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Megaprojects and hybridity. Accounting and performance challenges for multiple diverse actors and values

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ABSTRACT

The aim of this paper is to illuminate how a hybrid organisation tasked with developing the Turin-Lyon Highspeed Railway, TELT, has played a pivotal role in the government of a French-Italian collaborative megaproject. Using a Foucauldian approach, we undertook a longitudinal analysis of TELT to investigate the accounting and performance challenges faced as this hybrid organisation attempted to meet the diverse goals and values of multiple stakeholders. The technologies introduced new work planning techniques, excavating, building prototypes, estimating and certifying standard costs, and implementing time and space controls based on cost classifications. The idea behind all these measures was to normalise the risks associated with the megaproject, and thus zero any cost overruns during the project's lifecycle. TELT's 'winning spirit' succeeded in navigating a bi-national business value chain spanning governments, contractors, and sub-contracting companies. Different forms of reporting were used concurrently some for financial disclosure, others for auditing to comply with national and European auditing regulations as enforced by the two governments. Non-financial information was also disclosed to diverse, and sometimes conflicting stakeholders, to increase social value and reduce information asymmetry. The study reveals how a wide range of experts intervened to solve problems at the meso-political and micro-organisational levels.

1. Introduction

Megaprojects, including "high-speed rail lines, airports, seaports, motorways", are defined as "large-scale, complex ventures that typically cost US\$1 billion or more, take many years to develop and build, involve multiple public and private stakeholders ... and impact millions of people" (Flyvbjerg, 2014, p. 6). Examples of megaprojects include, but are not limited to, the English–French Channel Tunnel, the Follo Line in Norway, or the joint strike fighter programme for engineering and building the F35 Lightning aircraft. In terms of accounting, accountability, and performance management, influential commentators have highlighted that megaprojects often go "over budget, over time, over and over again" (Flyvbjerg, 2011, p. 11). This tendency mirrors an "average practice" that is recognised as "a disaster in this interesting and very costly area of management" (Flyvbjerg, 2014, p. 7). The result is too often vast losses of public money (Flyvbjerg et al., 2021). Considering both the enormous amounts of public money spent on

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multi-year megaprojects, and their impacts on territories and populations, as well as the complexity of the accounting and performance measurement issues involved in planning and executing such ventures, it is rather surprising that they have received such scant attention from the interdisciplinary accounting community.

In this paper, we examine a transnational megaproject and the related accounting and performance challenges faced by a binational, part public/part for-profit organisation purpose-built to complete the project. The megaproject is the Tunnel Euralpin Lyon Turin, a high-speed railway link between Lyon, in France, and Turin, in Italy. Following more than a decade of international public debate, the megaproject was finally launched in 2015 and is due for completion in 2032. TELT SAS, or TELT for short, (i.e., Societé Par Actions Simplifieé – Simplified Stock Company) was formed to govern and manage the project's high-speed construction plan. TELT is a French company, owned in equal share by France, via the Ministry for the Economy and Finance, and Italy, through Ferrovie dello Stato, a state-owned holding railway company. It is funded by the governments of both countries and by the EU. This binational ownership, in tandem with different French-Italian political and cultural traditions, has seen, at once, both converging and separate practices in accounting, finance, and performance management. In addition, the aims pursued in day-to-day activities sometimes coincide and sometimes conflict, as highlighted by prior research (Grossi & Thomasson, 2015). With such idiosyncratic features, and although 'hybridity' is an ambiguous term (Thomason, 2009), TELT appears to the world as a hybrid public/for-profit organisation, akin to a state-owned enterprise (Grossi et al., 2017, p. 379). However, within its walls, it combines different logics, actors, and values (Ahrens & Ferry, 2022; Brandsen & Karré, 2011; Vakkuri & Johanson, 2020; Grossi et al., 2022; Campanale et al., 2021; Vakkuri et al., 2021).

We observed this company for seven years, conducted interviews over the past two years, and analysed a wide range of documents to complement and extend the primary source data obtained through the interviews. From these analyses, we make two interrelated contributions to the literature. First, we shed new light on the intersection between accounting, long-term collaborative transnational megaprojects government, and hybrid organisations. In this regard, we are responding to calls for such research made in the recent literature (Grossi et al., 2022, pp. 590-591). Notably, several studies over recent decades have investigated hybridisation processes and hybrid organisations in diverse contexts (Kurunmäki, 2004; Kurunmaki & Miller, 2006; Miller et al., 2008; Thomasson, 2009; Grossi et al., 2017; Johanson & Vakkuri, 2017; Gebreiter & Hidayah, 2019; Sargiacomo & Walker, 2022; Spano' et al., 2022). However, in spite of this wealth of research, megaprojects have mostly been analysed through the lens of project management (Olander, 2007; Aaltonen & Kujala, 2010; Mok et al., 2015), business ethics (Kujala et al., 2012; Lehtimäki & Kujala, 2017), or public management (Christensen & Grossi, 2021; Kundu et al., 2021). Only recently have the first exceptions outside these mainstream disciplines emerged. For example, Ferry and Slack (2022) studied the intersection of accounting, hybrid organisations, and mega-cultural events, while Ronzani and Gatzweiler (2022) examined issues of accounting in the context of national megaprojects. However, to date, the juxtaposition between hybrid entities and megaprojects has not been explicitly or systematically analysed as hybrid constellations. Thus, we still have much to learn about how accounting manifests in a megaproject governed by a transnational hybrid organisation. By accounting, we mean formal accounting practices and procedures, financial and performance challenges, and calculative and reporting practices that span the needs of multiple diverse actors and values. In fact, the roles played by these diverse actors and individuals are critically important to our analyses (Grossi et al., 2017, p. 383; Skelcher & Smith, 2015), as these are the people that translate the megaproject into practice, both at the meso-political level and the micro-organisational level (Vakkuri & Johanson, 2020).

The second contribution is theoretical. Admittedly, most of the recent literature on hybrid organisations has been underpinned by both property rights theory (Vining and Weimer, 2016) and by variants of institutional theory, such as historical institutionalism (Christensen, 2017). In addition, we have seen studies founded in institutional logics (Argento et al., 2016; Battilana & Lee, 2014; Greenwood et al., 2010; Olsen et al., 2017; Skelcher & Smith, 2015). Aiming to augment our understanding of a wider range of scenarios that might sit outside the boundaries of institutional isomorphism (Grossi et al., 2020), we have drawn on a Foucauldian perspective to focus on "bridges, roads and rivers" (Gordon, 1991, p.20). Indeed, Foucault's lectures, given in Rio in October 1974, concentrated on "the road system, transport routes and the collective infrastructure" (Elden, 2016, p.85). Hence, using a Foucauldian approach to examine a transnational megaproject involving a transport route and two governments is appropriate for investigating the accounting and performance challenges at play in TELT – especially since TELT, as a hybrid organisation both financially and structurally, must meet the expectations of multiple international actors and a diverse range of stakeholder goals and values. Importantly, through our analyses, we provide insights into the calculative techniques built up to comply with the needs of multiple actors. This way, this research also complements and extends prior studies on the "art of government" and the role of calculative practices as "technologies of government" that have been developed by a range of experts (Foucault, 1991, 2007; Miller, 2001; Miller & Rose, 1990; Rose & Miller, 1992).

The rest of this manuscript proceeds as follows. In Section 2, we describe our theoretical framing and explain the main tenets underpinning the study. Section 3 presents the research methods and data analysis. Section 4 provides a background to the megaproject. The longitudinal analysis begins in Section 5 with a discussion of the main features of TELT's governance, its organisational structure, and its operational structure as a hybrid organisation. Section 6 outlines the general funding, costing, budgeting, and payment systems used in the project. Section 7 explores the complexity of the calculative practices and performance challenges that surround how to plan, dig, construct, manage, and report on diverse Italian-French working sites in parallel. Section 8 focuses on the relationships and reporting practices that emerged to help communicate with all the stakeholders. And the last section briefly outlines our final conclusions and the contributions of this research.

