

Infrastructural Embedding: How Domestic Institutional Configurations Shape Divergent Cross-Border Infrastructure Packages

Shuai Qin

shuai.qin@pku.edu.cn

Peking University

Research Article

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Abstract

Why do providers entering the same infrastructure system make different contributions? Historical-institutionalist international political economy (IPE) links domestic structures to external economic strategy, while infrastructure-finance and infrastructure-power research documents variation in financing models, risk allocation, and network power. This article explains how domestic institutional configurations shape provider contributions through infrastructural embedding: organisational actors apply prior mandates and capacities to outward roles, extend established arrangements across borders, and commit them to defined project components. Process tracing of the Benguela-Lobito rail-logistics system compares China Eximbank and contractor-led railway reconstruction, U.S. development-finance support for Angola's selected private concessionaire, and E.U.-linked preparation of a logistics platform. Angolan decisions establish project and operating authority, while entry stage defines the task available to each provider. Domestic configurations organise the actors, instruments, and responsibilities through which each task is performed. The evidence shows policy finance paired with contractor delivery, U.S. International Development Finance Corporation (DFC) lending and assurance added to an operating concession, and E.U.-linked resources organised around Caála preparation through a multi-level interface. The comparison advances historical-institutionalist IPE by explaining how domestic configurations form divergent package architectures at project level.

1. Introduction

Cross-border infrastructure organises the material conditions of production, trade, finance, and development. Railways, ports, energy systems, logistics platforms, and critical-mineral corridors connect domestic economies to international markets while distributing authority over finance, construction, standards, and operation. This political-economic dimension is visible in China's Belt and Road Initiative (BRI), the U.S.-led Partnership for Global Infrastructure and Investment (PGII), and Global Gateway, an initiative of the European Union (E.U.). Research compares their financing models, geopolitical strategies, and developmental implications (Abels & Bieling, 2024; Larsen, 2025; Petry, 2023). The comparative puzzle is how providers entering connected projects attach different institutional arrangements to the material systems they help build.

Historical-institutionalist IPE offers the starting point for explaining this variation. The domestic-structures tradition shows how institutions shape divergent external economic policies under shared international pressures (Katzenstein, 1976, 1977). Work on global market-making follows domestic rules into transnational markets and interdependence (Farrell & Newman, 2010). Infrastructure-finance research identifies project-level forms through which capital, risk, and state-business relations are organised (Larsen, 2025; Petry, 2021, 2023). Recent studies connect domestic development-finance models and political-economic capacities to overseas infrastructure provision (Chen, 2020; Hameiri & Jones, 2024, 2025; Zhang, 2025), examine network bundling and structural power (Rolf et al., 2026), and analyse the geoeconomic aims of Global Gateway projects (Herranz-Surrallés, 2026). This literature establishes that provider institutions shape infrastructure strategies and models. The article traces how they form specific project contributions.

Recent comparisons identify distinct forms of policy-bank finance and contractor delivery, private-finance derisking, and multi-level project preparation (Chen, 2020; Herranz-Surrallés, 2026; Larsen, 2025; Petry, 2023; Zhang, 2025). The causal problem lies in the transition from domestic organisation to these project forms: which organisations apply prior capacities, how they extend established arrangements beyond the provider polity, and how those arrangements attach to a defined infrastructure component. Tracing this sequence explains how domestic institutional variation acquires a project-level form.

The research question is: Through what process do pre-existing domestic institutional configurations shape the form of provider contributions to cross-border infrastructure projects? The article answers through infrastructural embedding. Organisational actors translate prior mandates into outward roles, extend established arrangements across borders, and attach them to defined project components. Section 2 derives these three movements from historical-institutionalist IPE and infrastructure-finance research and identifies the project records through which each movement can be traced.

Process tracing compares three contributions within the Benguela-Lobito system: Chinese policy finance and contractor capacity in railway reconstruction, U.S. International Development Finance Corporation (DFC) finance and assurance attached to Angola's selected private concessionaire, and E.U.-linked support for Caála preparation. Angolan authorities select projects and operators, and entry stage defines the task available to each provider. The analysis traces prior mandates, actor assignments, outward arrangements, and the first dated project attachment; it codes the resulting package architecture separately from that process

evidence. Section 4 establishes what differs, traces how each contribution formed, and explains why the routes diverged. Section 5 assesses the causal contribution and rival explanations.

The article advances historical-institutionalist IPE by identifying the causal process through which domestic economic organisation acquires project-level form. It shows how organisations translate prior mandates into outward roles, extend established arrangements across borders, and attach them to host-selected infrastructure tasks. The conclusion states what this comparison establishes for the study of international political economy and identifies the next evidence needed to test instrument choice across matched project stages.

2. Theoretical Framework

2.1 Domestic structures and external economic strategy

The article's primary conversation is historical-institutionalist IPE. The domestic-structures tradition places domestic institutions between international pressures and external economic policy. Domestic political institutions organise interests, distribute authority, and structure adjustment; the resulting configurations shape what governments can pursue abroad. Katzenstein's comparative work on advanced industrial states established this domestic-structures approach, linking different domestic arrangements to different foreign economic policies under common external conditions (Katzenstein, 1976, 1977). The explanatory target was policy variation: the same international economic environment can elicit different external responses because states organise their domestic political economies differently.

That claim carries an important implication for infrastructure. A provider's capacity to build, finance, regulate, or coordinate abroad draws on organisations and routines formed through domestic political and economic development. Policy banks, public development-finance agencies, engineering firms, private investors, standards bodies, and administrative authorities acquire mandates and working relationships over time. Domestic configurations therefore shape the set of credible external roles by structuring who can act, with which instruments, and through what coordination arrangements. The mechanism developed here starts from this institutional availability while allowing project choices to vary.

Subsequent historical-institutionalist IPE extended the domestic-structures question from external policy to global economic order. Nölke et al. (2015) applied the approach to large emerging economies and asked how their domestic structures informed foreign economic policies and the kind of global order they sought to shape. Their contribution connected domestic political economy to order-building and made externalisation a central issue. The explanatory movement thus progressed from the domestic sources of policy difference to the international order those policies support.

Research on global market-making developed a related account of how domestic institutional arrangements acquire effects beyond national boundaries. Farrell and Newman (2010) use historical institutionalism to explain the construction of global markets, showing how domestic regulatory choices, sequencing, and institutional development shape market integration. Their approach demonstrates how institutions and networks generate cross-border effects alongside explicit interstate bargains. Hameiri (2020) identifies the explanatory burden this extension creates: historical-institutionalist accounts of transnational outcomes can become ad hoc when they leave the wider context shaping political struggles unspecified. For infrastructure provision, this requires identifying the host-selected opportunity and entry-stage task alongside the provider's prior institutional arrangements, then tracing how those arrangements organise the provider's contribution.

