AUS \$1.6 billion to AUS \$3 billion. A central dispute concerned underground utilities: Far more extensive relocation works were required than anticipated, including major works to over 100 utility pits.

The contractor argued that the scale and complexity of services had not been defined adequately at financial close, triggering substantial claims and programme delay.

Made up of a small panel of experts, a DRB serves to stop disputes from arising as issues are anticipated at an early stage. The panel can monitor a project as it develops, visit the site and inspect documents. An effective panel will point out the potential for disputes. Increasing adoption of DRBs provides a clear direction of travel, particularly in modern public-private partnership rail projects.

# Implementation

In public-private partnerships (PPP) like rail projects, the private sector finances, designs, builds and maintains the rail network. The government, meanwhile, ensures that the project meets the standards set out in the contract.

Implementation is one of the most neglected stages of rail delivery. Once contracts are signed, political and public attention often shifts to the next transaction, leading to a decades-long contract management exercise that is less glamorous but quite possibly the most important.

Weak contract management capacity can undermine a government's day-to-day supervision, dispute resolution, performance monitoring and renegotiation requests, all of which are inevitable over multidecade concessions.

In rail, where assets are long-lived and operations are intricate, building state capacity for contract management is the lynchpin of successful delivery over decades. That includes the elasticity to renegotiate contracts even years down the line if, for example, economic circumstances change.