2. Governing transnational megaprojects and accounting and performance challenges in hybrid organisations

2.1. Governing transnational megaprojects and establishing a hybrid organisation

Foucault bases his analysis on the assumption that "government is the right disposition of things, arranged so as to lead to a convenient end" (Foucault, 1991, p. 93). Among those objects that help governments to regulate territories and societies, "bridges, roads and rivers ..." have been touted as ensuring "circulation and cohabitation within a governed population" (Gordon, 1991, p. 20). From this standpoint, it is worth noting that the focus of today's governments "is no longer modelled on the police state of the urbanisation of the territory but extends far beyond the limits of urbanism and architecture" (Foucault, 1994, p. 353). Thus, we are witnessing new political rationality that includes "bridges, roads, viaducts and railways ..." (ibid, p. 354).

In the accounting literature, several studies have explored government programmes that involve diverse types of organisations and populations. A number of studies have addressed pivotal societal topics, such as the healthcare reimbursement system (Preston et al., 1997), the pension system (Graham, 2010), smart cities and communities (Argento et al., 2020), auditing and the development of the modern state (Free et al., 2020), and managing populations in the aftermath of natural disasters and pandemics (Sargiacomo, 2015; Sargiacomo et al., 2021; Sargiacomo & Walker, 2022). Further, the role of accounting in these studies has been examined as a contemporary issue and from a historical perspective (Miller, 1990; Neu, 2000; Servalli & Gitto, 2021).

Yet, despite the wealth of research to date, no study has investigated the role accounting plays in the governance of megaprojects and certainly, no study has taken a Foucauldian-inspired view of this subject. This gap in the literature becomes somewhat more meaningful when we understand that Foucault has long sought to provide linkages between the government's aims and town planning – see Security, Territory and Population (2007) as an example. In town planning, Foucault (2007, p. 17) sees the general matter of "capitalising territory" as a discipline belonging "to the order of construction (in the broad sense of construction)". He also draws on the example of the Nantes-Paris circulation plan. Here, he emphasises that the plan had to generate "rooms for new economic and administrative functions", while at the same time "dealing with relationship with the surrounding countryside, and finally allowing for growth". These words prompted a project that "was to construct quays along one side of the Loire, allow a quarter to develop, and then to construct bridges over the Loire" (2007, pp. 17–19).

When investigating problematics of government, such as healthcare, pensions, smart cities, natural disasters – and megaprojects (Christensen & Grossi, 2021; Ferry & Slack, 2022) – considerations by Miller and Rose (1990) and Rose and Miller (1992) are instructive to investigate programmes of government proposed and elaborated by groups of experts. Indeed, the Italian-French government programme, is spearheaded by the hybrid organisation TELT, whose idiosyncratic features mirror its bi-national ownership, transnational aims, and funding structure (Grossi et al., 2017). Importantly, establishing a hybrid organisation is an effective means through which the differing aims and politics of two nations, plus the EU, can be translated into practice.

2.2. Technologies of government for solving accounting and performance challenges in hybrid organisations

We contend that a Foucauldian analysis offers an effective framework for analysing accounting, calculative, and performance management solutions in the context of a hybrid transnational megaproject. In our case, we must consider that the issues connected to the broader Italian-French transnational territories will mean that our "analysis applies as much to geo-political issues as to those within any national territory" (Rose & Miller, 1992, p.178). In recent years, much attention has been devoted to the role of calculation in territorial strategies. This includes the impact on populations when a calculative apparatus, and its connected devices, "transform not only the possibilities for personhood, but they also construct the physical and abstract calculable spaces that individuals inhabit" (Mennicken & Miller, 2012, p.4). Moreover, as suggested by human geographers, calculative mechanisms enacted to govern territories and populations not only call for mapping, ordering, and measuring territories, but they also ask us to examine the manner in which a territory is normalised and regulated (Crampton & Elden, 2007; Elden, 2007, 2016).

Knowledge is central to the "activities of government and to the very formation of its objects, for government is a domain of cognition, calculation, experimentation and evaluation" (Rose & Miller, 1992, p. 175). Hence, the technologies of government are pivotal to acquiring and accumulating knowledge within a megaproject. As Miller and Rose (1990, p. 7) state, "programmes of government have depended upon the construction of devices for the inscription of reality in a form where it can be debated and diagnosed". Drawing on Rose and Miller (1992, p. 183), the diverse technologies of government that might be used within a megaproject include:

techniques of notation, computation, and calculation; procedures of examination and assessment; the invention of devices such as surveys and presentational forms such as tables; the standardisation of systems for training and the inculcation of habits; the inauguration of professional specialisms and vocabularies; building designs and architectural forms.

For example, to overcome performance management issues in daily work, technologies may include: comprehensively identifying, classifying, and calculating the territories to be excavated; normalising recurrent deviances in the work to be contracted out; attaching financial or cost measures to such scales, calculi, deviances' normalisations, and in general to each of the disaggregated activities belonging to the work plans of each of the Italian-French working sites. These activities see the role of accounting as "an inherently territorialising activity ... by making physical spaces calculable" (Mennicken & Miller, 2012, p. 20). So, in the same way that building designs and architectures are highly relevant to construction projects, maps are highly relevant to delineating territories and populations, as "both a product of and intervention in a distributed series of political knowledges" (Crampton, 2007, p. 224).

The above technologies of governments represent some examples of hybrid solutions used to solve the challenges raised by

accounting, administration, and performance management within a megaproject. And it could be that additional issues emerge as a result of a megaproject being transnational, or run by a hybrid organisation, or funded by three separate governments, or all of the above. This is not to mention the different political, cultural, and practice traditions associated with accounting, auditing, performance management, controlling, and reporting that need to be synthesised within such an organisation. All this makes the day-to-day activities of TELT a highly intriguing phenomenon to study.

2.3. The role of experts and individuals

A wide range of experts assumes a pivotal role in a megaproject, as a broad variety of expertise may be required for problematising and solving arising issues (Rose & Miller, 1992, p. 188). In the case of the Turin-Lyon railway, architects, engineers, and geologists are needed to map areas and plan and execute the excavation and subsequent construction of a diverse range of sites, thus obtaining the right distribution of things, activities, individuals, and space (Foucault, 1991, 2007). Legal experts are needed to interpret and homogenise French, Italian, and European legislation. Foreign language experts are needed to translate documentation. Accountants along with administrative/economic/financial experts are needed to design performance management systems. These systems, when operating in tandem with disciplinary techniques (Foucault, 1979), can help TELT to daily monitor sites and control "at a distance" (Latour, 1987; Robson, 1991, 1992) the status quo and work advancement of each of the working areas in time and space. These latter accounting and control activities will inevitably help TELT to generate multiple reports, each designed for a different audience – the Italian, French, and European Union governments as funders, along with social and environmental reports for other stakeholders.

Planning and executing a megaproject is an arena where one can appreciate the work of a range of experts. These experts come together to form a "complex assemblage of diverse forces, legal, architectural, (engineering) professional, administrative, financial, judgmental" (Rose & Miller, 1992, p.183). Moreover, analysing the solutions devised by these experts offers a further connection between governmentality and hybridity literature. This is valuable, since there have been recent calls to examine the roles played by individuals in hybrid organisations (Grossi et al., 2017; Skelcher & Smith, 2015). This makes sense because organisations are managed by individuals, and it is individuals who help translating megaprojects into practice, both at the meso-political level and the micro-organisational level (Vakkuri & Johanson, 2020). The resulting merger and cross-pollination of different areas of expertise in a multi-year megaproject such as the Lyon-Turin High-speed Railway, resonate with how accounting can be operationalised as a form of "bricolage", where calculative technologies from different disciplines are combined to address a particular problem (Miller, 1998). See Fig. 1 for an illustration of our theoretical framing.

