The Genoa Model: Lessons in Emergency Infrastructure Governance for Project Management Practice [1]

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Abstract

On August 14, 2018, the Morandi Bridge in Genoa, Italy, collapsed, severing a critical urban and logistics corridor and creating an immediate emergency infrastructure challenge. The reconstruction that followed became known as the "Genoa Model," a governance framework for accelerated public infrastructure delivery under emergency conditions. Drawing on public legal instruments, official commissioner documents, institutional technical reports, and independent analytical assessments, this documentary case study examines the governance architecture that supported the delivery of the Genova San Giorgio Bridge within an exceptionally compressed timeframe, despite the onset of the COVID-19 pandemic. The analysis is grounded in project governance theory, megaproject governance research, emergency infrastructure delivery literature, public procurement governance, and the Governance Performance Domain of the PMBOK® Guide Eighth Edition. The paper identifies five mutually reinforcing governance elements: unified reconstruction authority, calibrated legislative derogation, collaborative delivery, independent professional project management, and continuous execution discipline. It then assesses the transferability of these elements to the Brazilian infrastructure context, distinguishing between practices that are directly applicable, those requiring institutional adaptation, and those constrained by Brazil's federative, procurement, and oversight architecture. The article argues that the Genoa Model should not be treated as an unrepeatable exception, but as a documented and partially replicable case of governance designed for urgency, accountability, and execution.

Keywords: *Genoa Model; Morandi Bridge; emergency infrastructure governance; project management; PMBOK 8; Brazilian infrastructure; extraordinary commissioner; project governance theory; megaproject performance; public procurement governance.*

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1. Introduction

Infrastructure projects rarely fail for purely technical reasons. As Flyvbjerg (2014) shows in the megaproject literature, they often fail, stall, or underperform because authority is diffuse, accountability is ambiguous, procurement rules generate adversarial relationships, interfaces are poorly managed, and regulatory or institutional bottlenecks accumulate over time. Sanderson (2012) similarly emphasizes the role of uncertainty and governance in major projects, while Brunet (2019) shows that governance is continuously constructed through practice. In this literature, governance failure is not a peripheral concern. It is often the structural condition that prevents technical capability from becoming delivery performance.

The reconstruction of the Genova San Giorgio Bridge between 2018 and 2020 offers a useful counterpoint to that pattern. Following the collapse of the Morandi Bridge, Italian authorities created a purpose-designed governance architecture intended to respond to emergency conditions without simply abandoning accountability. Standard procedures were replaced by an extraordinary legal and administrative framework under the Genoa Decree (Gazzetta Ufficiale, 2018); decision authority was concentrated in an extraordinary commissioner (Commissario Ricostruzione Genova, 2018a); delivery roles were aligned through a collaborative contracting model identified by the Global Infrastructure Hub (2021); and independent project and construction management (PMC) capacity was embedded into execution through RINA's role (RINA, 2020a; ASCE, 2020).

This paper analyzes that governance architecture through a project management lens. Consistent with documentary case study logic, as described by Yin (2018), it asks which governance arrangements most directly enabled accelerated delivery under emergency conditions; how those arrangements interacted with project execution to sustain performance through the COVID-19 disruption; and which elements of the Genoa Model are transferable, with what adaptations or structural constraints, to the Brazilian infrastructure context. The Brazilian comparison is relevant because the World Bank (2022) identifies persistent infrastructure investment and governance gaps, while PMBOK® 8 offers a contemporary governance vocabulary for project management practice (PMI, 2025a).

The article is situated at the intersection of four bodies of literature. The first is project governance theory, where Müller (2009) and Turner and Müller (2003) examine how authority, accountability, decision rights, and institutional arrangements shape project outcomes. The second is megaproject governance research, which links systematic underperformance in major infrastructure projects to misaligned incentives, optimism bias, strategic misrepresentation, and weak accountability structures (Flyvbjerg, 2014; Sanderson, 2012; Brunet, 2019). The third is the literature on emergency infrastructure delivery, which examines how governance arrangements must be redesigned when urgency, social disruption, and compressed decision cycles make ordinary delivery systems inadequate (Lizarralde, Johnson and Davidson, 2010; Chang et al., 2010; IFRC, 2023). The fourth is public procurement governance, which has become increasingly important in contemporary infrastructure delivery because procurement rules, risk allocation, transparency, capability, and digital systems shape the conditions under which public projects are planned and executed (OECD, 2023; OECD, 2025).

Methodologically, the article adopts a documentary case study design, an approach appropriate when the researcher examines a contemporary phenomenon in its real-world context without controlling the events under study (Yin, 2018). The evidence base includes public legal instruments such as the Genoa Decree (Gazzetta Ufficiale, 2018), official commissioner documents (Commissario Ricostruzione Genova, 2018a; 2019), institutional reports (RINA, 2020a; Webuild Group, n.d.), and independent technical assessments (ASCE, 2020; Global Infrastructure Hub, 2021). The analysis is interpretive rather than causal. It does not claim that the Genoa Model is universally replicable, nor that every element was a necessary condition in a strict causal sense. Rather, it reconstructs a well-documented governance architecture, synthesizes it into an analytical model, and evaluates its relevance for project management practice.

The paper is organized as follows. Section 2 presents the research questions. Section 3 states the research objectives. Section 4 sets out the analytical propositions guiding the interpretation of the case. Section 5 describes the approach, methodology, evidence base, analytical process, limitations, and use of AI. Section 6 presents the documentary case results, including the collapse, the legislative foundation, the contracting architecture, the execution model, and the five structural elements of the Genoa Model. Section 7 develops the theoretical interpretation of the case, relating the Genoa Model to project governance theory, megaproject governance, emergency infrastructure delivery, public procurement governance, and PMBOK® 8. Section 8 evaluates implications for the Brazilian infrastructure market. Section 9 concludes with significance and recommendations for project management practice.