These contributions establish a connected lineage: domestic institutions shape external economic policy; domestic political economies inform projects of global order; and institutional arrangements acquire effects in transnational markets. Their explanatory outcomes remain distinct: external policy, transnational market relations, and project-package formation. This article connects them by tracing which actors perform outward roles, which domestic arrangements they extend, and how these arrangements enter project finance, construction, or operation.

2.2 From global market-making to infrastructure packages

Infrastructure research supplies the next step by bringing material systems and project finance into international political economy. It treats infrastructure as an organisation of capital, regulation, public authority, and geopolitical strategy. Abels and Bieling (2024) frame infrastructural competition through the relation between globalisation and rivalry. Petry (2021) shows how exchanges and

financial infrastructures organise investment opportunities and structural power; his later analysis traces Chinese financial infrastructures as economic statecraft within the Belt and Road Initiative (Petry, 2023). Chen (2020) follows Chinese policy-bank lending into the internationalisation of a domestic development-finance model, while Zhang (2025) traces changes in state-bank-firm relations and risk management in China's infrastructure-export industrial policy. This work shifts the analytical object from infrastructure projects alone to the financial and organisational arrangements that direct capital through them.

Comparative work specifies how infrastructure initiatives organise finance, risk, and provider capacity. Larsen (2025), drawing on 123 interviews and documentary material, compares U.S., E.U., and Chinese models through host-country derisking, official development assistance (ODA)-bargained derisking, and state-organised risk-sharing. The comparison identifies the distributional consequences of each financing model. Hameiri and Jones (2024, 2025) connect domestic constraints and social coalitions to the capacity and form of overseas provision. Their 2024 analysis also explains how firm interests and financing conditions shape delivery models and contractual responsibilities. Rolf et al. (2026) analyse how states bundle infrastructure, finance, production, and digital networks to pursue structural power and dependency. Herranz-Surrallés (2026) examines the geoeconomic goals and instruments of Global Gateway energy projects across 117 projects. These studies establish the domestic sources, organisational forms, and distributional consequences of infrastructure provision. The article develops this connection through the sequence of assignments, outward terms, and commitments that forms a provider's contribution to a defined project component.

This research makes it possible to define the outcome precisely. An infrastructure package is the provider-attributable allocation of roles, instruments, and obligations around a defined project component at a specified endpoint. Its architecture records financing structure, organisational interface, risk-bearing responsibilities, standards and assurance, procurement and delivery roles, preparation, and operating authority. A financing model describes the source and terms of capital; package architecture also records which actors carry the project forward and which rules govern their interface. The components vary by task: construction, operating-concession finance, and project preparation expose different roles for providers.

2.3 The unresolved causal connection

The domestic-structures tradition makes the organisation of a political economy consequential for its external policy (Katzenstein, 1976, 1977). Its extension to global economic order explains how those structures inform competing projects of international economic organisation (Nölke et al., 2015). Historical-institutionalist market-making research advances the argument by examining how domestic institutional arrangements acquire transnational effects through interdependence and sequencing (Farrell & Newman, 2010). This progression makes the passage from domestic organisation to external economic arrangements the central explanatory problem. Infrastructure provision gives that problem a project-specific form: resources and authority must be organised into financing, delivery, and governance responsibilities before a strategy can become a contribution to an asset.

Infrastructure research sharpens this problem in two connected ways. Hameiri and Jones (2024, 2025) explain how domestic political-economic constraints, productive capacities, and relations between state managers and social forces shape overseas provision. Their analysis connects these conditions to organisational and contractual forms. Larsen (2025) explains how financing models allocate risks and affect host-country policy space. Building on these explanations, the project-level question concerns how the institutions of a provider organise a contribution within a host-selected project task. Available capacity, an assigned organisational role, cross-border terms, and a component-specific commitment are distinct observations in this process. Infrastructural embedding connects them causally: an actor applies its prior mandate to an outward role, extends the procedures governing that role, and commits the resulting arrangement to a project component. Tracing these transitions shows how domestic configurations shape the responsibilities constituting a package, while identifying the separate decisions through which the host establishes the task and operating authority.

Section 2.4 defines infrastructural embedding, and Section 2.5 derives its three theoretical expectations.

2.4 Infrastructural embedding as a causal process

The causal starting condition is a pre-existing domestic institutional configuration: a historically formed arrangement of organisations, authority, financial instruments, productive capacities, standards, and operating routines available to a provider before a particular project arrangement takes shape. Here, 'domestic' refers to arrangements organised within the provider polity. The E.U.-linked trace is a multi-level configuration involving Commission and Netherlands-linked institutions, reflecting the E.U.'s distinctive public organisation. Historical institutionalism directs attention to the formation and reproduction of such arrangements through

institutional development, complementarity, and path-dependent sequences (Pierson, 2000; Thelen, 1999). These arrangements make established organisations and procedures available when a project opportunity arises.

Infrastructural embedding is the process through which a provider's domestic configuration shapes its material contribution to an external infrastructure project. It comprises three connected causal movements. The first is organisationally mediated translation. A named actor applies a mandate or resource formed within the provider polity to an outward project role. China Eximbank applied policy-finance capacity to railway reconstruction; DFC applied development-finance authority to a private operator; and Commission and Netherlands-linked institutions organised support for Caála preparation.

The second movement is domestic institutional expansion. The organisational actor extends an established arrangement beyond the provider polity. The outward arrangement may take the form of a loan and repayment structure, contractor-delivery system, public risk assessment, environmental and social assurance, procurement procedure, technical standard, grant and advisory facility, or coordination protocol. Its financing terms, administrative rules, and organisational responsibilities carry the provider's institutional organisation into external infrastructure provision. The causal test is whether sources link the prior arrangement to the project-specific instrument or procedure. Expansion gives the actor's outward role institutional content: it specifies who supplies finance, who delivers work, which standards govern the interface, and which public or private body carries ongoing obligations.

The third movement is project-level material coupling: the earliest project-specific commitment or action identified in dated sources that connects an expanded arrangement to a defined component. Examples include a signed financing agreement, a project-specific grant commitment, procurement authorisation, work commencement, or activation of an operating procedure. The action date establishes the attachment when specified; a reporting date establishes when the arrangement was documented. Later completion and the endpoint allocation are coded as separate observations. The sequence matters because a prior capacity becomes causally relevant to an external project when an organisation applies it, gives it an outward institutional form, and commits that form to a specified component.