3. Research method and sources

3.1. Data collection

This longitudinal study is part of a larger project, started in 2019, where the aim was to design a novel methodology for assessing

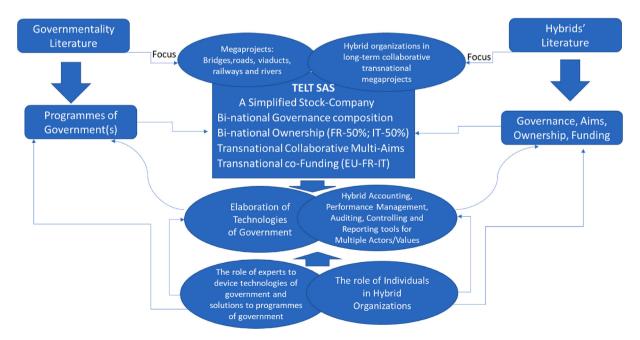


Fig. 1. Theoretical framing. Source: Authors' elaboration

the socio-economic impacts of megaprojects (Corazza et al., 2022). To inform this paper, two authors who had been physically involved in over 100 h of prior fieldwork and had already conducted 22 interviews, performed a second round of five interviews in virtual mode. In addition, these authors have acted as third-party observers, and the prior multi-year contact with TELT's apex helped to minimise the impact of social distance with all the interviewees (Bourdieu & Balazs, 1999, p. 608). Additional data sources were also reviewed to provide deeper insights into the extreme complexity of the megaproject and the debate surrounding it. The documents included government decrees at the international, national, regional, and local levels, deliberations, circulars, ordinances, and a range of newspaper and media articles (see Appendix A). As our research developed, we read newspaper articles discussing updates and issues, and these allowed us to link some of the interviewees' comments to how construction was progressing.

The fieldwork consisted of direct on-site observation in both offices and working sites throughout 2019 and 2020. The first round of 22 interviews took place in 2020. These were face-to-face, until the Covid-19 pandemic obliged the researchers to switch to virtual mode. The second round of five interviews was conducted virtually in 2021. At the start of each interview, the purpose of the research was explained to the respondent. The interview protocols were adapted to particular job functions, and a specific amount of time was allocated to each interview, ranging from 1 hour to 1 hour 45 min. Some of the reoccurring themes were as follows: (i) self-description of the job positions and main roles in the megaproject; (ii) aspects of hybridisation that recur in the project's daily management; (iii) the accounting and administrative practices of different actors; (iv) accounting for time-space controls; (v) performance challenges associated with working in diverse Italian-French work sites; (vi) how TELT navigates its accountability processes with stakeholders and sometimes conflicting actors; (vii) how the two different national traditions and views have impacted the aims of the megaproject and its day-to-day activities and procedures.

Interviews were held with the General Director, the Financial Director, the Construction Director, the Engineering Director, the Construction Site Project Managers for the building sites currently operational in Italy and France, plus the Head of the 'Planning and Project Control' Function who oversees the megaproject. Six women were interviewed and 17 men. The interviews were conducted in Italian and French with the help of a professional translator (see Appendix B).

Our use of retrospective interviews was built on the assumption that these selected actors held prominent positions in the project and were therefore best placed to understand the context of the practices used (cf. Bertaux & Kohli, 1984, p. 226). We also assumed they were able to accurately recall and explain the details of those practices (cf. Bourdieu & Balazs, 1999).

3.2. Data analysis

In total, we held 27 open-ended interviews with 23 senior executives. Each interview was transcribed verbatim and later sent to the interviewee, who had the right to approve or reject the content or to provide clarifications. Written comments and confirmations from the interviewees on points of clarification were received by email. In addition to the noted confirmations, we triangulated the content with secondary data sources such as TELT's own documentation, French, Italian, and EU legislation, and other reports. These materials not only confirmed the respondents' chronologies and oral testimonies but also reinforced them and lent additional details to the narrative.

The interview transcriptions were coded in sections of commentary using colours and labels to systematise unstructured knowledge following Norese and Salassa's model (2014). This model is useful in socio-technical contexts characterised by a high-level of complexity. The analysis was conducted over several rounds, referring back and forth between the interview data and the written documents and reports, which helped to triangulate the data. Ultimately, we performed four levels of coding. The first level categorised the status quo at TELT and the technicalities of the megaproject. This level fundamentally describes the complexities of the megaproject, and has requested a deep engagement in the project's features, history, and ontology. The second level was dedicated to

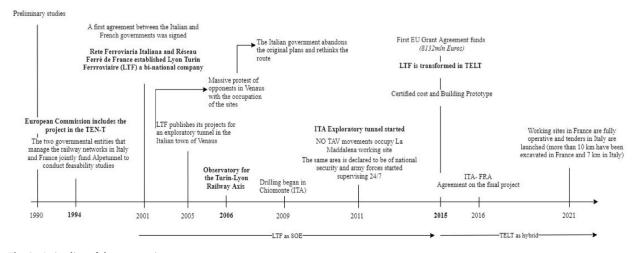


Fig. 2. A timeline of the megaproject. Source: Authors' elaboration

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framing the features of hybridisation. Here, we drew on the characteristics mapped by Johanson and Vakkuri (2017) and Grossi et al. (2017) in terms of governance, ownership, aims, and funding. With the third level of coding, we examined the different processes of accounting, accountability, performance management, and reporting, following Grossi et al. (2020), and tracing the main actors involved. Our final level of coding was dedicated to analysing the interviews and observational data through the lens of Foucault. It was here that we determined whether and how the deployed hybrid accounting, performance management, and reporting tools resonated with the Foucauldian literature on governmentality, and in particular with the technologies of government that TELT has implemented as described by the experts interviewed (Miller & Rose, 1990; Rose & Miller, 1992). Notably, the last two levels of coding were the main ones that helped us find connections between the organisation, the governments involved, and the accounting and performance challenges faced in a transnational megaproject.

4. Background to the megaproject

4.1. Historical roots

The Turin-Lyon Highspeed Railway will be a 270 km long train line under the Alpine massif that, once completed, will feature a 65 km bi-national cross-section that includes the longest tunnel in the world at 57.5 km (of which 12.5 km is in Italy and 45 km is in France). Talks of a new high-speed railway line to connect Italy and France started at the beginning of the 1990s, and, in 1994, the European Commission included this megaproject within the Mediterranean Corridor of the Trans-European Transport Network (TEN-T). The TEN-T policy covers the implementation and development of a Europe-wide network of railway lines, roads, inland waterways, maritime shipping routes, ports, airports, and railroad terminals (Appiotti & Marincioni, 2009). Fig. 2 traces the history of the megaproject.

4.2. Development and tensions

While French institutions launched consultations over the proposed megaproject with the local communities in the form of a *débat public* (Esposito et al., 2022), in Italy local communities and institutions, concerned by environmental and socioeconomic factors, felt marginalised and impotent due to the government's decisions (Appiotti & Marincioni, 2009). As Leonardi (2013) argues, the matter became an environmental battle – ecocide work, as its opponents named it. There was cultural opposition to globalisation, and this led to the birth of the No TAV movement in Italy (*No Treno Alta Velocità*, meaning No High-Speed Rail). The movement was populated by a body of people from very different backgrounds, including local institutions, ordinary citizens, intellectuals, technical experts, and also more radical and violent groups.

In 2006, the Observatory for the Turin-Lyon Railway Axis (the Observatory) was established by the Italian government in response to the crisis. As a multi-stakeholder technical body, the Observatory facilitated inter-stakeholder dialogues on environmental, social, and economic issues (see Section 8). Amidst community tensions and the threat of losing EU funding (Manfredi et al., 2015), the EU finally approved funding for the project at the end of 2007, paving the way to a new phase in the life of the project. However, following the approval of a definitive project for an exploratory tunnel and the opening of a construction site in 2011, a new vehement protest led to permanent militarization and 24/7 surveillance of the site (Burnside-Lawry & Ariemma, 2015).