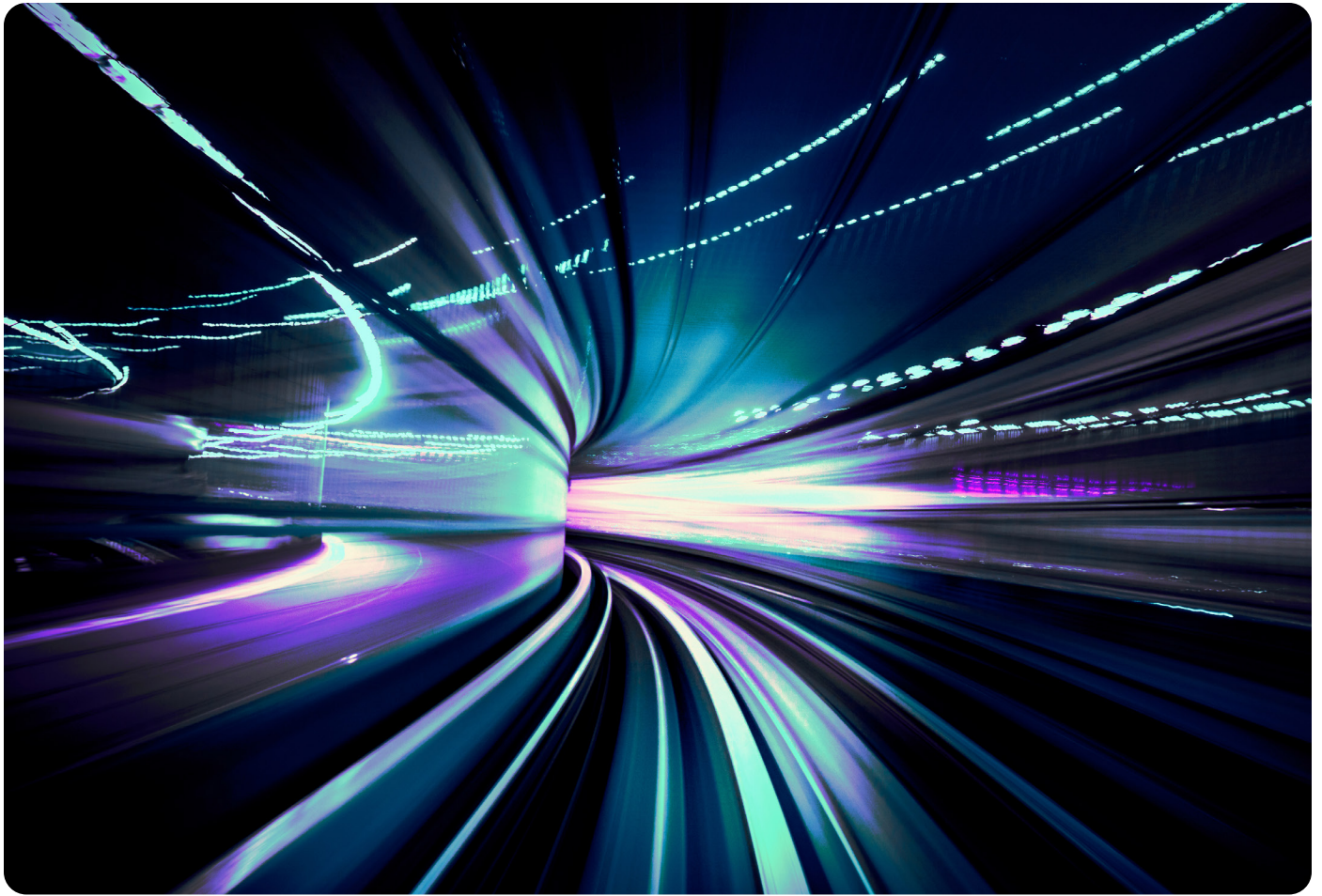
## CASE STUDY

### Melbourne Tram Negotiation

In the late 1990s, Victoria franchised Melbourne's train and tram networks to private operators. Revenue and cost assumptions proved too optimistic; by 2002, several operators faced financial distress.

The state intervened. It restructured the system into a single train franchise and a single tram franchise and renegotiated both franchises on a bilateral basis rather than through a competitive re-tender.

Melbourne is often cited as evidence that renegotiation can preserve essential services when initial assumptions fail, provided the government has the capability to reset risk allocation and performance incentives.



## Conclusion: Future Risks and Best Practices

Patterns emerge across regions. Rail projects result in disputes not only based on engineering, but also because structural risks are misdiagnosed early, procurement races ahead of preparation, interfaces are poorly managed or governments lack the institutional capacity to support decades-long contracts.

Each stage can compound poor planning in the next: Mispriced risk skews investment decisions, procurement without competition embeds the risk of later disputes and fragmented packaging amplifies interface frictions.

Managing these complex contractual and planning tensions will be crucial to the robustness of rail networks projects, particularly as geopolitical risks are rising. Just as the world's rail systems are still recovering from the long tail of the COVID-19 pandemic, tariff policies, trade wars and new conflicts again threaten to disrupt established supply chains.

Governments and investors must plan rigorously and procure competitively to design resilient policy and delivery models.

# Best Practices

## 1. ENGINEER THE INTERFACES

Rail projects are systems-of-systems undertakings. Civil works, stations, rolling stock and digital controls must function in an integrated manner. Fragmented packaging and poorly defined handovers consistently trigger disputes, particularly where specialist subcontractors are central to commissioning.

### Best practice

- Limit interfaces as much as possible and clearly delineate scope boundaries.
- Allocate risk to the contracts most relevant to manage it.
- Require contractors to resolve disputes bilaterally before escalating to employer-level claims.
- Ensure transparency into site conditions and access.

## 3. PLAN FOR RENEGOTIATION

Rail concessions and PPPs are multidecade arrangements. Yet many authorities lack the institutional capacity and resources to manage contracts over the duration.

Contracts should therefore build in durability and contain future disputes over the life of the concession. Over decades, renegotiation is a certainty; the best practice lies in structuring agreements that can absorb that reality.

### Best practice

- Design flexible contracts that allow for economic recalibration.
- Allocate risk to reduce the likelihood of opportunistic claims.

## 2. MANAGE TECH INTELLIGENTLY

Rail systems technology moves more quickly than construction programmes. Locking in systems too early invites claims, redesigns and misalignment between packages.

### Best practice

- Prepare packages so that a substantial percentage of systems procurement is provisional, allowing specifications to be updated later.
- Structure contracts to include defined processes for updating standards without triggering variation claims.

## 4. BUILD FOR UNCERTAINTY

Many rail projects unfold in politically unstable environments. The past few months have seen the threat of new conflicts—with those involving the US and the Middle East marking a new and previously unseen escalation point—and a continued risk of trade wars. As a result, supply chain disruptions become almost certain. Macro shocks can push parties into difficult contract renegotiations.

### Best practice

- Customise robust force majeure provisions and structured renegotiation pathways in contracts.
- Include relief clauses that cover geopolitical disruptions that are “creeping”, rather than immediate shocks.

# Acknowledgements

BRG extends thanks to the contributors who shared their expertise in support of this report.