The outcome is provider-specific infrastructure package architecture at a defined project component and endpoint. It records the provider-attributable allocation of finance, organisational roles, risk responsibilities, standards and assurance, delivery, preparation, and operating authority. The profile records host and multilateral roles when they form the interface for a provider contribution, while coding their decisions and implementation outcomes as distinct actions. To keep mechanism and outcome independent, process codes come from pre-project mandates, dated actor-role records, outward project terms, and the first attachment event. The endpoint code uses the allocation of outcome dimensions at the trace-specific observation date. A source that reports both supplies separately coded propositions, each supported by its own terms or event. The Chinese and U.S. endpoints therefore record the 2019 railway handover and 2025 financial close, while the E.U.-linked endpoint records the latest Caála preparation and phase-execution evidence through May 2026.

Domestic institutional configurations supply organisations, authority, instruments, and procedures for external action. Organisationally mediated translation assigns a prior resource to an outward role; domestic institutional expansion carries its institutional arrangement across the provider boundary; project-level material coupling dates its attachment to a defined task. Endpoint coding then captures the resulting allocation of responsibilities. Host decisions select projects and allocate operating authority, while project stage defines the task. These distinctions make each mechanism movement independently testable against the evidence and align the three expectations with the evidence reported in Section 4.

2.5 Theoretical expectations

Expectation 1: organisationally mediated translation. A prior mandate or capacity shapes which actor assumes an outward project role and what that actor can undertake. Evidence should connect the actor's remit, resources, or established procedures to its assigned function. A policy-finance mandate should become a lending role, a contractor's delivery capacity a construction responsibility, and a preparation institution's authority an advisory or coordination assignment. The causal observation is the application of a prior institutional capacity to a project task, documented through an assignment, approval, appraisal, or established selection procedure.

Expectation 2: domestic institutional expansion. The actor's institutional position shapes the obligations through which it performs its external role. Evidence should connect an established financing instrument, delivery relation, procurement procedure, assurance rule, standard, grant facility, or coordination protocol to the terms of the contribution. The expectation concerns how these

arrangements allocate responsibilities: who supplies funds, receives payment, delivers work, bears obligations, or coordinates preparation. Project-specific approval terms and implementation records should show how the actor's institutional arrangements organise these relations across borders.

Expectation 3: project-level material coupling. A dated project record should identify the first connection between an outward arrangement and a defined component through a financing or grant commitment, procurement authorisation, work commencement, or an operating procedure. The assessment distinguishes the date of the action from the date it was reported and traces the actor's component-specific obligation. Completion status and endpoint allocation are coded separately as outcome observations.

3. Method and Data

3.1 Research design and inferential target

The article uses structured process tracing within one cross-border infrastructure system. The unit of analysis is a provider-specific contribution attached to a defined component of the Benguela-Lobito rail-logistics system. The traces cover China's rehabilitation of the Benguela railway, the U.S. International Development Finance Corporation (DFC) financing arrangement for Lobito Atlantic Railway (LAR), and E.U.- and member-state-linked support for the Caála Logistics Platform. Components and entry stages differ, so the design reconstructs the causal sequence within each trace and compares provider contributions at their observed entry points. Its inferential target is how prior provider institutions shape the actors and arrangements through which each contribution takes form, conditional on host selection and the task available at entry.

Process tracing fits the claim because it concerns linked events and organisational operations: a prior configuration, an actor performing an outward role, an institutional arrangement crossing borders, and a project event attaching it to a material component (Beach & Pedersen, 2019; George & Bennett, 2005; Hedström & Ylikoski, 2010). The causal test asks whether dated evidence connects each antecedent to the next operation: whether the relevant capacity predates the project, whether a named actor performs an external role through it, whether the resulting arrangement crosses the provider boundary, and whether a project record locates its attachment. This inference comes from the within-trace sequence; the cross-trace comparison shows how the routes differ under distinct host decisions and project tasks. Outcome coding separately records who holds each role and obligation at the endpoint. Host decisions establish project and operator selection; stage establishes the task and entry point; provider institutions organise the contribution made within that task.

3.2 Defining the outcome independently of the mechanism

The outcome, infrastructure package architecture, is defined before the mechanism is assessed. For each trace, the analysis records the endpoint allocation of six dimensions: (1) financing source and instrument; (2) organisational interface; (3) risk-bearing and assurance responsibilities; (4) standards, safeguards, or procurement requirements; (5) delivery and preparation responsibilities; and (6) operating authority. The endpoints are component-specific: the Chinese reconstruction package is assessed at the October 2019 handover; the U.S. financing contribution at the December 2025 financial close; and the E.U.-linked Caála contribution at the latest preparation and phase-execution records available through May 2026. The later concession competition is a separate host-authority test of operating attribution, not part of the Chinese reconstruction endpoint. Process evidence records dated transitions among prior mandates, actor assignments, outward arrangements, and first component-specific attachment events. A document may establish both a dated event and endpoint terms, but those are coded as separate propositions and the sequence is checked against antecedent mandates and independent project records.

Process evidence is coded chronologically and separately from the endpoint profile. Configuration evidence identifies a mandate or capacity established in the sources before the provider's project-specific commitment. Translation pairs a dated project assignment with a named actor's external role; a standing mandate identifies available capacity, while the project record establishes its use. Expansion identifies a project-specific instrument, rule, or responsibility operating across the provider boundary. Coupling records the earliest identified commitment or action connecting that arrangement to a defined component, distinguishing its occurrence date from the source's reporting date. The endpoint profile independently records who held each role and obligation at the trace-specific observation date. When one source establishes both a process event and an endpoint term, the coding treats them as separate propositions and checks each against other project, host, or multilateral records where available.

[Insert Table 1 here]

Table 1
Theoretical framework and evidence

Element	Role	Evidence	What is coded
Pre-existing domestic institutional configuration	Starting condition	Laws, mandates, institutional histories, and evidence predating the project arrangement	Prior organisations, mandates, financial instruments, productive capacity, standards, and routines
Organisationally mediated translation	First mechanism movement	Dated project assignments, approvals, contracts, and named actor responsibilities; a general mandate alone establishes available capacity	Actor and outward function connected to prior mandate or capacity
Domestic institutional expansion	Second mechanism movement	Loan terms, safeguards, procurement rules, standards, grants, coordination, or delivery documents	Arrangement operating across the provider boundary
Project-level material coupling	Third mechanism movement	First dated project event: financing or grant commitment, procurement authorisation, work commencement, or operating-rule activation	Event date and component of first attachment, coded separately from completion and endpoint allocation
Infrastructure package architecture	Outcome (Dependent variable)	Endpoint record at a trace-specific observation date; host and multilateral decisions coded separately	Endpoint allocation across finance, roles, risk, standards, assurance, delivery, preparation, and operating authority

3.3 Case and temporal scope

The Benguela-Lobito system offers a connected setting in which providers have participated in different infrastructure components over time. The corridor links an Atlantic port and rail line to inland mineral-producing areas and has become an object of post-war reconstruction, cross-border logistics planning, critical-mineral strategy, and development-finance competition. The comparison holds the host polity and connected corridor in view while component, entry stage, maturity, and commercial arrangements vary. Causal inference rests on within-trace sequences and comparison of provider-side forms across those differing opportunities.