5. Governance, organisational, and operational features in TELT's hybrid organisation

5.1. Governance and organisational structure

As mentioned in the introduction, TELT SAS is a French simplified stock company, owned in equal share by the Italian and French states. Italy's holding comes through Ferrovie dello Stato, a state-owned holding railway company, while France's interest is held by the Ministry for the Economy and Finance. As such, TELT displays many features akin to state-owned enterprise (Grossi et al., 2017). TELT is responsible for deploying the Italian, French, and EU political agendas associated with the megaproject (Foucault, 1991; Rose & Miller, 1992). Hence, it is governed by public policies that cover the public transportation of goods and people. That said, the organisation uses innovative for-profit techniques to reach those goals despite its social aims. At its core, TELT is a public promoter and the contracting company in charge of implementing the work of the megaproject. Additionally, it will manage the line once the project is completed and fully operational, just as it currently manages the pre-existing Frèjus line (the historical railroad between Italy and France). Thus, the hybrid nature of both TELT's ownership – part state-owned, part private interest – and its corporate structure – part public, part for-profit – makes it a highly peculiar entity. As explained by TELT's Financial Director:

On one side there is a State and on the other side, there is a company belonging to the State. Basically, the company belonging to the State has been asked to take care of this project. The Italian State has somehow delegated, which might imply the inability to fully manage or control a project of this type. [Financial Director Interview]

This sentiment follows an unspoken 'spirit of values' where, as the General Manager explains, Italy is more in charge of managing the project, and France is more in charge of controlling it. Accordingly, TELT's President is elected by the French government and its General Director is elected by the Italian government. The Financial Director is appointed by the Italian government and the Legal Director by the French one. In general, the Board of Directors comprises 10 members with voting rights, equally split among the two states, joined by a further board member, with no voting rights, elected by the European Commission as the main funder and one of the

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most relevant stakeholders. Two representatives of the Italian and French regions also sit in on all board meetings as observers. Table 1 summarises the composition of TELT's governing and controlling bodies and its managerial positions.

As the megaproject's main co-funder, the European Commission has a place on the board but no voting rights. The Commission's position is held by the European Climate, Infrastructure and Environment Executive Agency (CINEA, formerly called Innovation and Networks Executive Agency - INEA). Its role in the project is "to manage the technical and financial implementation of the TEN-T programme, to increase its efficiency". CINEA, and broadly speaking the European Commission, is not only behind the Grant Agreement signed with the two states to partially fund the project, but it is very much an active actor. As the Deputy Director Italy states:

The EU Commission represents the majority shareholders, paying 40–50% of the project, and therefore they are the ones who, being even more distant, see things from above. They are the ones who have always had the best balance on the project. I personally consider Europe as the pivotal element of this whole operation because, without European funding, the project would not have started. [Deputy Director Italy interview]

Two additional controlling bodies represent a cultural hybridisation of the entity's governance: the Contract Commission and the Permanent Monitoring Service. Both are chaired by French representatives. These two bodies are composed of 12 members, six of whom are appointed by each respective government. While the Contract Commission supervises the tendering process for both sides, the Permanent Control Service ensures that public funds are used correctly. It supervises TELT to make sure the project is well executed financially and technically.

Being the body responsible for publicly promoting the megaproject binationally, TELT operates in a quasi-market regime. So far, it has awarded contracts worth \in 3 billion to three consortia of 13 companies. These contracts cover around 80% of the tunneling required for the 57.5 km twin-bore base tunnel, which is the main part of the Lyon-Turin high-speed line. Accordingly, TELT has the authority to institute and maintain accounting and controls relating to the project, and it relies on comprehensive performance measurement systems, akin to those evident in other areas (Grohs, 2014).

5.2. Project's operations, mapping and classification

In terms of operations, TELT has a technical division and a railway division. The technical division is further subdivided into engineering, construction, a territorial department Italy, a territorial department France, and Planning and Project Control (PPC). The railway division, established in 2021, will become crucial to TELT's future as the manager and maintainer of the new line. As the General Director explains, both the new line and the historical line will be entirely awarded to TELT for 99 years.

TELT has divided the project into 12 construction and financial units, most being cross-border groups. The works are managed and get funded by five units. These are: the Base Tunnel, Outdoor Works in France, Completion Works for the Base Tunnel, Outdoor Works in Italy, and Technological Equipment. The fact that these construction sites also are also considered to be financial units, where territory classifications are intertwined with economic and financial calculi, resonates with the Foucauldian principles of the "art of distribution" and "partitioning". The classification, distribution and partitioning activities confirm that TELT has precisely defined and organised analytical spaces, thereby obtaining that "each individual has his own place, and each place its individual" (Foucault, 1979, p. 143). Fig. 3 shows a 3D map of the 12 construction sites.

The 12 construction sites go from Susa to Saint Jean de Maurienne, nine of which are dedicated to civil works (seven underground works and two open-air). Two are dedicated to exploiting the excavated materials, as 60% of them will be reused. Finally, site #12 houses the railway equipment for the base tunnel. The above-outlined construction sites' articulation confirms that "government is the right disposition of things, arranged so as to lead to a convenient end" (Foucault, 1991, p. 93). Each site has its own manager, called a Construction Site Project Manager, who is in charge of a team of 3–5 people depending on the size and the importance of the site. As of 2022, there were seven fully operational construction sites in France and three in Italy.

The cartography in Fig. 3 shows an Italian, French, and EU political rationality focused on "bridges, roads, viaducts and railways ..." (Foucault, 1994, pp. 353.354). It mirrors how the space and construction sites have been partitioned and classified, at the same time showing the Turin-Lyon line as both a product and a tool of governmental interventions (Crampton, 2007, p. 224). In fact, the Lyon-Turin line will represent the heart of the Mediterranean Corridor of the TEN-T network. This new European metro line will serve 18% of the EU population in regions that represent 17% of European GDP.

In running the megaproject, TELT enforces the highest legal standards over all its suppliers. The laws it upholds span from civil to labour laws as well as environmental law. In the event of any discrepancy between French and Italian law, the stricter legislation is applied. Interestingly, the new Lyon-Turin railway line represents the first case in Europe where the Italian-inherited anti-mafia legislation has been applied at a transnational level. This not only highlights the hybrid nature of the project, but also the relationships between power and accountability that arise in a transnational project. As explained by the Construction Director:

During the tendering phase, we try to entrust the contract to the best companies, those that give a technical guarantee and an economic guarantee, so that the operation is resolved with the best success. TELT has the upper hand up to the moment in which it manages the contract; after that, the company has the upper hand. [Construction Director interview]

¹ https://ec.europa.eu/inea/en/welcome-to-innovation-networks-executive-agency.

Table 1Bi-national Composition of the Board of Administrators, Controlling Bodies, and pivotal Managers.

Board of Administrators (appointed on $02/2$	24/2021)				
			French	Italian	Voting right
President			X		X
General Director				X	X
4 Members (the Chief of the Transport office development of railway networks and of Infrastructures; the general inspector of Sustainable Development Directorate)	of inland waterways of the French Dire	· ·	X		X
4 Members (one professor of Bocconi Univer		y of Economics and Finance; one delegate of ance, Tax and Control of the Italian Railway		X	X
1 Member of the EU					No
1 Member from the Auvergne-Rhône-Alpes Region (France)					No
1 Member from the Piedmont Region (Italy).		X		No
Other pivotal Managers outside BoA					
	French Italian				Voting right
Legal Director	X	X			No
Financial Director	X				No
Controlling and Supervisory Bodies (#1)	: Contract Commission				
	French	Italian		,	Voting right
Contract Commission Chair	X				K
5 Members	X			2	K
6 Members		X		2	K
Controlling and Supervisory Bodies (#2)	: Permanent Monitoring Service				
	French	Italian		V	oting right
Permanent Monitoring Service Chair	X			Х	
5 Members	X			X	
6 Members		X		X	

Source: elaboration of the author on materials provided by TELT

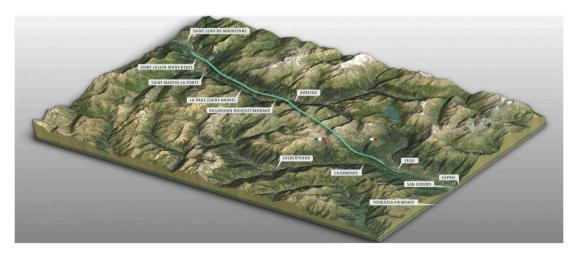


Fig. 3. The 12 construction sites.