2. Research Questions

RQ1. Which governance arrangements most directly enabled accelerated delivery of the Genova San Giorgio Bridge under emergency conditions?

RQ2. How did those governance arrangements interact with project execution to sustain performance through the COVID-19 disruption?

RQ3. Which elements of the Genoa Model are transferable, with what adaptations or structural barriers, to the Brazilian infrastructure context?

3. Objectives

1. Reconstruct the governance architecture of the Genoa bridge reconstruction from primary and secondary documentary sources.

2. Synthesize that architecture into a theoretically grounded analytical model for project management practice.

3. Map the Genoa Model against the Governance Performance Domain of the PMBOK® Guide Eighth Edition.

4. Assess the transferability of the model to the Brazilian institutional context, distinguishing directly transferable elements from those requiring adaptation or facing structural constraints.

4. Analytical Propositions Guiding the Interpretation

Because this article adopts an interpretive documentary case study design, the propositions below are not statistical hypotheses to be tested econometrically. Rather, they guide the reconstruction of the documentary evidence, the interpretation of the Genoa governance architecture, and the assessment of transferability to the Brazilian infrastructure context.

P1. Accelerated emergency infrastructure delivery depends not only on technical execution capability, but also on governance arrangements that clarify decision rights, accountability, escalation, and institutional authority.

P2. Emergency legal derogation can support accelerated delivery when it is calibrated, documented, and embedded in an accountable governance framework rather than treated as an unrestricted suspension of ordinary controls.

P3. Collaborative delivery and independent professional project management can help convert concentrated authority into operational performance by coordinating interfaces, managing controls, and reducing adversarial behavior.

P4. The Genoa Model is partially transferable to Brazil, but transferability varies by element: independent project management and execution discipline appear more directly transferable, while unified authority and institutional continuity require deeper adaptation to Brazil's federative, procurement, licensing, and oversight environment.

5. Approach/Methodology, including Use of AI

5.1 Research Design

This article adopts a documentary case study design. Case study methodology is appropriate for research questions that ask how and why a contemporary phenomenon unfolded within its real-world context, particularly when the researcher does not control events and when contextual conditions are integral to the phenomenon under investigation (Yin, 2018). The Genoa case meets these conditions because the reconstruction cannot be understood apart from the legal context created by the Genoa Decree (Gazzetta Ufficiale, 2018), the political and institutional role of the extraordinary commissioner (Commissario Ricostruzione Genova, 2018a), and the emergency infrastructure context described by the Global Infrastructure Hub (2021).

The single-case design is justified on theoretical grounds. The Genoa bridge reconstruction is not treated here as statistically representative. It is treated as a critical and information-rich case in Yin's sense: an emergency infrastructure project in which a purpose-designed governance framework was associated with accelerated delivery under conditions of high public visibility, technical complexity, and institutional pressure (Yin, 2018). The aim is not to establish universal causality, a limitation particularly important in megaproject research (Flyvbjerg, 2014), but to reconstruct an analytically significant governance architecture and derive project management lessons that can be compared with contemporary governance guidance (PMI, 2025a).

5.2 Documentary Evidence and Triangulation

The documentary evidence base comprises three categories of sources. The first consists of primary legal and administrative instruments, including Decreto-Legge 109/2018, converted into Law 130/2018 (Gazzetta Ufficiale, 2018), the DPCM of October

4, 2018 appointing the extraordinary commissioner (Commissario Ricostruzione Genova, 2018a), and the commissioner's Decreto n. 1 of January 12, 2019 establishing the contractual framework (Commissario Ricostruzione Genova, 2019). These instruments document the formal governance architecture directly.

The second category consists of institutional and technical sources issued by organizations directly involved in the project. RINA Consulting's reports document its role as project and construction manager (RINA, 2020a; RINA, 2020b), while Webuild materials describe the construction and delivery model (Webuild Group, n.d.; Webuild Group, 2021). FS Italiane records the role of the FS Group and Italferr in the new bridge (FS Italiane, 2020), and official commissioner communications document the award and governance framework (Commissario Ricostruzione Genova, 2018b). Together, these sources provide evidence of how the formal governance structure operated in practice.

The third category consists of independent analytical assessments. The Global Infrastructure Hub case study situates the bridge within infrastructure delivery model analysis (Global Infrastructure Hub, 2021), while ASCE technical reporting places the project in an engineering and construction context (ASCE, 2020). For the Brazilian transferability assessment, additional institutional and policy sources were reviewed, including the World Bank's infrastructure assessment (World Bank, 2022), CNI investment estimates (CNI, n.d.; CNI, 2025), TCU procurement guidance (TCU, 2024; TCU, 2025a; TCU, 2025b), OECD procurement governance materials (OECD, 2023; OECD, 2025), IPEA infrastructure governance analysis (Pompermayer, 2024), PNCP documentation (PNCP, n.d.), Transparency International Brasil et al. (2025), and Brazilian legal materials (Brasil, 2021).

5.3 Analytical Process

The analysis proceeded in two stages. In the first stage, consistent with documentary case study methods (Yin, 2018), the evidence was reviewed inductively and coded around governance dimensions that emerged repeatedly from the material: authority and accountability structure; legal and procedural framework; contractual and delivery model; independent project management function; and execution and operations architecture. These dimensions reflect both the documentary evidence on Genoa (Global Infrastructure Hub, 2021) and contemporary project governance concerns emphasized in PMBOK® 8 (PMI, 2025a). They became the basis for the five-element model presented in Section 6.5.

In the second stage, the coded findings were mapped deductively against the Governance Performance Domain of the PMBOK® Guide Eighth Edition. The purpose of this mapping was not to claim that the Genoa project was designed according to PMBOK® 8, which was published after the project was completed (PMI, 2025a), but to examine whether the observed governance arrangements correspond to the governance concerns now emphasized in contemporary project management guidance: decision rights, accountability, escalation paths, alignment, controls, risk, procurement, and value delivery. This mapping also draws conceptually on project governance theory (Müller, 2009) and governance-as-practice research (Brunet, 2019).