The Chinese trace begins with the China Eximbank loan approved in 2004 and the reconstruction arrangements between Angola and China Railway 20th Bureau Group (CR20) initiated in 2006. The historical reconstruction scope is reported as 1,344 kilometres. AidData records CR20 task completion in August 2014, the railway’s initial opening to traffic in February 2015, provisional delivery and temporary inspection in July 2017, and final handover to Angolan authorities in October 2019. The Multilateral Investment Guarantee Agency (MIGA) project disclosure dates the resumption of government operation through the state railway to 2014 (MIGA, 2024). These source-specific milestones distinguish contractor task completion, traffic reopening, provisional delivery, final acceptance, and operating authority (AidData, 2024; Caminho de Ferro de Benguela, n.d.; Ministry of Transport of Angola, 2021, 2022a, 2022b).

The U.S. trace begins with Angola’s award of a 30-year railway concession to the Trafigura-Mota-Engil-Vecturis consortium in 2022 and LAR’s assumption of freight operations in January 2024. DFC’s board approved up to US\$553 million in June 2024, and the DFC-DBSA loan reached financial close in December 2025. DFC’s project summary defines a 1,289-kilometre Lobito Port-Luau project and specifies financing-linked environmental, social, safety, staffing, contractor-monitoring, reporting, and supply-chain requirements. DFC’s causal contribution is the later financing and assurance addition; Angola’s earlier concession award and operator selection remain separate host decisions (Lobito Atlantic Railway [LAR], n.d.; U.S. International Development Finance Corporation [DFC], 2024a, 2024b, 2024c, 2025).

The E.U.-linked trace concerns preparation and coordination around the Caála Logistics Platform. A World Bank restructuring paper identifies Caála as the first public-private partnership (PPP) project supported by DIVERSIFICA MAIS and places viability work before E.U.-Netherlands support was announced. A Commission presentation circulated through the Council records an €8 million E.U.-Dutch project and a 2025 kick-off; the Commission announced the grant on 9 October 2025, specifying €7 million from the E.U. and €1 million from the Netherlands. Angola separately reports a €15 million Dutch Invest International Fund construction channel. The Angolan Ministry of Transport reported provisional handover of the initial cold-chain phase on 18 March 2026. The World Bank’s 12

May 2026 early market-engagement event concerned future Phase 1 contracts funded by the International Bank for Reconstruction and Development (IBRD). These later steps belong to separately identified Angolan, Dutch/private, and World Bank processes; the provider-specific trace follows the E.U.-linked grant and preparation roles (Council of the European Union, 2025; de Vries, 2025; European Commission, 2025; Government of Angola, 2025; Ministry of Transport of Angola, 2026; World Bank, 2025, 2026).

3.4 Sources and evidence rules

The source base combines official provider documents, host-government tender and transport records, development-finance materials, multilateral project records, company material, independent research, and critical civil-society analysis. Provider sources establish mandates, approvals, financing terms, and project obligations. Host and multilateral sources establish tender chronology, procurement preparation, and implementation. Independent sources contextualise financing arrangements, contractor relations, and corridor-wide conditions. Each source is used for the claims its content supports: provider announcements establish stated rationales and commitments, while independent research corroborates institutional arrangements and identifies consequences.

The evidence rules follow the three theoretical expectations. Configuration evidence identifies a mandate, organisation, instrument, or capacity that predates the project arrangement. Translation evidence requires a dated project assignment connecting that prior resource to a named actor's external role; the standing mandate establishes capacity, while a project-specific record establishes its use. Expansion evidence identifies the financing terms, delivery relation, assurance rules, standards, preparation function, or coordination procedure operating across the provider boundary. Programme-level rules identify the institutional route available to projects; project-specific approvals, agreements, or contracts establish its use in the component under study. Coupling evidence dates the first attachment through an approval, project assignment, disbursement, contract, procurement event, construction activity, or operating procedure. A causal sequence links these steps through source-dated records. A signed loan with monitoring provisions establishes project-specific financing and assurance design, while implementation records establish monitoring performance or completed works. The Caála chronology and later concession tender provide attribution tests: World Bank and Angolan records date platform identification before E.U.-Dutch support, while Angolan tender records assign freight-operator selection to Angola after Chinese reconstruction.

The causal comparison separates three explanations with distinct documentary implications. Host decisions identify which project proceeds and who receives operating authority; Angola's tender and concession records locate those decisions. Project stage is coded from host and multilateral records dated before each provider's project-specific commitment: reconstruction opens a construction task, an awarded concession opens a financing and assurance interface, and an established PPP process opens preparation and procurement functions. Provider institutions identify the organisations, instruments, and procedures through which each provider performs the available task. The configuration explanation gains support when a prior resource connects to a named actor, a specific outward arrangement, and a dated project attachment. Project need and strategic importance explain selection incentives; the institutional sequence explains the provider-specific route through which a contribution is made. Alternative evidence is assigned to the decision-maker and decision point that controlled it: Angola's funding-source and concession choices establish host selection, whereas claims about DFC or Commission instrument choice require provider-side appraisal evidence.

The comparison uses within-trace process evidence and a structured comparison of provider contributions. Provider identity and entry stage vary together across the three traces, so the analysis assigns stage a distinct causal role in locating the task and coupling depth, then identifies the institutional route through dated within-case sequences. The later concession competition tests whether Chinese construction delivery entailed later operating authority; the DFC chronology separates U.S. financing from Angola's earlier concession award; Caála records distinguish E.U.-linked preparation from World Bank and Angolan procurement and implementation. These tests assign explanatory work to distinct causes: host decisions account for project selection and operating authority; stage accounts for the task and point of entry; provider institutions account for the organisational and instrumental route within that task. China and U.S. records connect prior institutional resources to project-specific finance and delivery or assurance. The E.U.-linked sequence connects Commission and Dutch resources to Caála preparation and coordination, while World Bank and Angolan actors organise subsequent procurement and execution.

4. Findings

4.1 What the providers attached: three package architectures

The three endpoint profiles differ in the organisations, finance, assurance, delivery, preparation, and operating roles attributable to each provider.

The Chinese package joined a US\$362 million Eximbank loan to Chinese contractor-led reconstruction. AidData reports a US\$1.83 billion project cost, possible China International Fund participation, and no identified source for the remaining financing. CR20 reconstructed the historical 1,344-kilometre line; Caminho de Ferro de Benguela’s (CFB) operation and the later concession award were separate host-side outcomes (AidData, 2024; Caminho de Ferro de Benguela, n.d.; MIGA, 2024).