Source: TELT

From an operational viewpoint, contracts worth more than \in 15 million are signed by the General Director, after being authorised by the Board of Directors. Then, the General Director could delegate a person. In other cases, the Contracts Commission and the Board authorise the General Director to sign. The Deputy Director Italy emphasises that this project could only happen with the involvement of multiple actors:

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We basically make use of a group of engineering companies and construction companies that help us in the development of the project – in the control and progress of the works, in the tenders and in realising the single pieces of work that then, taken all together, makes the Turin-Lyon. [Deputy Director Italy interview]

A synergistic relationship between TELT and the construction and engineering companies is crucial for accomplishing the megaproject. This is together with a series of highly specialised smaller actors:

The civil works are worth about 6.5 billion out of these 10. So, it is clear that we must be sure that the market is as broad as possible and as prepared as possible to respond to our needs. Consequently, we, for example, have identified the distribution of this work in about 88 contracts, with cuts ranging from 500 million upwards, between 500 million and 50 million, and then between 50 and 5 million and below 5 million so that there are precise categories that can participate in our tenders. [Deputy Director Italy interview]

Other unusual actors operating on the working side are the 'Work Management' companies. These are the supervisory engineering companies that have won a tender to complete a section of the work. They are considered TELT's operating arm on each construction site. They play a pivotal supervising role between TELT and the private engineering and construction companies actually executing the job. The Work Management companies are made up of about 15 people, and they are structured to include a Work Director, an Environmental Manager, an Accounting Manager, and a Safety Manager. Usually, a team of 5 or 6 supervisors stays in the tunnel 24/7 to monitor what the construction company is doing. In the words of the Construction Director:

The supervisors go into the tunnel, see how many nails they put in, how much concrete they use, how many ribs they load, how much progress is made with the tunnel boring machine, and then, when the company presents its accounts, they have a direct comparison with what is presented and from there they get the economic accounting of the work and the accounting of the metres that have been dug and that TELT will pay for.

TELT, the Work Management companies, and the construction companies share together a quasi-symbiotic relationship through their monitoring and reporting system. The construction companies and the Work Managers are physically on the same site; they have daily relations and a site meeting every week. The Work Management companies also have daily exchanges with TELT, as well as more formal monthly meetings to verify the progress of the construction site. Pushing the hybridisation boundaries further, TELT also has a direct weekly meeting with the contractors. The Construction Director stresses how important all these accountability mechanisms are:

When there is something wrong at the work site, the Construction Director has to report to TELT and TELT establishes the intervention strategy towards the company that is carrying out the work, and a resolution is sought together. Only for exceptional conditions, we have a committee of experts to contrast any company that tries to play games [Construction Director, follow-up interview]

6. Funding, costing, budgeting, and payments

In 2015, the costs of excavating the cross-border section were certified by a third party appointed by a business group of Belgian engineers based on a 'prototype' excavation. From this prototype, standard (or certified) costs were estimated, and it was these costs that dictated how much the Italians, French, and EU would fund. From a Foucauldian perspective, this process chimes with "techniques of notation, computation and calculation ... and building designs and architectural forms" as highlighted by Rose and Miller (1992, p. 183). In 2012 currency, the total cost of the project was estimated at 68.3 billion, which translates to 69.6 billion today in 2022. A detailed breakdown of the costs shared between France and Italy is provided in Table 2.

The first Grant Agreement was signed in December 2015 between INEA, delegated by the European Union, the French state via its Ministry of Ecology, Development and Energy, and the Italian state via its Ministry of Infrastructure and Transport, as part of the Connecting Europe Facility programme (CEF). The agreement covered the period 2016–2019. It details the overall work to be completed, split into 33 activities and 258 milestones that include both studies and operational phases. The agreement also provides guidance on how the cross-border sections of the megaproject are to be co-financed, the length of the financing, the amount financed, as well as the rules for awarding the grants. Further, the Grant Agreement takes the form of a 40% reimbursement of eligible costs for

Table 2
Detailed project costs.

Type of cost	Final project			Certified cost (to the nearest million)		
	France	Italy	Total	France	Italy	Total
Civil works and environment	3967	2072	6039	3931	2127	6058
Equipments	1191	464	1655	1195	447	1642
Cost of the works			7694			7700
Contribution to manage the historical line Bussoleno-Avigliana			81			81
Cost of the Public Promotor			520			520
Cost of the project			8295			8300
Additional works	147	160	307	137	173	309
Final budget			8602			8609
Difference due to unforseeable events			7			

Source: elaboration of the author on materials provided by TELT

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any direct costs, meaning that the EU reimburses Italy and France for 40% of their eligible expenditure on the project. The final project cost breakdown share is portrayed in Table 3.

Accounting and calculative practices play a pivotal role in how the eligible costs are reported to the EU. There are four types of payments: a pre-financing payment, a further pre-financing payment, interim payments, and payments of the balance. With the first two types, an amount equal to 40% of the budget forecast for the year is paid in advance. Pre-financing is generally disbursed during the second quarter of the reporting year. In terms of interim payments and balance payments, these relate to the final balance of actual eligible costs incurred during a period. As such, these are payments of the difference between the forecast and actual costs.

The General Director reflects on how cash flow is managed and on the different impacts it has on the two countries:

We run a company with severe treasury needs, because until the European financial coverage arrives, the states anticipate. France does not have multiannual financial exposure and decides on annual financing. In Italy, on the other hand, a variant of the law has been introduced for the financing of the building sites. [General Director, follow-up interview]

The General Director's statement highlights some of the internal differences between how Italy and France manage their finances. In France, financing operates quarterly in advance, while in Italy it is quarterly, but deferred. In addition, approvals for funding requests take about 45–50 days, making financial management very complex especially in terms of cash outflows to suppliers.

We try to make sure that in Italy and in France all payments are made after 45 days. Probably in Italy, the Public Administration is used to pay every 60 or 90 days. But here we deal with small suppliers and they really work to the bone, on the margin. We have brought this to Italy from France, as a form of equity. [Financial Director interview].

European funding is managed by the two countries, who also allocate part of the financing they are responsible for. Here, again, each country follows its own procedures. In Italy, financing follows a logic that breaks the work down into five construction/financial units. The Italian Financial Law 2012 allocates more than €2.5 billion to be paid by the Italian state. These funds, together with the European contributions allocated under the first Grant Agreement, cover the first two construction and financial units. These costs are then formally approved via the Interministerial Committee for Economic Planning and Sustainable Development, which actually covers the budget for four of the five units. The interrelations on financing, supervising, and managing the project are regulated by the Contratto di Programma (Programma Contract) and signed by the Ministry of Sustainable Infrastructure and Mobility (Formerly MIT), Ferrovie dello Stato, and TELT.

France, on the other hand, has an annual funding mechanism based on a strategic commitment to work that the French government presents to its parliament each year. The French state has already funded over €1.4 billion, i.e., more than half of the total funding of its side. Thus, the financial and administrative mechanisms in Italy, France, and the EU that rule the lifecycle of TELT's work vary widely from each other, and TELT must conform to each regulation and each country's tradition of budgeting and payments.

7. Planning, calculative, and reporting practices to meet the values of multiple actors

7.1. Hybridising practices so as to plan and manage construction works

From our interviews, it emerged that TELT thinks of the 12 different construction sites as each being a unique megaproject. At each worksite, comprehensive time-space planning and controls are supplemented with ad hoc information, and all of this is represented in a purpose-built, multi-dimensional daily report. Given the sheer length of time megaproject will run along with its geological scale, a linear planning methodology could not work to manage the project effectively. Hence, during the planning phase, TELT adopted a tool called "*Planning Chemin De Fer*", which is essentially a time-distance diagram with one axis representing time and the other showing distance (Fig. 4).