5.4 Use of AI

Generative AI tools were used to assist with language editing, structural revision, and bibliographic checking. The tools were not treated as authors and did not determine the research questions, evidence base, interpretation, or conclusions. All factual statements, references, analytical judgments, and final wording were reviewed and validated by the author. No confidential or proprietary information was used.

5.5 Limitations

This study has limitations. It is based exclusively on public documentary sources and does not include interviews with project participants, access to internal project records, or systematic comparative case sampling, a limitation that is material for case study inference (Yin, 2018). Informal decision-making dynamics, political negotiations, and internal organizational conflicts may therefore be underrepresented. The analysis also cannot determine which governance elements were strictly necessary conditions for the outcome, as opposed to strongly associated or mutually reinforcing conditions, which is a common caution in interpreting megaproject performance (Flyvbjerg, 2014). The paper therefore offers an analytically structured interpretation of a single well-documented case, supported by public project documentation and independent assessments (Global Infrastructure Hub, 2021), not a universal causal model.

6. Results — The Genoa Model Governance Architecture

6.1 The Collapse and Its Immediate Governance Challenge

The Morandi Bridge, formally the Polcevera Viaduct, was designed by engineer Riccardo Morandi and inaugurated in 1967. ASCE technical reporting describes the structure as

1,182 meters long, 45 meters high at road level, and part of the E80 European route linking Italy to France (ASCE, 2020). The Global Infrastructure Hub also identifies its strategic role in Genoa's transport and logistics system (Global Infrastructure Hub, 2021). Its three hybrid prestressed cable-stayed spans, supported by reinforced-concrete piers and 90-meter pylons, were considered a landmark of postwar Italian engineering.

Over the decades, the bridge carried traffic volumes beyond those originally anticipated. Technical commentary after the collapse discussed possible contributing factors such as corrosion, fatigue phenomena, and load cycling (ASCE, 2020), although the official cause remained under investigation at the time the primary sources reviewed in this paper were published. The Global Infrastructure Hub similarly treats the collapse as the trigger for an emergency infrastructure governance response rather than as a finalized technical failure analysis (Global Infrastructure Hub, 2021).

On the morning of August 14, 2018, during heavy rainfall on the eve of the Ferragosto holiday, a 210-meter section collapsed. The Global Infrastructure Hub reports that the A7 and A10 motorway connections were severed and that Genoa's logistics system was immediately disrupted (Global Infrastructure Hub, 2021). ASCE technical reporting also emphasizes the scale and urgency of the reconstruction challenge (ASCE, 2020). Genoa, which forms the southern corner of the Milan-Turin-Genoa industrial triangle, faced an estimated economic loss of approximately EUR 6 million per day as a result of the severed connection (Global Infrastructure Hub, 2021).

The governance challenge was immediate and multidimensional: who would decide, who would be accountable, who would pay, who would supervise, and how quickly reconstruction could begin. These were not merely administrative questions. In project governance terms, authority and accountability structures shape whether project management tools can operate effectively (Müller, 2009). In megaproject terms, fragmented governance is one of the recurring conditions associated with underperformance (Flyvbjerg, 2014). The Genoa case therefore posed, from the outset, the institutional question of whether reconstruction would accelerate or become trapped in the forms of fragmentation commonly associated with infrastructure underperformance (Global Infrastructure Hub, 2021).

6.2 The Legislative Foundation: The Genoa Decree

Within weeks of the collapse, the Italian government enacted Decreto-Legge 109/2018, the "Genoa Decree," later converted into Law 130/2018 (Gazzetta Ufficiale, 2018). This legislative instrument became the foundation of the reconstruction model, as later described in the Global Infrastructure Hub case study (Global Infrastructure Hub, 2021).

First, it created distinct but coordinated emergency and reconstruction arrangements. Giovanni Toti, President of the Liguria Region, had already been appointed commissioner delegated for the emergency response (Regione Liguria, 2018), while Marco Bucci, Mayor of Genoa, was formally appointed Extraordinary Commissioner for the reconstruction of the viaduct by DPCM of October 4, 2018 (Commissario Ricostruzione Genova, 2018a). This distinction matters. Emergency response and reconstruction were not treated as the same institutional function. Reconstruction authority was concentrated in a single politically legitimate office.

Second, the decree allowed the commissioner to operate in derogation from ordinary legal provisions while preserving non-derogable European constraints. Article 1, paragraph 7, expressly referred to article 32 of Directive 2014/24/EU (Gazzetta Ufficiale, 2018), enabling demolition and reconstruction works to be awarded through an emergency framework rather than ordinary procurement procedures. The commissioner's contractual decree operationalized this framework in the reconstruction process (Commissario Ricostruzione Genova, 2019). This was not the abandonment of governance. It was a substitution of governance regimes: from ordinary procurement governance to emergency reconstruction governance, a distinction consistent with OECD analysis of procurement systems under risk and crisis conditions (OECD, 2023).

Third, the reconstruction was institutionally separated from Autostrade per l'Italia, the concessionaire responsible for the original bridge. The Global Infrastructure Hub notes that ASPI was not involved in reconstruction through the Genoa framework (Global Infrastructure Hub, 2021). This separation reduced a major conflict-of-interest concern in the delivery structure and aligned with the legal and administrative choices embedded in the Genoa Decree (Gazzetta Ufficiale, 2018).

Fourth, the decree created the conditions for financial and contractual certainty. The commissioner's documents identify the reconstruction contract framework (Commissario Ricostruzione Genova, 2019), while ASCE reports the official values associated with the works, including EUR 202 million for reconstruction and EUR 19 million for demolition (ASCE, 2020). The Global Infrastructure Hub also situates these values within the broader delivery model (Global Infrastructure Hub, 2021).