The U.S. package added a 15-year, US\$553 million senior-secured DFC loan and project-specific assurance obligations to LAR, a private concessionaire selected by Angola before DFC financing. Its architecture combines public development finance and borrower-level safeguards, reporting, and monitoring (DFC, 2024b, 2024c, 2025; LAR, n.d.).

The E.U.-linked package is a multi-level preparation-and-coordination contribution to Caála. The Commission and Council identify an €8 million grant, comprising €7 million from the E.U. and €1 million from the Netherlands; Angola separately reports a €15 million Dutch construction channel. The public accounts assign the grant to platform operationalisation and construction responsibilities to Angolan and private actors. World Bank and Angolan records place procurement preparation and the initial cold-chain handover in their respective implementation processes (Council of the European Union, 2025; European Commission, 2025; Government of Angola, 2025; Ministry of Transport of Angola, 2026; World Bank, 2025, 2026).

Table 2 summarises these endpoint profiles alongside their process traces and entry stages.

Table 2
Cross-case profiles and causal traces

Provider trace	Entry stage	Package architecture at endpoint	Organisational translation	Institutional expansion	Material coupling	Causal attribution evidence
China: Benguela railway	Post-war rebuilding	US\$362 million Eximbank loan contribution; CR20 reconstruction and delivery within a reported US\$1.83 billion project	China Eximbank and Chinese engineering organisations performed financing and delivery roles	Oil-backed credit; programme-level rule directing 70 per cent of construction and civil-engineering tenders to China-approved state-owned firms; Angolan project proposals and Eximbank contractor payments	AidData dates the Eximbank loan for Benguela rehabilitation to 2004, the first project-specific commitment in the available record.	Angolan ministries proposed projects through the framework; AidData links Benguela to Eximbank and CR20; a later tender separately selected freight operations after a Chinese-linked consortium lost
U.S.: Lobito Atlantic Railway	Operating concession; rehabilitation and O&M finance	DFC US\$553 million, 15-year senior-secured loan within a US\$866.25 million all-source financing plan, plus borrower assurance	DFC's standing mandate and project due diligence preceded a Board-approved loan to the host-selected LAR concessionaire	Public credit paired with IFC-aligned safeguards, borrower management duties, contractor and supply-chain requirements, reporting, and independent monitoring	5 June 2024: DFC Board approval of up to US\$553 million for LAR.	DFC announced Lobito due diligence in 2023; the Board approved a loan to LAR in 2024 after Angola awarded the concession; project records specify borrower obligations
E.U.-linked Caála platform	Corridor and logistics-platform preparation	E.U.-Netherlands €8 million grant for platform operationalisation; a separately reported €15 million Dutch construction channel	Team Europe framework connected Commission and Dutch grant and implementation roles to Invest International and Angolan institutions	Grant-backed preparation and coordination; Dutch public finance for construction; World Bank-funded procurement and Angolan/private execution	Documented by 29 September 2025: €8 million Caála project and 2025 kick-off. On 9 October, the Commission announced €7 million from the E.U. and €1 million from the Netherlands.	Council and Commission records identify the Caála grant; World Bank and Angolan sources assign later procurement and phase execution to their respective processes.

[Insert Table 2 here]

4.2 How domestic configurations entered the project system

Organisationally mediated translation. The first movement connects prior domestic resources to named actors performing external roles. The key evidence is the correspondence between an organisation's standing mandate or capacity and its function in the project.

In the Chinese trace, a domestic policy-finance and contractor system predates the railway works (Chen, 2020; Zhang, 2025). A contemporary CSIS account dates the bilateral framework agreement to late 2003 and the first US\$2 billion financing package to

March 2004: Angolan ministries proposed projects through a joint committee of Angola's Ministry of Finance and China's Ministry of Commerce; for each tender, the Chinese government proposed three or four Chinese firms; and Eximbank paid contractors when ordered by Angola's Ministry of Finance (Campos & Vines, 2008, pp. 4–5). A World Bank-PPIAF report describes the framework's oil-backed repayment and programme-level rule directing 70 per cent of construction and civil-engineering tenders to China-approved state-owned enterprises (Foster et al., 2009, p. 27). AidData identifies the Benguela Eximbank loan and CR20's reconstruction role (AidData, 2024). Read together, the sources connect the established finance-and-contractor system to a named lender and contractor in the railway case. The programme rule and project loan appear at different levels in the available sources; no Benguela contract schedule is publicly available.

In the U.S. trace, DFC's 2020 testimony defines its mandate around private-sector investment, development, and U.S. foreign-policy objectives, and describes a broad toolkit of loans, guarantees, insurance, equity, feasibility studies, and technical assistance (DFC, 2020). Its 2022 disclosure establishes additionality criteria as a standing appraisal procedure. In December 2023, DFC reported due diligence on a potential US\$250 million Lobito financing package; on 5 June 2024, its Board approved up to US\$553 million for LAR under 22 U.S.C. § 9621(b). The Board agenda identifies the approved instrument as a 15-year senior-secured loan within a US\$866.25 million all-source financing plan, and the Public Information Summary attaches environmental, social, safety, contractor, and reporting obligations to LAR (DFC, 2022, 2023, 2024a, 2024b, 2024c). This sequence connects DFC's standing development-finance authority to its project-specific role as lender and assurance setter. The public Board record and Public Information Summary identify the adopted senior-secured loan and its obligations; they do not disclose a Lobito-specific comparison between that loan and other authorised DFC instruments (DFC, 2020, 2024a, 2024b, 2024c).

Angola awarded LAR's concession in 2022, and the company started freight operations before the DFC loan reached financial close in December 2025. DFC's organisational contribution is the additional financing and assurance arrangement attached to that existing concession (DFC, 2024a, 2024c, 2025; LAR, n.d.).

The E.U.-linked trace connects a multi-level provider configuration to Caála through Commission and Dutch organisational roles. The 2021 Global Gateway framework formalised delivery through Team Europe, linking the E.U., member states, and their financial and development institutions (European Commission & High Representative of the Union for Foreign Affairs and Security Policy, 2021). Caála was already part of an Angolan-World Bank PPP process, and the World Bank's 2025 restructuring record dates the viability study before the E.U.-Netherlands support agreement. The 2025 Commission agreement assigns platform operationalisation to Invest International and the Dutch Ministry of Foreign Affairs; the Council's project presentation lists the €8 million Caála grant alongside the E.U., Netherlands (DGIS and Invest International), and Angolan regulatory agency ARCCLA (Council of the European Union, 2025; de Vries, 2025; European Commission, 2025). The sequence links the prior Team Europe framework to a project-specific preparation and coordination role within the host-led pipeline. World Bank and Angolan records separately assign procurement and phase implementation (Government of Angola, 2025; Ministry of Transport of Angola, 2026; World Bank, 2025, 2026). The World Bank's restructuring paper records that Caála's viability study was ongoing while an interim refrigerated-container solution had been agreed to meet urgent agricultural-logistics needs (World Bank, 2025, p. 3). This records a project-level interim response distinct from the later E.U.-Netherlands grant for platform operationalisation.