With this planning method, tasks are managed by overseeing the speed at which the track distance progresses. Work is then reported as being faster or slower than the planned metres per month. In turn, these metres per month are linked to the geomorphology of the rocks and the cartography of the region. The sloping lines indicate areas where excavation work proceeds at a very slow pace – areas that tend to correspond to hard rock soils, such as granites or gneisses. This planning system means managers can observe and control work progress at construction sites that started simultaneously and are proceeding in parallel. Additionally, the works of different actors, i.e., the contractors and subcontractors, are labelled with a different colour, allowing TELT to monitor their progress too.

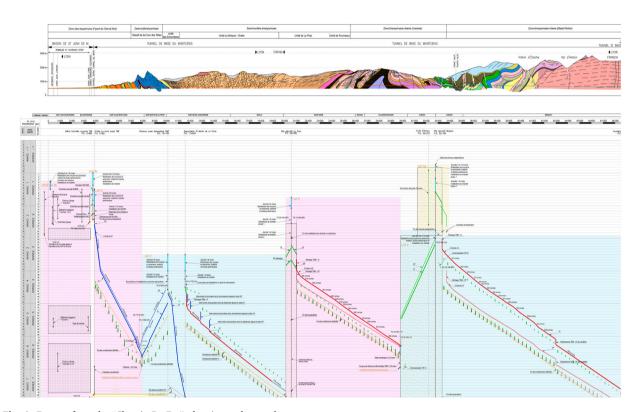
Several interviewees confirmed that the entire construction philosophy is based on a framework that sees the metre as a fundamental unit of reasoning (a sort of symbolism), both for planning and for cost accounting, especially as the entire line passes through different landscapes and geographical settings. The Engineering Director argues that this performance management tool helps managers quickly verify the average headway for each line, and also to link progress with the budget and the contract deadline. Our key interviewee also highlighted that, to explain the new planning toolkit, they needed time for training sessions, as well as to share and accumulate a glossary of all the new tools and practices among all the respective operators. Rose and Miller (1992, p. 183) raise this point when they talk of the need to standardise "systems for training and the inculcation of habits; the inauguration of professional specialisms and vocabularies".

² In the subsequent 2021 and 2022 Italian Finance Acts almost another EUR 415 million were allocated out of the total EUR 3.3 billion to be paid by the Italian State, net of the 40% planned European co-financing.

Table 3
Project costs breakdown and certified cost.

Project costs	EU	ITA	FRA
Civil works, environment and equipment, public promoter	40%	34,74%	25,26%
Contribution to improve the historical railway line	40%	34,74%	25,26%
Italian network deviations	40%	60%	0%
French network deviations	40%	0%	60%
Italian land acquisitions and accompanying measures	0%	100%	0%
French land acquisitions and accompanying measures	0%	0%	100%

Source: authors' interpretation based on materials provided by TELT



 $\textbf{Fig. 4.} \ \ \textbf{Excerpt from the "Chemin De Fer" planning and control system.}$

Source: TELT

Overall, these planning and management tools form a system called the Work Breakdown Structure that allows TELT to meet its technical and accounting goals. WBSs, which form the basis of all project costings, identify nine levels of detail, as outlined in Fig. 5.

With WBSs, costs can be compared during all stages of the project lifecycle – from design to defining the prerequisites of a public tender, to cost accounting during construction, to budget variance analysis once various stages of work are complete. For instance, the overall WBS system accounts for and estimates the costs of (approximately) 40 families of interventions, 500 interventions, 2000 specific activities, and a list of 1 million items on a Bill of Quantities.

From our analysis, it is clear that the "Chemin De Fer" planning and control system is a new classificatory 'technology of government' that, for TELT's megaproject, represents the "spatial, temporal, or spatio-temporal segmentation of the world" (Bowker and Star, 1999, pp. 10–13). However, it also highlights the paramount significance of 'list making' as an activity fundamental to "coordinating activity distributed in time and space" (idem, pp. 137–139).

In this scenario, it is worth highlighting that the Construction Department is responsible for the cost accounting and also for managing the WBSs. The "contract" is the horizontal connection between the management tool (i.e., the WBSs), the construction management cost control tool (called the SW STR VISION CPM), and finally, the financial accounting information system (i.e., SAP). In this specific case, the STR contract management software has become an instrument of horizontal integration between who is within and who is outside the TELT structure (Bracci, 2016), as construction managers and contractors also have access to it. As clarified by the Construction Director:

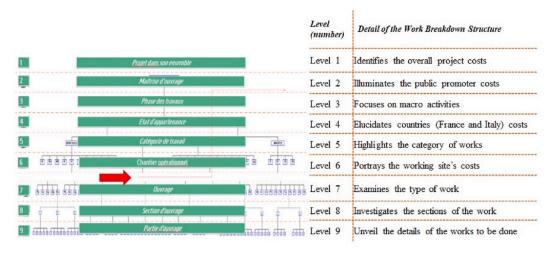


Fig. 5. Levels of detail of the costs of the megaproject. Source: Author interpretation based on TELT data

Within the software, the estimated metric calculations show the unit prices of every small part of the work. This document is called "Bordereau des prix" which is an essential element of public tenders as it contains, [for example], the price of each m³ of shotcrete to the cost of a single nail used to make a gallery [follow-up interview].

The Construction Department has been responsible for accounting for the physical and financial unit costs of the work since the project's beginning and was especially involved in helping to estimate the certified costs in the 2012 exercise. The Construction Works Directorate combines people with managerial skills and those with geological skills, since the budgeting process requires a strong interaction between these disciplines throughout the entire lifecycle of the megaproject. Further, each subsequent tender has and will continue to be based on the results derived from the project's preliminary designs and the budgets put together by this group.

A fundamental element of TELT's hybrid accounting protocols has been the use of an accounting logic called "company-type", which is used to estimate the cost of each single construction component. The logic extends the traditional public sector ways of accounting for costs. In other words, it means applying a price list typical of the private sector to each specific intervention, which is based on the market cost (confirmed by the Planning and Project Control Manager). Consequently, bid management is, for the Turin-Lyon megaproject, the focal point of all cost control operations. This involves verifying that each tender complies with the certified cost parameters. For these reasons, estimating the risks of the project's activities is an idiosyncratic aspect of TELT's accounting implications, and one that spans multiple actors. For example, geological and tunnelling engineers had to work side by side with accountants to predict and visualise the layouts and technical specifications of the infrastructure over a period spanning the next few decades. To this end, special tools were created to classify the types of rocks and terrain to be excavated. Each different rock classification has an impact on: the speed of excavation, the techniques used to excavate the material, which risks are foreseeable, and which are not, the most effective solutions for completing the work, and so on. In TELT's planning exercises, answers to all these questions were tested and converted into specific cost categories. The Engineering Director explains:

Specifically, a geological classification by type of rock has been adopted on 7 levels of complexity, from the best to the most dangerous, such as the amiantiferous rocks (asbestos), which will never be brought into the open air but will be buried in special places inside a specific section of the tunnel [Engineering Director, follow up interview].

In addition, each type of rock and section is associated with a specific process, an average speed time (expressed in metres per month of excavation), and a specific cost. The project carries two categories of risk: predictable risks and unpredictable ones. Mathematical simulations were created using a software application called Decision Aids for Tunnelling (DAT). The software interacts with the time and cost diagram and predicts probabilistic bands associated with geological structures in a given stretch of the project. Additionally, the software provides a visualisation of the different cost and time scenarios with regard to predictable and unpredictable events. Geological tests help to reduce the geological risks, optimally to zero, as affirmed by the General Director.

Through the DAT it is possible for us to cover 90% of predictable events, estimate them, and include them within the contractual clauses. In this way, a percentage of around 10% is attributable to the worst case, that is, to unpredictable events [Engineering Director, follow-up interview].