For project management practice, the significance of this legislative foundation is fundamental. In emergency infrastructure projects, the decisive governance intervention may occur before detailed project execution begins. Project management tools operate inside legal and institutional frameworks, a point emphasized by PMBOK® 8 in its treatment of governance and authority structures (PMI, 2025a). When those frameworks are fragmented, even technically competent teams may be unable to deliver quickly. When they are purpose-designed, they can make disciplined acceleration possible, as suggested by project governance theory (Müller, 2009) and emergency reconstruction literature (Lizarralde, Johnson and Davidson, 2010).

6.3 The Contracting Architecture: PerGenova, Italferr, and the Collaborative Model

With the extraordinary framework in place, the reconstruction works were awarded in December 2018 to Salini Impregilo, Fincantieri, and Italferr under the commissioner's special procedure (Commissario Ricostruzione Genova, 2018b). In the execution phase, PerGenova S.C.p.A. became the dedicated coordinating entity, formed by Salini Impregilo, now Webuild, and Fincantieri; Italferr developed the executive design of the new viaduct (Commissario Ricostruzione Genova, 2019; FS Italiane, 2020). Although secondary accounts sometimes describe PerGenova as a three-party consortium, the more precise description is that PerGenova was the Webuild-Fincantieri joint venture coordinating execution, with Italferr acting as engineering designer, as reflected in the Global Infrastructure Hub case study (Global Infrastructure Hub, 2021).

RINA Consulting was appointed as independent project and construction manager. RINA describes its responsibilities as spanning works supervision, construction management, safety coordination, quality assurance, and broader project oversight across demolition and reconstruction (RINA, 2020a). ASCE also treats RINA's role as central to the engineering and management of the replacement bridge (ASCE, 2020). This was not a peripheral consulting role. It was an operational governance role. RINA provided an independent layer capable of translating political authority and contractual alignment into day-to-day coordination, controls, supervision, and decision support, a function consistent with the governance concerns identified in PMBOK® 8 (PMI, 2025a).

The contracting model was collaborative rather than adversarial. The Global Infrastructure Hub identifies collaboration among public authority, designer, contractor, and project manager as one of the reasons the model reduced approval time, accelerated decision-making, and minimized disputes (Global Infrastructure Hub, 2021). In governance-as-practice terms, this kind of alignment is not merely formal but produced through sustained interaction among project actors (Brunet, 2019). It is also consistent with OECD procurement governance principles, which emphasize alignment, risk management, and accountability in public procurement systems (OECD, 2023).

Architect Renzo Piano, a native of Genoa, provided the conceptual design of the new bridge without charge, as reported by ASCE (ASCE, 2020). The final structure comprises a continuous steel-concrete deck 1,067 meters long, with 19 spans supported by 18 elliptical reinforced-concrete piers (ASCE, 2020; Webuild Group, n.d.). Its form evokes a ship's hull, linking the bridge to Genoa's maritime identity while enabling a buildable and repetitive structural solution consistent with parallel execution.

Figure 1. *Genova San Giorgio Bridge from ground level, showing the continuous deck and elliptical reinforced-concrete piers. Source: AlFromLig, "Ponte San Giorgio e GE.jpg," Wikimedia Commons, CC BY-SA 4.0, no changes made (AlFromLig, 2023a).*

For project management practice, the contracting architecture illustrates that procurement design is governance design. Contracting choices shape incentives, escalation behavior, dispute patterns, and the ability of project teams to act under pressure. OECD procurement analysis highlights the governance implications of risk allocation and procurement design (OECD, 2023), while PMBOK® 8 connects governance to authority, control, and value delivery (PMI, 2025a). In Genoa, the delivery structure was aligned with the emergency objective: speed with safety, accountability, and public legitimacy (Global Infrastructure Hub, 2021).

6.4 The Execution Model: Parallel Delivery Under Pressure

Demolition-related activities are reported by the Global Infrastructure Hub as commencing on December 15, 2018, while major physical dismantling progressed during 2019 and was completed in September 2019 (Global Infrastructure Hub, 2021; ASCE, 2020; RINA, 2020a). Reconstruction advanced in parallel. ASCE describes the project's central execution challenge as conducting demolition and reconstruction in a dense urban and industrial environment crossed by roads, railways, utilities, and the Polcevera river (ASCE, 2020).

RINA reports 20 simultaneous work sites operating 24 hours a day, 7 days a week, without interruption for almost two years, apart from Christmas Day 2019 (RINA, 2020a). Steel segments for the deck were fabricated off-site, transported to Genoa, assembled on the ground, and lifted or launched into position in sequence. ASCE documents the technical and logistical complexity of this process (ASCE, 2020), while Webuild describes the construction approach and the deployment of people, materials, and equipment across multiple work fronts (Webuild Group, n.d.). This required continuous coordination among site teams, engineering designers, fabricators, safety personnel, logistics operators, and project management staff.

When COVID-19 began in early 2020, the site did not stop. RINA reports that protective protocols and operational adaptations were introduced to allow work to continue (RINA, 2020a). Its completion announcement records that the final bridge section was lowered into place on April 28, 2020 (RINA, 2020b). FS Italiane then recorded the opening of the bridge to traffic on August 5, 2020 (FS Italiane, 2020).

The project's numerical profile reinforces the scale of the achievement. RINA reported more than 220,000 hours of engineering work, over 3,200 technical documents, a dedicated team of 80 specialists, and 20 simultaneous work fronts (RINA, 2020a). Webuild reported approximately 1,000 people involved in site, design, and construction activities (Webuild Group, n.d.).