Across the cases, organisational translation connects prior configuration to provider action. China's policy-finance and engineering resources operated through Eximbank and CR20. DFC's mandate and project due diligence preceded a Board-approved loan to LAR, with borrower-level assurance attached to the financing. The Team Europe framework preceded Commission-Netherlands grant support and Invest International's Caála preparation role, while World Bank and Angolan institutions organised procurement and implementation. Each sequence identifies the actor, instrument, and project role through which prior institutional resources entered the infrastructure system.

Domestic institutional expansion. The second movement identifies the arrangement each actor carried across the provider boundary. This is more specific than organisational participation: it establishes the institutional content of the outward role.

China's outward arrangement connected state-backed finance to contractor delivery through an intergovernmental credit framework. The 2004 credit line linked oil-backed repayment to programme-level procurement rules that directed 70 per cent of construction and civil-engineering contracts to Chinese state-owned firms approved by China (Foster et al., 2009, p. 27). The CSIS account describes project proposals, tendering, and direct contractor payments under the framework (Campos & Vines, 2008, pp. 4–5); AidData identifies the Benguela Eximbank loan and CR20's contractor role (AidData, 2024). Together, these records show the outward

finance-to-contractor route and its application to railway reconstruction. The published evidence specifies the general procurement rule and the railway contract as separate observations.

The U.S. arrangement extended DFC's development-finance procedures through a loan whose project obligations governed the borrower's interface with contractors and affected communities. DFC's Public Information Summary applies International Finance Corporation (IFC) performance standards and railway safety guidelines to the project and specifies an environmental and social management system, contractor and supply-chain requirements, stakeholder and grievance procedures, annual reporting, and independent monitoring (DFC, 2024b, 2024c). LAR retained freight operations and maintenance under Angola's concession; DFC joined senior credit to borrower-level assurance and oversight (Ministry of Transport of Angola, 2022b). The project documents identify critical-mineral transport and cross-border logistics as development objectives, connecting the financing instrument to the stated purpose of the railway and port (DFC, 2024c).

The E.U.-linked arrangement took a multi-level form. The Commission and Council identify an €8 million 'From Transport to Trade' grant, comprising €7 million from the E.U. and €1 million from the Netherlands, for Caála platform operationalisation. Angola separately reports a €15 million Dutch Invest International Fund channel for construction, assigning basic infrastructure and technical networks to ARCCLA and the remaining investment to private actors (Council of the European Union, 2025; European Commission, 2025; Government of Angola, 2025). These are separately reported routes within the Caála project: a Commission-Netherlands grant for operationalisation and a Dutch public-finance channel for construction, alongside host and private responsibilities.

World Bank and Angolan records locate procurement and execution within the host-led PPP process. DIVERSIFICA MAIS identifies Caála as its first PPP project and records viability work before the E.U.-Dutch support announcement. Its Phase 1 market-engagement notice concerns future IBRD-funded procurement, while the Angolan Ministry of Transport records provisional handover of an initial cold-chain phase and names Dutch and private participants (Government of Angola, 2025; Ministry of Transport of Angola, 2026; World Bank, 2025, 2026). The institutional route therefore assigns complementary tasks across Commission and Dutch preparation finance, World Bank procurement, and Angolan, Dutch, and private execution.

The comparison identifies three forms of institutional expansion. China extended policy finance through a contractor-delivery arrangement. The U.S. extended development finance and borrower-level assurance into a host-selected private concession. E.U. and Dutch institutions extended grant finance, advisory capacity, and preparation through a multi-level coordination interface. These arrangements entered distinct project components, while the provider's institutional organisation shaped the form of each contribution.

Project-level material coupling. The third movement identifies the dated connection between an expanded arrangement and its project component. The endpoint profile then records the resulting provider contribution.

The first dated project-specific attachment in the Chinese trace is the US\$362 million Eximbank loan for Benguela railway rehabilitation in 2004 (AidData, 2024). Angola and China initiated the CR20 reconstruction arrangement in 2006. Later records date CR20 task completion to August 2014, the line's initial opening to February 2015, provisional delivery and temporary inspection to July 2017, and final handover to the Angolan authorities to October 2019. MIGA records the restoration of government operations through CFB in 2014. The historical reconstruction scope is 1,344 kilometres; DFC's later project summary defines a 1,289-kilometre Lobito Port-Luau project. These figures describe differently bounded project scopes (AidData, 2024; Caminho de Ferro de Benguela, n.d.; DFC, 2024c; MIGA, 2024).

Subsequent implementation records show how the Chinese contribution reached the railway asset. Traffic resumed before the final 2019 handover, and CFB continued as the Angolan state railway operator until LAR assumed freight operations and maintenance in January 2024. In the later open tender, a consortium including CITIC, Sinotrans, and CR20 competed against the Trafigura-Mota-Engil-Vecturis consortium; Angola awarded the 30-year concession to the latter. The railway reconstruction and later commercial operation therefore entered through separate project decisions, with operating authority allocated by Angola through the concession tender (AidData, 2024; MIGA, 2024; Ministry of Transport of Angola, 2021, 2022a, 2022b).

The first dated project-specific attachment in the U.S. trace is DFC's Board approval of up to US\$553 million for LAR on 5 June 2024. Angola had awarded the concession in 2022, and LAR began freight operations in January 2024; the loan reached financial close in

December 2025. The project summary connects DFC finance to assurance, reporting, contractor monitoring, and independent environmental and social monitoring obligations assigned to LAR. This sequence locates DFC's contribution in financing and borrower oversight around an operating concession selected by Angola (DFC, 2024a, 2024b, 2024c, 2025; LAR, n.d.).

By 29 September 2025, the Commission presentation circulated through the Council documented an €8 million Caála project, identified its institutional participants, and recorded a kick-off in 2025. The Commission's 9 October announcement specified its €7 million contribution and the Netherlands' €1 million contribution. These records identify the attachment of grant-backed support to platform operationalisation through Invest International's preparation role; the September document dates its documentation, while the October announcement specifies the financing allocation. Later Caála events follow separately assigned implementation routes: the Angolan transport record reports provisional handover of the initial cold-chain phase on 18 March 2026, while the World Bank's 12 May market-engagement event prepares future IBRD-funded Phase 1 contracts. The chronology locates the E.U.-linked attachment in grant-backed preparation and coordination and identifies World Bank and Angolan procurement and delivery as subsequent, separately funded project processes (Council of the European Union, 2025; de Vries, 2025; European Commission, 2025; Government of Angola, 2025; Ministry of Transport of Angola, 2026; World Bank, 2025, 2026).