Another hybrid accounting measure is the *délai determinant* (determination time), intended as the exceptions calculated over the estimated time. The system of advancement, called the excavation section, happens with a theoretical speed that depends on the technology used, that is traditional versus tunnel boring machines. As argued by the Construction Director, every delay in the excavations requires the time and cost of the work to be re-estimated. The result can be greater or lesser, depending on whether the material is easier to excavate or 'deteriorate', as is the case with gneiss and sand. Moreover, to prevent risky situations and to combat the risk of

companies submitting claims for unjustified cost hikes, the knowledge produced by estimating predictable and unpredictable risks:

is transferred into the tender, and the specifications now present events and offer effective solutions within the budget. [General Director interview, follow-up interview]

The content of these last interviews is resonant with the logic of normalization, as identified by Foucault (1979). It is associated with building a precise classification of expected and unexpected risks, to which financial and operational measures are attached. Moreover, and importantly, it is clear that, for TELT, accounting has functioned as a form of bricolage, where calculative technologies from different professions, e.g., accountants, architects, geologists, engineers, mathematicians, and lawyers, have been combined to address a particular problem (Miller, 1998, p. 619). A group of experts with a mix of different skills from two countries has come together and developed technologies that are able to overcome the peculiar accounting and performance management challenges faced by this unique entity.

7.2. Hybridising the infrastructure, overall reporting, auditing, and controls

TELT uses different technologies to manage the accounting implications of the megaproject. Most of these have been adopted or adapted from private companies and construction companies. For example, some software is used to guarantee that the project runs with a high level of stability over time. This software is especially helpful for managing the enormous number of interactions the different actors need to have with the same data – construction coordinators, contractors, sub-contractors, etc. This intense process required a shared renaming of all the single parts of the construction work, plus a re-coding of all its single elements along with a planimetric project. Alphanumeric codes have been allocated to all these different elements, giving rise to a new vocabulary, where each part of the land - natural gallery, or artificial work - is uniquely classified and numbered (see Fig. 4), and follows the geographical disposal logic from Lyon to Turin.

In addition, managers can interact with a sort of advanced 3D CAD model, where each metre of the megaproject can be viewed for its technical features and its cost. This not only includes materials, but also specific construction processes, such as cementing or asphalting, and the macro-category of each building element (e.g., the cost of a portion of the tunnel, a bridge, a niche, etc.). Through this software architecture, the accountants have identified six different cost configurations, which allows expenses over the whole project lifecycle to be monitored in real time, noting that this lifecycle is planned to last decades. Those six configurations are chronologically progressive. Plus, they are hybrid cost structures, as managers can look at: the corresponding costs, certified as of 2012; the costs indexed to current currencies, and the estimated cost of each tender stage before the bids between parties were negotiated. There are also three different levels of adjustment for each negotiated cost (with one that includes amounts of accumulated expenditure), the final definitive costs paid, and the definitive cost plus any contingencies due (Fig. 6).

These configurations complement and extend prior literature on hybrid organisations as they not only provide six diverse cost metrics, but they also calculate the cost of "bridges, roads, viaducts and railways" (Foucault, 1994, p. 354). Moreover, the link between the WBS system and ordinary bookkeeping pivots around contracted items. In turn, the contracts link different actors together in a way that they need to simultaneously interact with different information systems. As such, the interactions themselves become hybridised.

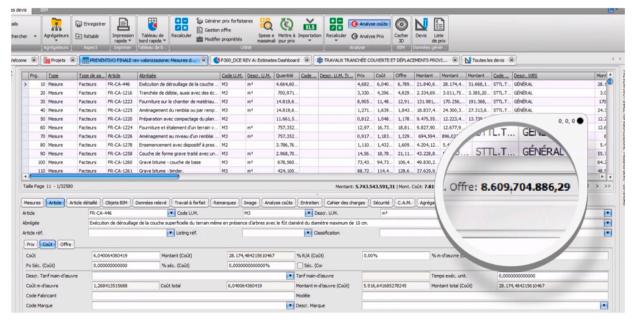


Fig. 6. The software that illustrates the several configurations of costs and the certified costs.

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For example, contractors and subcontractors prepare monthly accounting proposals for split payments, which are submitted through the software. These proposals cover specific aspects of the work executed each month. Following submission, the proposal is checked and validated by TELT's Financial Department, and a payment certificate is issued. This certificate authorises the contractor to supply a formal invoice, assuming there are no anomalies to be accounted for. One of the main risks of running a megaproject is cost overruns (Flyvbjerg, 2011), but our interviewees highlighted that, through controls such as this type of counterchecking and reporting, TELT should be able to detect any anomaly within 30 days.

The Construction Department team and the Planning and Project Control Function also analyse every monthly report. For them, these reports outline the specific contract, the group of subcontractors, the essential milestones to be met, the estimated and actual amounts already paid, and details of any deviations or non-conformities. These hybrid reporting tools allow the Construction Managers and their contractors to assess and validate their operations. Noting deviations is essential, as any delay will affect cash flows. Financially managing the project necessarily involves interactions between France, Italy, and the EU in their capacity as state actors, with each body affecting cash flows in totally different ways. Thus, the cash outflows to contractors and subcontractors on 45-day terms can also be seriously impacted:

In terms of financial management, it is fundamental for us to design each tender, not only respecting the Chemin De Fer schedule but also considering in advance which part of the works can be effectively financed by the States and when, as we have a serious liquidity problem, operating a zero-based budget [Planning and Project Control Manager interview].

TELT has also adopted a hybrid form of accounting in its annual financial statements, following the IFRS, the IAS, and the French GAAP. Adopting all these forms of reporting has been a necessary part of undertaking the different stages of audit and accountability. For instance, TELT undergoes three levels of audit. First, an external statutory auditor validates the financial documentation TELT provides. Second, Ferrovie dello Stato and the French ministry validate the report. Third, the report is sent to the European Commission and to CINEA. Validating the report involves certifying the final costs and issuing a statement that all information entered by the beneficiary is complete, reliable, and true. Additionally, the Grant Agreement establishes that nine annual reports need to be audited by the Italian, French, and European Courts of Auditors. Further, TELT has to report all physical and economic progress with the project and its financing to Ferrovie dello Stato and the Italian Ministry on a quarterly basis. Finally, a "Report on the state of implementation of the investment" is publicly debated by the Italian Parliament each year. This report must contain all requested financial data.

8. Relationships and reporting practices

TELT, as the public promoter of the megaproject, has a wide network of stakeholders they are held accountable to. Thus, there are further levels of hybridisation at the macro, meso, and micro levels (Vakkuri & Johanson, 2020). Given the years of protests leading up to the Turin-Lyon megaproject, this is one of the first cases where the Italian government has created a multi-stakeholder forum, i.e., the Observatory, as a tool of participatory governance. The Observatory was established in 2006 via a Prime Ministerial Decree as a forum to debate environmental, health, and economic issues. It was established as a particular response to concerns expressed by the population living around the project's areas (Esposito et al., 2022). Chaired by a Commissioner, the Observatory includes the megaproject's main actors, plus members of different Ministries, representatives of the Piedmont region, the city and province of Turin, local authorities, industrial representatives, and technical experts. Its technical activities now span more than 300 meetings and 10 reports that are available for download on the Observatory's website.

With their *Quaderni* (Notebooks), the Observatory provides lengthy explanations and analyses of the work done, while highlighting an agonistic pluralist model of democracy (Mouffe, 1999). An important role played by the Observatory has been to define the *Territory Pact* (Patto per il Territorio). Signed by the Commissioner, TELT's General Director, and the Piedmont Region, this Pact defines the compensation owed from the works, which mostly consists of funds the Piedmont Region will allocate to local municipal projects. By contrast, in France, the *démarche grand chantier*, (major project approach) defines an already-established public procedure which accompanies any relevant public work that could attract financial compensation or be the subject of political decisions. The *démarche* for this megaproject was enacted in 2003, and consequently, France has seen fewer years of protests and less violent ones.

Lastly, the Italian government requires all highly contested megaprojects to provide other forms of sophisticated reporting. So far, TELT has opted to voluntarily account for its operations through a range of reporting instruments, including: a sustainability report that complies with the GRI and is assured; a Communication on Progresses by virtue of its participation in the United Nations Global Compact; a report on environmental impact assessments as required by current legislation, with monthly and annual cadences based on real-time sensors in the areas surrounding the worksites; a periodic report on public health impact assessments; a voluntary standalone annual report assessing the impact of the project on society and the economy, which was submitted to the national environmental agency; and a series of voluntary papers addressed to the technical and scientific community sharing good practices and increasing knowledge in the field of tunnelling.