Figure 2. *Panoramic view of the completed Genova San Giorgio Bridge across the Polcevera Valley. Source: AlFromLig, "Viadotto Genova San Giorgio panorama.jpg," Wikimedia Commons, CC BY-SA 4.0, no changes made (AlFromLig, 2023b).*

The fast-track approach required more than compressed scheduling. It required real-time decision capacity. PMBOK® 8 treats governance as a performance domain involving decision authority, accountability, escalation, and alignment (PMI, 2025a). In Genoa, operational teams could act quickly because decision authority, escalation pathways, and accountability structures were clear. That relationship between governance and practice is consistent with Müller's project governance theory (Müller, 2009) and Brunet's account of governance as something maintained through coordinated action among project participants (Brunet, 2019).

6.5 Five Structural Elements of the Genoa Model

The Genoa Model can be synthesized into five structural governance elements. These elements should not be understood as isolated factors or as a mechanical formula. In case study terms, they represent an analytical synthesis from documentary evidence (Yin, 2018). In project management terms, they correspond to governance concerns now made explicit by PMBOK® 8 (PMI, 2025a). In the Genoa documentation, they also appear as mutually reinforcing components of the project's delivery architecture (Global Infrastructure Hub, 2021).

The first element is unified reconstruction authority. The appointment of an extraordinary commissioner concentrated reconstruction authority in a single politically legitimate office (Commissario Ricostruzione Genova, 2018a). This reduced inter-agency diffusion and created a clear locus of accountability. In project governance terms, Müller (2009) identifies decision authority and accountability as core governance concerns. Lizarralde, Johnson and Davidson (2010) support the broader reconstruction literature's emphasis on coordinated institutional arrangements after disasters, and the Genoa case itself illustrates the specific role of concentrated reconstruction authority.

The second element is calibrated legislative derogation. The Genoa Decree replaced ordinary procurement pathways with an emergency framework anchored in law and constrained by non-derogable European rules (Gazzetta Ufficiale, 2018). The commissioner's contractual decree then operationalized this framework for reconstruction (Commissario Ricostruzione Genova, 2019). The model did not suspend governance. It tailored governance to emergency conditions, which is consistent with OECD's view that procurement systems should embed risk management rather than treat risk as an external control exercise (OECD, 2023).

The third element is collaborative delivery. The Global Infrastructure Hub identifies the alignment among public authority, designer, contractor, and project manager as a core aspect of the Genoa delivery model (Global Infrastructure Hub, 2021). RINA's project management role helped sustain that alignment during execution (RINA, 2020a). In megaproject governance terms, this addressed incentive alignment and reduced the likelihood that disputes would dominate delivery, which is consistent with Brunet's governance-as-practice perspective (Brunet, 2019).

The fourth element is independent professional project management at scale. RINA's role as project and construction manager provided independent supervision, technical coordination, safety control, quality assurance, and operational governance capacity (RINA, 2020a). ASCE also emphasizes the importance of this management and engineering capacity in the project's delivery (ASCE, 2020). This role connected the legal authority of the commissioner with the practical reality of multiple work fronts, interfaces, technical documents, and execution risks, aligning closely with PMBOK® 8's treatment of governance, controls, and performance (PMI, 2025a).

The fifth element is continuous execution discipline. The 24/7 delivery model, off-site fabrication, logistics integration, and parallel work fronts converted governance clarity into operational speed. Webuild describes the project's construction approach and workforce deployment (Webuild Group, n.d.), while ASCE details the technical and logistical complexity of the replacement bridge (ASCE, 2020). RINA's account of continuous work fronts and engineering coordination further supports the conclusion that this was disciplined fast-tracking rather than improvisation (RINA, 2020a).

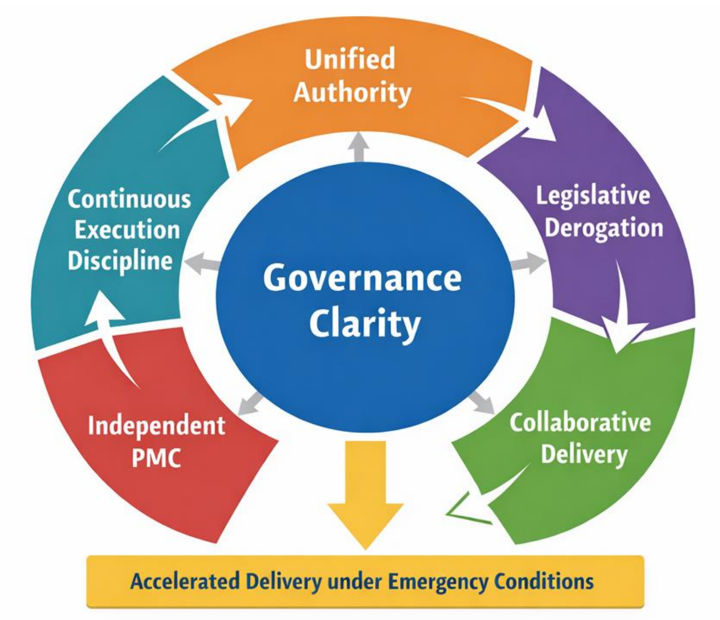

Figure 3. *Analytical synthesis of the Genoa Model governance architecture. Source: Author's synthesis based on documentary evidence and project governance literature, including Global Infrastructure Hub (2021), RINA (2020a), ASCE (2020), Müller (2009), and PMI (2025a).*

Taken together, these five elements suggest that speed in Genoa was not produced by the absence of governance. The Global Infrastructure Hub presents the case as an example of improved delivery model design (Global Infrastructure Hub, 2021), while PMBOK® 8 frames governance as a performance domain rather than an administrative layer (PMI, 2025a). The Genoa case therefore illustrates a principle also present in emergency reconstruction literature: urgent delivery requires governance designed for urgency, legitimacy, control, and execution discipline at the same time (Lizarralde, Johnson and Davidson, 2010; IFRC, 2023; OECD, 2023).