The first attachment points differ with project stage. The 2004 Eximbank loan connected policy finance to railway reconstruction; DFC's 2024 Board approval connected development finance and borrower assurance to an operating concession; the 2025 E.U.-linked grant connected multi-level public resources to Caála preparation. Host decisions define the project and operator, stage defines the task, and provider configurations organise the actors and arrangements through which each contribution reaches that task.

4.3 Why the package architectures diverged

The evidence assigns distinct causal roles to host decisions, project stage, and provider institutions. Angolan authorities selected the reconstruction projects, awarded the later railway concession, and identified Caála for PPP development. Angola first approached Western donors for post-war reconstruction finance and turned to China after dissatisfaction with their conditions; the later concession tender selected LAR over a Chinese-linked consortium (Campos & Vines, 2008, p. 11; Ministry of Transport of Angola, 2021, 2022a, 2022b). Host authority explains which projects and operators proceeded. CSIS details the host's financing alternatives: Western donors tied post-war support to an IMF staff-monitored programme, which Angolan officials rejected, while non-Chinese commercial credit carried higher oil guarantees, no grace period, and higher interest rates; the account reports Chinese credit as more favourable than those alternatives (Campos & Vines, 2008, pp. 11–12).

Project stage defines the task available to each incoming provider. China entered while Angola was rebuilding the railway; DFC entered after Angola had awarded the concession and LAR had begun freight operations; E.U.-linked support entered Caála after the Angolan-World Bank PPP process and viability study had begun. Reconstruction, concession finance, and platform preparation describe the work available at these points. The institutional explanation concerns how that work was organised. The Chinese credit framework established contractor nomination and direct-payment procedures; DFC's approval specified a senior-secured loan and borrower-level assurance; and the Commission assigned grant-backed preparation through Invest International and Dutch participation. These arrangements allocate financing, delivery, and preparation responsibilities within the tasks available at entry (Campos & Vines, 2008, pp. 4–5; Council of the European Union, 2025; DFC, 2024b, 2024c; European Commission, 2025).

The process evidence explains divergence through the institutional organisation of each contribution. In the Chinese sequence, the bilateral framework connected Angolan project proposals to Chinese contractor nomination and Eximbank payments ordered by Angola's Ministry of Finance. These procedures made the finance-and-contractor relation operative in reconstruction. In the U.S. sequence, DFC's Board approval and loan terms placed finance and assurance obligations around LAR, the operator already selected by Angola. In the E.U.-linked sequence, the preparation assignment connected Commission grant support to Invest International and Dutch participation, while World Bank and Angolan records identify the distinct procurement and execution responsibilities. The resulting architectures follow these allocations of work and obligation. Prior capacities matter because named organisations apply them through procedures that organise the project contribution; project stage identifies the task to which those procedures are applied.

5. Discussion

5.1 What the causal evidence establishes

The three traces follow the same causal order through different institutions. China's Eximbank loan and contractor rules predate railway reconstruction; the evidence links the policy-finance framework to Eximbank lending and CR20 delivery (AidData, 2024; Campos & Vines, 2008). DFC's mandate and appraisal procedures predate its Lobito due diligence and June 2024 Board approval (DFC, 2020, 2022, 2023, 2024a). The Board agenda and Public Information Summary identify the loan and its borrower-level safeguards, monitoring, and reporting (DFC, 2024b, 2024c). The Team Europe framework predates the 2025 grant announcement (European Commission & High Representative of the Union for Foreign Affairs and Security Policy, 2021). Commission and Dutch actors assigned Caála operationalisation and preparation roles (Council of the European Union, 2025; de Vries, 2025; European Commission, 2025). Later World Bank and Angolan records identify their own procurement and execution functions (Ministry of Transport of Angola, 2026; World Bank, 2025, 2026). Each trace links a prior configuration to an actor's external role, an outward arrangement, and a dated attachment to a component.

These sequences explain contribution form within projects selected by Angola and tasks defined by entry stage. In each trace, host and multilateral records identify the project and the prior task; provider records then identify actor assignments, instruments, and obligations, followed by a dated component-specific commitment or execution. Outcome coding separately captures the resulting allocation of finance, roles, risk, standards, delivery, preparation, and operating authority. Angola's later concession tender allocated commercial railway operation separately from the Chinese reconstruction, while the DFC and Caála records locate provider roles at financing and preparation stages. The comparison therefore identifies how provider configurations form distinct project contributions while host decisions and stage determine what each provider can address and when.

5.2 Advancing historical-institutionalist IPE

The contribution to historical-institutionalist IPE is an explanation of how domestic configurations form project-level economic arrangements. The article inherits the domestic-structures proposition that external economic action is organised through institutions rooted in the provider's political economy (Katzenstein, 1976, 1977; Nölke et al., 2015). Farrell and Newman (2010) establish how domestic arrangements become consequential for transnational markets, and Hameiri (2020) locates such processes within wider political struggles. Infrastructural embedding develops the organisational link in this relationship: actors apply prior capacities to outward roles, extend the procedures governing those roles, and attach their obligations to a project component. The mechanism explains how a domestic configuration becomes consequential through decisions about who finances, delivers, prepares, and assumes responsibility for an external contribution.

Hameiri and Jones (2024, 2025) explain how domestic constraints shape infrastructure provision, including organisational and contractual forms; Larsen (2025) identifies the distributional differences among financing models. Infrastructural embedding develops this relationship by specifying what domestic configurations shape within a project: the allocation of finance, authority, and obligations through organisational mandates and procedures. Chinese nomination and payment rules joined policy finance to contractor delivery, while Angola retained operating authority after handover. DFC's approval attached public lending and assurance requirements to a private concession that Angola had already awarded. The Caála assignment attached grant resources and coordination to preparation, alongside separately organised procurement and delivery. These differences show how domestic institutions become consequential through the responsibilities actors assume and the terms governing their performance. An organisation's mandate becomes a lending, construction, or preparation role; its established procedures become project obligations; and its commitment fixes those obligations to a component. The explanatory gain for historical-institutionalist IPE is a causal account of how domestic configurations organise specific external project functions. This connects the domestic sources of economic strategy to the allocation of authority and responsibility through which cross-border infrastructure is financed, prepared, and delivered.