## Contributors

### Miguel Caramello-Álvarez

**Partner, Andersen**

BRUSSELS

Miguel Caramello-Álvarez is a partner specialising in EU regulatory, competition and public affairs matters who has over fifteen years' experience advising international companies, trade associations and public bodies. He advises on competition, state aid, foreign investment, public procurement and EU policy and represents clients before the European Commission and national and international regulatory authorities. He previously served as chief legal officer of the Community of European Railway (CER). He is also a visiting lecturer in EU transport policy at the European College of Parma.

### Stephen Hibbert

**Independent International Commercial Arbitrator and Mediator**

DUBAI

Professor Stephen Hibbert is an Australian-qualified lawyer, dual qualified as an engineer. He is an experienced international commercial arbitrator and mediator, admitted as a solicitor advocate in New South Wales, Australia, and has been a resident in the Middle East for over seventeen years. In the Middle East, he has been appointed as an arbitrator in domestic and international arbitrations, including, in a number of those cases, being appointed as presiding arbitrator, with one being an extremely high-value ICC case regarding a strategic government project in the Gulf Cooperation Council region.

### Mark Moseley

**Principal, Moseley Infrastructure Advisory Services**

UNITED KINGDOM

Mark Moseley is a global consultant on infrastructure projects and enabling environments for public-private partnerships (PPPs). He was previously chief operating officer at the Global Infrastructure Hub and lead lawyer at the World Bank. He is an occasional lecturer at the Harvard Kennedy School, University of Melbourne Law School and University of Dundee. He is a Recognized Peer of the World Association of PPP Units and Professionals—one of five individuals holding this designation.

### Dan Waldek

**Partner, Singapore, Vietnam Group, Herbert Smith Freehills Kramer**

SINGAPORE

Dan Waldek is an international arbitration lawyer specialising in construction and engineering disputes in the infrastructure and energy sectors. He has advised on complex claims under a wide range of construction contracts relating to onshore and offshore oil and gas projects, pipelines, major petrochemical developments, renewable and conventional power projects, as well as road, rail, water, airport and urban development projects. He acts as counsel in major arbitrations under rules including ICC, LCIA and SIAC, advising on complex disputes involving large-scale projects, bringing to bear his in-depth knowledge of mediation and other alternative forms of dispute resolution to assist his clients to achieve successful settlements.

# BRG Authors and Contributors

## Peter Bird

### Managing Director

LONDON & SINGAPORE

Dr Peter Bird is a PhD economist who focuses on expert testimony on economic and financial issues, including valuation and quantification of damages. His experience includes mergers and acquisitions (M&A) and private equity (PE) disputes, joint-venture disputes, joint-venture disputes and disputes relating to projects in the infrastructure, energy and utilities sectors and their financing.

## Mustafa Hadi

### Managing Director

HONG KONG & SINGAPORE

Mustafa Hadi is BRG's APAC regional lead. He specialises in addressing issues of valuation, damages and accounting in complex commercial and investment treaty disputes, including M&A, PE, joint venture, shareholder, breach of contract, financial services, intellectual property and infrastructure disputes.

## Kim Hillenbrand

### Director

WASHINGTON, DC

Kim Hillenbrand is an expert with more than twenty years' experience in transportation and network industries. He previously led economic and operational analysis at the US Surface Transportation Board. He is a testifying expert with expertise in pricing, regulatory analysis, competition and merger matters, cost modeling, operational analysis and financial analysis.

## Francesco Lo Passo

### Managing Director

ROME & MILAN

Dr Francesco Lo Passo has more than twenty years' experience in economic consulting since his involvement in the opening of the first international economic consulting office in Italy. He has advised clients on state aid, extensions and renegotiation of concessions, market and regulatory issues including tariff design, cost of capital estimation for regulated companies, capacity payments, gas transmission tariffs, network codes, revenue neutrality mechanisms, unbundling of regulatory accounts, design and implementation of a competitive mechanism for electricity procurement and incentive mechanisms for renewable energy sources.

## Joel Woodward

### Associate Director

BANGKOK

Joel Woodward specialises in valuation and the assessment of complex damages in cases of international arbitration and litigation. He has led and supported the preparation of expert reports addressing financial and economic issues across diverse sectors, including transport infrastructure, mining, oil and gas, power, agribusiness, financial services and cryptocurrency.