7. Discussion — Theoretical Interpretation and Relation to the Literature

7.1 Project Governance and Megaproject Performance

This section develops the theoretical interpretation of the documentary findings presented above. Project governance has emerged over the past two decades as a distinct field within project management research. Unlike corporate governance, which focuses on the direction and control of firms, project governance concerns the systems, structures, processes, and authority relationships that shape individual project outcomes.

Müller (2009) defines project governance as the use of systems and structures of authority to allocate resources, coordinate activity, and control project work. Turner and Müller (2003), in turn, frame the project as a temporary organization, in which principal-agent dynamics, decision rights, and accountability relationships influence performance before operational execution begins.

This distinction is important for infrastructure delivery. A project can possess technical competence, detailed schedules, capable contractors, and sophisticated controls, yet still underperform if the governance environment is misaligned. Müller (2009) emphasizes that decision authority and governance structures shape project behavior; Sanderson (2012) shows that uncertainty requires governance arrangements capable of adaptation; and Brunet (2019) demonstrates that governance is sustained through interactions among project actors. Diffuse authority can delay decisions, ambiguous accountability can weaken discipline, procurement structures can reward defensive behavior rather than problem-solving, and escalation paths can become bottlenecks rather than mechanisms for resolution.

Megaproject research provides a second analytical lens. Flyvbjerg (2014) argues that cost overruns and schedule delays in megaprojects are systematic rather than exceptional. Their causes are not limited to engineering uncertainty. They include optimism bias, strategic misrepresentation, weak accountability, and incentive structures that allow unrealistic assumptions to survive through approval and delivery. Sanderson (2012) extends this analysis by emphasizing the conditions of uncertainty that characterize major infrastructure projects. Under deep uncertainty, rigid hierarchical governance may be insufficient, because project objectives, risks, interfaces, and constraints cannot be fully known at the outset. Effective governance must therefore combine control with adaptability.

Brunet (2019), in turn, approaches governance as practice, showing that governance is not merely designed at the beginning of a project but continuously constructed through interactions among owners, contractors, regulators, consultants, and political actors. Recent public-sector assessments reinforce the same point. The United Kingdom's National Audit Office identifies mega-projects as particularly costly, risky, complex, and strategically significant initiatives requiring stronger decision-making and governance arrangements (NAO, 2025). This recent institutional literature is relevant because it confirms that the governance problem is not merely academic; it is a continuing concern for public project portfolios in mature infrastructure systems, a point also reflected in OECD work on public procurement governance and risk management (OECD, 2023; OECD, 2025).

These studies converge on a central point: megaproject performance depends not only on planning and execution, but on the governance architecture that structures decisions, incentives, accountability, and collaboration. Flyvbjerg (2014) identifies weak accountability and strategic misrepresentation as recurring causes of underperformance, while Sanderson (2012) stresses the governance implications of uncertainty. Brunet (2019) adds that governance must be sustained across organizational boundaries. Concentrated and legitimate authority, aligned contractual arrangements, independent oversight, and sustained coordination are therefore recurring conditions associated with better outcomes.

7.2 Emergency Infrastructure Delivery and Public Procurement Governance

Emergency infrastructure delivery introduces a third set of governance problems. In post-disaster or crisis contexts, urgency is not rhetorical; it is social, economic, political, and operational. Lizarralde, Johnson and Davidson (2010) show that reconstruction requires institutional arrangements capable of reducing coordination delays, while Chang et al. (2010) emphasize the resourcing and governance challenges of post-disaster recovery. Normal procurement and approval systems may be too slow for the conditions at hand. However, speed cannot simply mean the removal of accountability. The challenge is to redesign accountability for emergency conditions, a theme also emphasized in recent disaster law analysis by IFRC (2023).

Lizarralde, Johnson and Davidson (2010) situate post-disaster reconstruction as a problem of institutional coordination, professional practice, and sustainable delivery, while more recent disaster law and procurement governance literature reinforces the importance of clear recovery responsibilities, coordination arrangements, and risk-aware delivery frameworks (IFRC, 2023; OECD, 2023). Chang, Wilkinson, Potangaroa and Seville (2010) show that post-disaster reconstruction often suffers not from a total absence of resources, but from governance structures that cannot mobilize resources quickly enough. More recent disaster law work emphasizes that recovery leadership and coordination arrangements vary significantly across jurisdictions, and that the legal allocation of recovery responsibilities is a central condition for effective post-disaster reconstruction (IFRC, 2023).

For project management practice, the emergency delivery literature suggests a critical shift. The issue is not whether governance should be relaxed or intensified, but whether governance is designed for the operating context. In emergencies, ordinary governance may preserve formal compliance while producing practical paralysis. Purpose-designed emergency governance, as described in the reconstruction literature (Lizarralde, Johnson and Davidson, 2010), can preserve legality and accountability while enabling speed. This principle aligns with the risk-aware procurement approach later discussed below (OECD, 2023).

Public procurement governance is a fourth necessary lens because infrastructure governance is inseparable from procurement design. Procurement frameworks determine who may contract, under what conditions, with what risk allocation, what transparency obligations, and what oversight mechanisms. In large public infrastructure projects, procurement is not merely an administrative phase. OECD guidance on procurement risk shows that procurement structures affect incentives, collaboration, accountability, dispute behavior, and delivery speed (OECD, 2023), while the OECD’s implementation report on public procurement emphasizes transparency, integrity, access, efficiency, e-procurement, accountability, and integration (OECD, 2025).

The OECD has emphasized that public procurement systems depend on transparency, integrity, access, efficiency, e-procurement, risk management, accountability, and integration (OECD, 2025). Its recent work on risk management in procurement also stresses that procurement and infrastructure delivery are central to post-crisis recovery and require governments to embed risk management practices throughout procurement systems rather than treating risk as a late-stage control exercise (OECD, 2023). These principles are directly relevant to the Genoa case because the extraordinary framework created by the Genoa Decree recalibrated procurement governance around emergency conditions rather than removing governance altogether (Gazzetta Ufficiale, 2018).