5.3 Rival explanations and theoretical scope

Host agency shapes project selection, concession allocation, and implementation. Reboredo (2025) shows that African actors shaped the corridor around their priorities while reproducing a mineral-export development strategy. The Angolan record specifies that agency at the project level: ministries proposed priority projects; the 2007 credit-line extension tightened local-content rules; and authorities later opened a concession tender and selected the freight operator. Angola turned to China after dissatisfaction with Western donor conditions; the later tender placed a CITIC-Sinotrans-CR20 consortium against the LAR consortium, which Angola

selected (Campos & Vines, 2008, pp. 5, 11; Ministry of Transport of Angola, 2021, 2022a, 2022b). Host agency explains provider and project selection and operating authority; infrastructural embedding explains how the selected provider's institutions formed its contribution.

Geopolitical strategy explains why governments prioritise the corridor. Critical minerals, supply-chain security, and competition with China feature in U.S. statements; development, trade, and connectivity inform the wider Chinese and European initiatives (Abels & Bieling, 2024; DFC, 2024a; European Commission & High Representative of the Union for Foreign Affairs and Security Policy, 2021; Nölke, 2024). Strategic objectives account for the corridor's political importance. Institutional configurations explain how objectives enter projects: Chinese policy finance routes resources through contractors, DFC uses development finance and assurance around a private concession, and E.U.-linked resources operate through multi-level preparation and coordination.

Project stage is a substantive alternative explanation of the observed differences. Reconstruction creates construction tasks, an operating concession creates financing opportunities, and preparation creates advisory and coordination work. The evidence evaluates the institutional explanation through the procedures organising each task: the Eximbank framework specifies contractor nomination and payment; DFC's approval specifies the borrower, senior credit, and assurance responsibilities; and the Team Europe assignment specifies the grant-backed preparation interface. Temporal precedence places these procedures before the resulting allocation of responsibilities, while their substantive provisions identify how they shape that allocation. Provider identity and entry stage vary together across the three traces. Evidence of the adopted procedures establishes institutional operation; comparison among feasible arrangements within the same task would further discriminate their influence from stage-specific requirements. The Benguela loan and total-cost figures distinguish the identified Chinese credit contribution from full project financing. The Caála €8 million grant and separately reported €15 million Dutch construction channel have distinct public descriptions and no published joint financing schedule.

The three traces show distinct political-economic routes into project provision. DFC's US\$553 million senior-secured loan forms part of a US\$866.25 million all-source financing plan for a privately operated concession and carries borrower obligations for safeguards, monitoring, and reporting (DFC, 2024b, 2024c; Gabor, 2021; Gabor & Sylla, 2023). Caála combines an E.U.-Dutch grant and preparation roles with an Angolan-World Bank PPP process, a World Bank project-preparation fund, and a Dutch-funded last-mile study. China's arrangement ties policy credit to contractor procurement and oil-backed repayment. Larsen (2025) distinguishes U.S. host-country derisking, E.U. ODA-bargained derisking, and Chinese state-organised risk-sharing. Infrastructural embedding explains how these provider mandates and organisations form distinct financing, delivery, and preparation routes. The project records identify institutional form and role allocation; full contract schedules would specify the final distribution of risk and return.

Petry (2021, 2023) shows how financial infrastructures organise investment and economic statecraft, particularly in the Chinese case. Rolf et al. (2026) trace structural power and dependency through network bundling, including along the Lobito Corridor; Herranz-Surrallés (2026) assesses the geoeconomic content of Global Gateway energy projects. These studies explain institutional content, network consequences, and project goals. Infrastructural embedding traces how provider-side arrangements become project-level finance, delivery, assurance, or preparation before those wider effects can be assessed.

Policy transfer, regulatory diffusion, and institutional isomorphism explain how arrangements move, are adopted, or converge across jurisdictions and organisational fields (DiMaggio & Powell, 1983; Dolowitz & Marsh, 2000; Simmons et al., 2006; Vogel, 1995). Those approaches take up recipient-side adoption and field-level convergence; infrastructural embedding traces the provider-side formation and attachment of a project contribution. Work on infrastructural geopolitics establishes infrastructure as a medium of power and international ordering (de Goede & Westermeier, 2022; Liebetrau et al., 2023), while the present mechanism specifies how provider arrangements enter that material system.

6. Conclusion

The evidence demonstrates how domestic institutional configurations shape provider contributions to cross-border infrastructure. Infrastructural embedding links prior organisations and capacities to external roles, cross-border arrangements, and project-level attachments. The sequence extends historical-institutionalist IPE from external strategy and global market-making to the organisation of material provision.

The Benguela-Lobito comparison traces three contributions at different entry points. China Eximbank finance and Chinese contractor capacity operated through railway reconstruction; DFC's loan and assurance obligations attached to a private concession Angola had already awarded; E.U.-linked resources entered Caála through preparation after the World Bank and Angolan project process was under way. Project stage identifies the task, host decisions establish authority, and provider institutions shape the form of each contribution.

The theoretical contribution is a project-level causal link between domestic structures and international provision. The domestic-structures tradition and subsequent historical-institutionalist IPE explain how domestic institutions shape external strategy and cross-border market arrangements (Farrell & Newman, 2010; Katzenstein, 1976, 1977); infrastructure-finance research identifies model variation, risk allocation, and network effects. Infrastructural embedding specifies how prior domestic organisation takes the form of a provider contribution through actors, outward arrangements, and project attachment. This sequence explains the organisational formation of infrastructure provision alongside the strategic and distributional outcomes examined in adjacent work.

The principal remaining evidence gap concerns provider-side selection among feasible actors and instruments within a given project task. Public records document the adopted arrangements more fully than the deliberations choosing them. Project-specific appraisal and allocation records, paired with contributions entering at comparable stages, would show which alternatives were considered and how prior mandates, resources, and procedures shaped the choice. This design would deepen the present explanation of package formation by identifying the decisions through which institutional configurations favour particular arrangements. For historical-institutionalist IPE, it would connect the documented operation of domestic institutions abroad to a more precise explanation of selection and variation within those institutional pathways.

Declarations

Author Contribution

S.Q. conceived the study, developed the theoretical framework and research design, collected and analysed the evidence, and wrote and revised the manuscript. S.Q. approved the final manuscript and takes responsibility for its content.

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The author used OpenAI Codex/ChatGPT tools for language editing, project management, consistency check, and textual presentation. The author reviewed and revised the manuscript and remains responsible for all content, claims, citations, and interpretations. No new dataset was generated for this article. The analysis is based on publicly available documents, policy materials, institutional records, and secondary sources cited in the manuscript. The author is deeply grateful to the individuals and organizations that offered assistance, shared experiences, and supported the broader research process from which this article developed, including earlier intellectual exchanges in Turkey in 2018 and at MPSA in 2021. Thanks for Prof. Chu Yin. And special thanks are due to Vrije Universiteit Brussel (VUB) for its institutional support and to Professor Emeritus Bruno Coppieters.

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