# About BRG

BRG combines world-leading academic credentials with world-tested business expertise, purpose-built for agility and connectivity, which sets us apart—and gets our clients ahead.

Our top-tier experts include experienced industry leaders, renowned academics and leading-edge data scientists. Together, they bring a diversity of proven real-world experience to economics, disputes and investigations; corporate finance; and performance improvement services that address the most complex challenges for organisations across the globe.

Our unique structure nurtures the interdisciplinary relationships that give us the edge, laying the groundwork for more informed insights and more original, incisive thinking from diverse perspectives that, when paired with our global reach and resources, make us uniquely capable to address our clients' challenges.

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### Economics, Disputes & Investigations

With a team of industry specialists and experts in accounting, business intelligence, damages analysis, economics, finance, intellectual property, valuation, data analytics, statistics and strategic analysis, BRG's Economics, Disputes & Investigations practice is a leader in the areas that can impact business most significantly.

### Regulation

BRG's regulatory experts offer deep expertise in a wide range of disciplines, combined with hands-on sector experience, to ensure the optimal application of technical analyses for prevailing market conditions and the goals to be achieved. When conflicts and disputes arise—between providers, between providers and regulators, or with competition authorities—our experts provide independent analyses and opinions, bringing knowledge and experience from economic regulation across sectors and regulatory models practiced worldwide.