This distinction is important for transferability. A model such as Genoa cannot be reduced to “faster procurement.” Its more defensible lesson is that procurement procedures, legal authority, delivery structure, and professional project management must be aligned with the project’s operating context. That lesson connects public procurement governance (OECD, 2023), contemporary project governance practice (PMI, 2025a), and the documented delivery model of the Genoa reconstruction (Global Infrastructure Hub, 2021).

7.3 The Genoa Model and PMBOK® 8

The PMBOK® Guide Eighth Edition, published in November 2025, retains the principles-and-domains foundation of the Seventh Edition while making that structure more actionable. PMI’s official product information identifies six core principles, seven performance domains, and expanded coverage of procurement, AI, PMOs, and practical guidance (PMI, 2025b). The formal PMBOK® Guide Eighth Edition also treats governance as a performance domain central to project performance (PMI, 2025a).

The Genoa case should not be read as an application of PMBOK® 8, since the project was completed before the Eighth Edition was published. The relationship is analytical rather than historical. PMBOK® 8 provides the contemporary vocabulary of governance performance (PMI, 2025a), while the Genoa case provides a concrete documentary example of why decision authority, accountability, procurement alignment, and operational controls matter in accelerated delivery (Global Infrastructure Hub, 2021; RINA, 2020a).

The mapping is direct. Unified reconstruction authority corresponds to decision rights, accountability, and escalation clarity, which are central governance concerns in PMBOK® 8 (PMI, 2025a). Calibrated legislative derogation corresponds to governance tailoring: the adaptation of authority, procedure, and controls to the operating context, a point also compatible with OECD procurement risk guidance (OECD, 2023). Collaborative delivery corresponds to procurement alignment, stakeholder integration, and value-oriented contracting. Independent professional project management corresponds to control integration, quality assurance, risk visibility, and the operationalization of governance through competent project structures. Continuous execution discipline corresponds to the connection between governance and delivery performance, showing that fast execution depends on planning, controls, decision speed, and interface management. These relationships also reflect the project governance literature of Müller (2009) and Brunet's governance-as-practice analysis (Brunet, 2019).

This mapping reinforces a central point: governance is not administrative overhead. In PMBOK® 8, governance is treated as part of project performance (PMI, 2025a). In Genoa, governance did not merely monitor the project from above; it shaped the project's capacity to decide, coordinate, control, and deliver under pressure, as documented by the Global Infrastructure Hub (2021). This interpretation is consistent with Sanderson's argument that governance must respond to uncertainty in complex projects (Sanderson, 2012).

The role of the independent project and construction manager is particularly important. In routine project environments, project management is sometimes treated as schedule administration or reporting. In Genoa, RINA's role operated as an institutional bridge between authority and execution (RINA, 2020a), while ASCE's reporting confirms the importance of engineering and management coordination in the bridge replacement

(ASCE, 2020). The project management function helped maintain alignment among legal mandate, contractual structure, technical design, safety requirements, and operational work fronts. That is precisely the type of governance-connected project management role that contemporary project management practice increasingly requires under PMBOK® 8 (PMI, 2025a).

8. Discussion — Implications for the Brazilian Infrastructure Market

8.1 Establishing the Brazilian Baseline

Assessing the transferability of the Genoa Model to Brazil requires an explicit institutional baseline. Five features are especially relevant: the size of the infrastructure investment gap, which is documented by the World Bank (2022); the recent modernization of procurement law through Law 14.133/2021 (Brasil, 2021); the complexity of external oversight, especially through TCU guidance (TCU, 2024); the development of transparency and digital procurement instruments through the PNCP (PNCP, n.d.); and the uneven maturity of project management practice across public infrastructure delivery, a theme connected to Brazilian infrastructure governance analysis (Pompermayer, 2024).

First, Brazil's infrastructure investment gap remains large. The World Bank estimates that Brazil needs annual infrastructure investment of approximately 3.7% of GDP through 2030 to meet infrastructure-related Sustainable Development Goals (World Bank, 2022). The CNI estimates that infrastructure investment in 2025 would be approximately 2.21% of GDP, despite sectoral advances in sanitation and transport (CNI, 2025). CNI's broader infrastructure materials also emphasize the strategic importance of infrastructure for Brazilian competitiveness (CNI, n.d.). The quantitative gap therefore remains substantial.

Second, Brazil's procurement framework has changed significantly with Law 14.133/2021, which modernized public contracting and provides mechanisms for integrated contracting, risk allocation, more structured planning, transparency, and emergency procurement (Brasil, 2021). TCU's 2024 guidance consolidates orientations and jurisprudence under the new framework (TCU, 2024), while its specific guidance on integrated contracting and emergency procurement clarifies practical legal pathways (TCU, 2025a; TCU, 2025b). However, implementation remains uneven across federal, state, and municipal entities. Legal availability does not automatically produce institutional capability.

Third, Brazil has a complex oversight architecture. The TCU plays an essential role in federal procurement accountability and fiscal discipline, as reflected in its updated guidance on public procurement and contracts (TCU, 2024). This oversight function is indispensable, but it must be integrated into project governance early. If treated as a late-stage external intervention, it can create decision latency and execution uncertainty, particularly in complex contracting models addressed by TCU guidance (TCU, 2025a; TCU, 2025b).

Fourth, Brazil is expanding transparency and digital procurement instruments. The *Portal Nacional de Contratações Públicas* centralizes procurement data under the new legal framework and is designed to support transparency across federal, state, and municipal levels (PNCP, n.d.). Cardoso (2024) discusses the technological dimension of digital government and procurement law, while Transparency International Brasil et al. (2025) emphasizes the relevance of infrastructure transparency at the federal level. This is a significant institutional development, but transparency platforms must be complemented by planning quality, contract management capacity, and professional project controls.