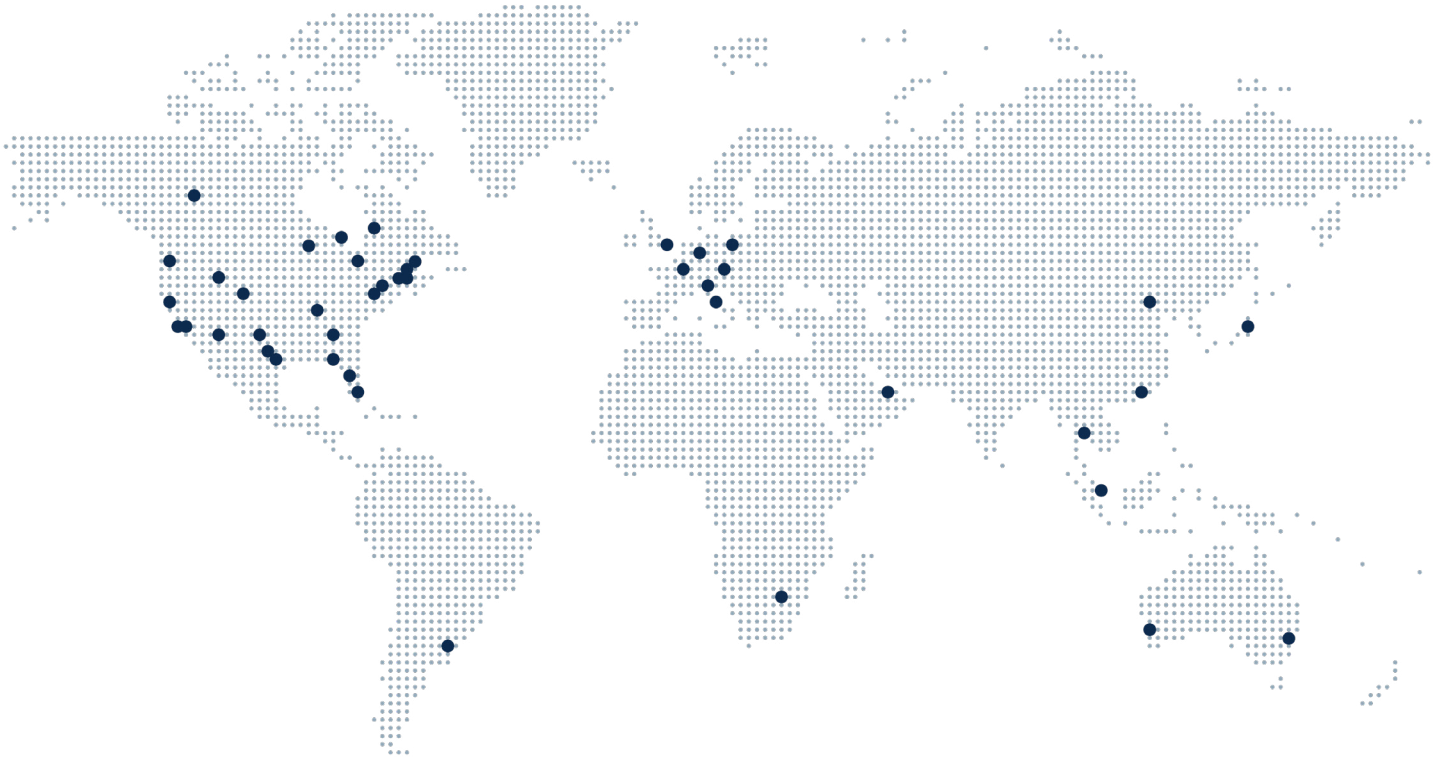
### Construction

BRG offers professional experience and competence in fact finding, data analytics, claims/dispute analysis and management and litigation support. Our professionals provide technical expertise in engineering, architecture, construction management, public contracting, specifications and technical document development, schedule development and analysis, cost analysis, negotiations and expert witness testimony.

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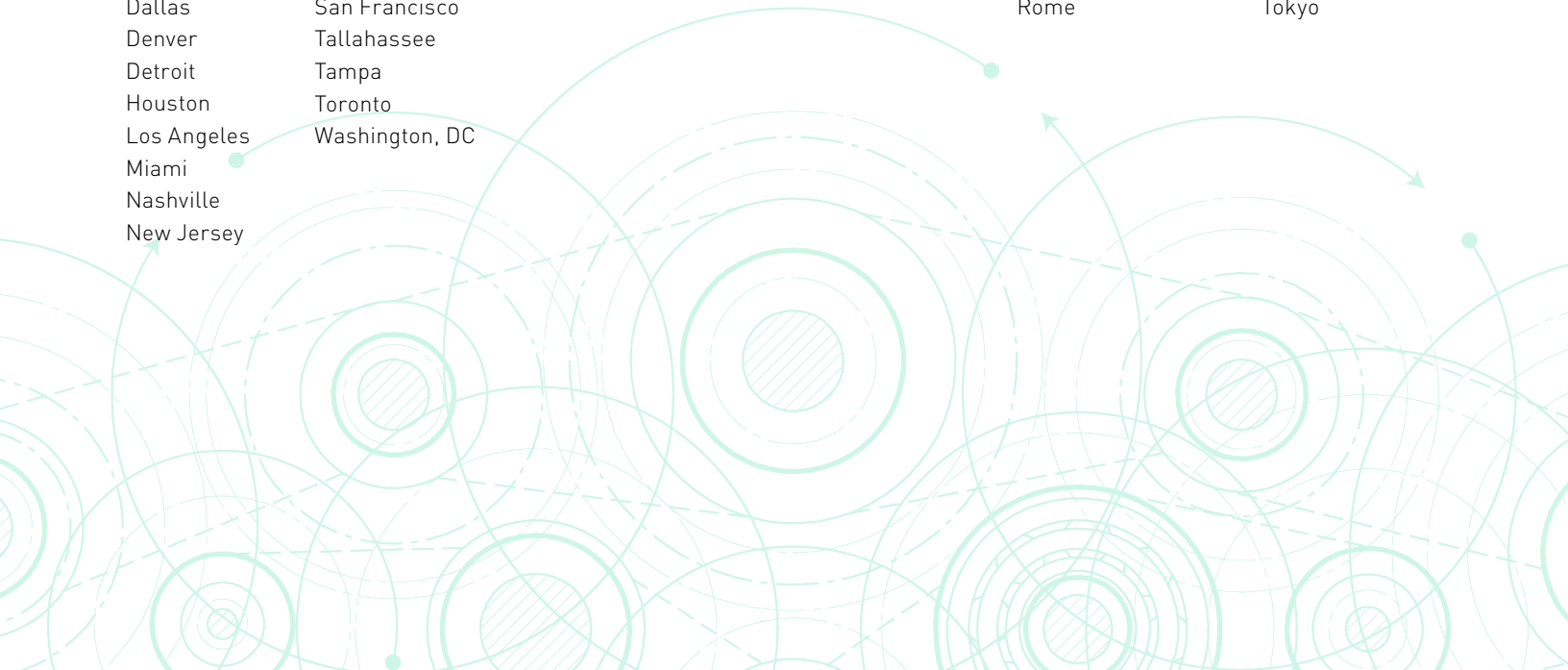
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