Fifth, project management maturity is uneven. Brazil has significant engineering and project management capability, including sophisticated public and private actors. However, independent PMC functions with operational authority are not yet standard practice across public infrastructure delivery. Pompermayer (2024) treats governance as a central infrastructure issue, while TCU guidance shows the importance of structured procurement and contract management capacity (TCU, 2024). PMBOK® 8 reinforces the point that project performance depends on governance, decision authority, controls, and alignment, not merely on technical scheduling tools (PMI, 2025a).

8.2 Transferability Assessment

Some elements of the Genoa Model are directly transferable to Brazil. The most immediate is independent professional project management at scale. PMBOK® 8 treats governance-connected project management as central to performance (PMI, 2025a), and the Genoa case shows how RINA's independent role supported supervision, quality assurance, interface coordination, and reporting to the owner (RINA, 2020a). Brazil has the technical competence to deploy similar independent project and construction managers. The barrier is less technical than institutional: public owners must be willing to invest in independent oversight as a core governance function rather than treating it as a discretionary support service, a challenge consistent with Brazilian infrastructure governance concerns identified by Pompermayer (2024).

A second transferable element is continuous execution discipline. Parallel execution, early logistics planning, interface management, prefabrication strategies, and intensive coordination are methods rather than legal exceptions. Webuild's description of the Genoa construction model illustrates the operational logic of this approach (Webuild Group, n.d.), while ASCE reports the technical coordination required by the replacement bridge (ASCE, 2020). These methods can be adopted in Brazil wherever owners are prepared to invest in front-end planning and rapid decision mechanisms. TCU's guidance on procurement and contracts reinforces the need for structured planning and contract management capacity (TCU, 2024), while PMBOK® 8 links governance to delivery performance (PMI, 2025a).

A third partially transferable element is collaborative delivery. Law 14.133/2021 provides more flexibility than older procurement cultures often assume (Brasil, 2021), and TCU guidance recognizes integrated contracting and emergency procurement possibilities (TCU, 2025a; TCU, 2025b). This does not mean Brazil should mechanically reproduce the Genoa procedure. Rather, OECD procurement guidance suggests that public procurement systems can be designed to improve risk allocation, accountability, and integration (OECD, 2023). The Brazilian system therefore has room to reduce adversarial fragmentation when projects are structured with clear objectives, appropriate risk allocation, transparent controls, and early engagement with oversight expectations.

The element requiring the greatest adaptation is unified reconstruction authority. Brazil has emergency procurement tools and exceptional legal mechanisms, but federative complexity, political turnover, licensing fragmentation, and multi-level oversight make authority concentration more difficult. The World Bank identifies institutional and investment challenges in Brazil's infrastructure environment (World Bank, 2022), while TCU guidance reflects the importance and complexity of oversight in public contracting (TCU, 2024). Pompermayer's analysis of infrastructure governance also supports the conclusion that the Brazilian challenge is not simply legal, but institutional and political: how to create accountable authority without weakening transparency, legality, or control (Pompermayer, 2024).

The deepest structural challenge is institutional continuity. Genoa benefited from a clearly defined emergency, concentrated political legitimacy, and a commissioner-led structure able to sustain momentum, as documented by the Global Infrastructure Hub (2021). In Brazil, even well-designed infrastructure projects can lose continuity across administrations, jurisdictional disputes, licensing cycles, audit interventions, and changes in budgetary priority. The World Bank's infrastructure assessment identifies the broader investment and institutional challenge (World Bank, 2022), while Pompermayer (2024) emphasizes infrastructure governance as a condition for responsible investment. The Genoa case therefore points to a Brazilian agenda broader than emergency procurement: governance continuity as a project performance condition.

For Brazilian project management practice, the central lesson is demanding but constructive. The gap is not primarily one of engineering capability. It is a gap of governance design, institutional alignment, contracting culture, and execution discipline. PMBOK® 8 provides a vocabulary for positioning governance as a performance domain (PMI, 2025a), while Müller's project governance theory explains why authority and accountability structures matter before operational execution begins (Müller, 2009). TCU guidance further shows that procurement and contract management must be treated as governance functions rather than procedural formalities (TCU, 2024). Professional project managers can contribute to closing that gap, but only if they are positioned not merely as schedulers or controllers, but as participants in the design and maintenance of project governance.

9. Conclusions — Significance and Recommendations

The reconstruction of the Genova San Giorgio Bridge should not be treated as an unrepeatable miracle. It should be treated as a documented, analyzable, and partially replicable case of emergency infrastructure governance.

This article has made three analytical contributions. First, it integrated project governance theory, megaproject governance research, emergency infrastructure delivery literature, and public procurement governance to establish a theoretical lens for interpreting the Genoa case. Second, it reconstructed the project's governance architecture from documentary evidence and synthesized it into a five-element model. Third, it evaluated the transferability of that model to Brazil through an explicit institutional comparison.

The Genoa Model rested on five mutually reinforcing elements: unified reconstruction authority, calibrated legislative derogation, collaborative delivery, independent professional project management, and continuous execution discipline. None of these elements eliminated complexity. Instead, they prevented complexity from hardening into paralysis.

The case also clarifies the relationship between governance and execution. Fast delivery was not achieved by removing governance. It was achieved by redesigning governance for urgency, accountability, and operational control. This is the practical significance of the case for project management. Governance is not a layer above the project. It is part of the project's delivery system.

For Brazil, the implications are selective rather than mechanical. Independent professional project management, parallel execution discipline, and more collaborative delivery structures are directly or substantially transferable. Concentrated authority requires institutional adaptation. Sustained governance continuity remains the hardest challenge. PMBOK® 8 gives the profession a clearer vocabulary for these issues. Genoa gives it a concrete case. The remaining question is whether public infrastructure institutions are willing to treat governance as a strategic design problem before execution begins.

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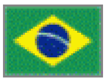

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