9. Discussion and contributions

The first aim of this research was to investigate the intersection between accounting, megaproject governance, and hybrid organisations. Notably, prior studies have investigated hybridisation processes and hybrid organisations in diverse contexts (Gebreiter & Hidayah, 2019; Grossi et al., 2017; Grossi & Thomasson, 2015; Johanson & Vakkuri, 2017; Kurunmäki, 2004; Kurunmaki & Miller, 2006; Miller et al., 2008; Sargiacomo & Walker, 2022; Spanò et al., 2022; Thomasson, 2009). However, what has been left unexplored

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is the role these types of organisations play in long-term collaborative transnational megaprojects. Hence, this paper responds to specific calls raised in the recent literature (Grossi et al., 2022, pp. 590–591). Megaprojects (Christensen & Grossi, 2021; Ferry & Slack, 2022; Ronzani & Gatzweiler, 2022) are important arenas for examining the "space between public and private forms of action" (Vining and Weimer, 2017, p. 162). In our study, we have explicitly and systematically analysed a megaproject as a hybrid constellation. At the same time, we have investigated the juxtaposition between international goals, funding, ownership, and control, paying particular attention to the interactions between practitioners of different roles over a lengthy period of time, as called for by Grossi et al. (2020, p. 271).

TELT, as a simplified stock company, has a rather unique governance structure. It is binational in that it shares Italian and French ownership and is also co-funded by the EU. It is hybrid in the sense that it has a managerial structure that mixes the logic of a for-profit organisation, a public company, and a state-owned enterprise (Grossi et al., 2017). And it is controlled by Italian-French delegates, several supervisory bodies, and non-voting members of the European Union (see Table 1).

In line with prior research, we have also observed a hybridisation in the form of contracting out and subcontracting, as usually, it is working in a quasi-market regime using market-type contracting (Grohs, 2014). In this sense, TELT is mostly acting as a public promoter; it employs private companies through a tendering process, such as supervising engineering companies (i.e., Works Management) and construction companies. Nevertheless, although these contractors are not owned by TELT, they are not only essential for executing the project, they, along with TELT's Planning and Project Control department, are contractually responsible for delivering on and control the project's milestones. This form of hybridisation, again, mimics the features of a part public, part state-owned, part private company.

TELT also appears to be a 'two-country one-soul' organisation. It is apparent every day that the team is collegial and works collaboratively toward long-term goals, both on the work sites at the micro level, as well as in the meetings and decisions of the boards and supervisory committees at the macro level. Thus, the international characteristics of the megaproject have merged into a unique 'winning spirit'. We feel this observation adds new insights to the diverse combinations of different logics, actors, and values that have been investigated in the accounting discipline (Ahrens and Ferry, 2022; Brandsen and Karre', 2011; Vakkuri and Johanson, 2020; Grossi et al., 2022; Campanale et al. 2021; Vakkuri et al., 2021).

The second main contribution of this manuscript is theoretical. We have used Foucauldian perspectives to examine the art of government as framed by "bridges, roads, viaducts and railways" (Foucault, 1994, p. 354). Our insights complement and extend prior studies on the role played by a wide range of calculative practices, seen as "technologies of government" (Foucault, 1991, 2007; Miller, 2001; Miller and Rose, 1990; Rose and Miller, 1992). Among the most important technologies of government found in TELT's case, it is worthy to mention the "Chemin De Fer" and the WBSs. The "Chemin De Fer" is a "technology of government" that classifies things; it creates a "spatial, temporal, or spatio-temporal segmentation of the world" (Bowker and Star, 1999, pp. 10-13). The WBSs comprehensively disaggregate the activities of the megaproject into nine levels of detail coupled with costs (see Fig. 5). These emphasise the pivotal role played by list-making as an activity fundamental to "coordinating activity distributed in time and space" (ibid, pp. 137-139). These technologies are primarily used by TELT to control and supervise the project, but they are also shared with the contractors and subcontractors for their internal use. By using the mentioned technologies of government, TELT pursues a transversal collaborative 'public promoter-suppliers/contractors business value chain', in tandem with cost-efficiency as main aims of the multiple actors involved.

The case has offered also a startling example of diverse and combined technologies of government, when the design of the building prototype has been associated with its standard certified costs – the costs that were used to estimate the Italian-French-EU funding needed for the project. These technologies echo "techniques of notation, computation and calculation...and building designs and architectural forms" as highlighted by Rose and Miller (1992, p. 183). On this megaproject, TELT was able to outline the precise cost of each metre of excavation/construction/cementing/asphalting work, differentiating each metre per category of work, such as a tunnel, a bridge, a niche, or another specific construction unit. Through this system and with the help of shared software, TELT identified six different cost configurations, which, in turn, makes monitoring the expenses incurred at all the work sites easier. Notably, it also normalises the impact of risks, both predictable and unpredictable, on the costs (Foucault, 1979). These technologies and hybrid solutions demonstrate TELT as both oriented toward social value and committed to preserving the EU political programme's co-funding. They also highlight how TELT has tried to maximise its cost-efficiency and its value as a business. Importantly, counter to what has been reported in prior research, TELT has so far not lost vast sums of public money (Flyvbjerg et al., 2021). Rather, the technologies of government that have been implemented have been able to zero all cost overruns incurred during the project. TELT's accounting and non-accounting inscriptions (Robson, 1991, 1992) have helped them to effectively manage, monitor, and control the project "at a distance" (Latour, 1987).

Importantly, our analysis shows that accounting has been "permeable to other bodies of expertise" (Miller, 1998, p. 618). The accounting systems used borrow calculative technologies and rationales from a disparate range of knowledge. As such, they function as a form of bricolage, combining technologies from different professions – architects, geologists, engineers, mathematicians, lawyers etc. – to solve particular issues (Miller, 1998, p. 619). TELT's financial disclosures follow the IFRS, the IAS, and the French GAAP. These hybrid reports are needed for all the different audits and stages of accountability TELT is subject to. Alongside these statements, TELT's Annual Reports synthesise the regulations and auditing traditions of the French, Italian, and EU Courts of Auditors.

We also see TELT surrounded by a rich landscape of stakeholders: diverse co-funders, owners, and controlling bodies; contractors and subcontractors; and community groups like the No TAV movement. Such a diverse range of stakeholders requires multi-directional and multi-dimensional accountability. It also implies the need for new reporting practices at the macro, meso, and micro levels to enhance social value and increase the transparency of information (Vakkuri & Johanson, 2020). Developing these new practices required collaboration with research institutions and universities. Through these collaborations, TELT was able to better appreciate:

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the needs of different actors; the necessity to preserve the environment; the potential impacts of the megaproject on public health; and the general well-being of citizens' social value.

Lastly, we are confident that the interdisciplinary accounting community will devote much more attention to the areas of research discussed in this study in the near future, given the interrelations between megaproject governance and hybrid organisations are only just beginning to emerge.

Data availability

Data will be made available on request.

Appendix C. Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.bar.2022.101152.

Appendix A. Details of documents consulted

Title	Туре	Year	Source	Public/ Confidential	Language
TELT's Statute	Institutional	2016	TELT	Public	Italian
Action Status Report 2020	Financial/Performance Management	2020	TELT	Confidential	English
Reporting example to Italy and France	Financial/Performance Management	2021	TELT	Confidential	Italian/ French
Funding Request Form to Italy, France and EU	Financial	2021	TELT	Confidential	Italian/ French
Certified Cost: explanatory slides	Informational	2018	TELT	Public	Italian
Programme Contract	Institutional	2018	TELT	Public	Italian
Attachment to CIPE Resolution 67	Institutional	2017	TELT	Public	Italian
Dossier Public Debate - France	Informational/ Institutional	2006	LTF/TELT	Public	French
Amendment to Grant Agreement	Financial/Institutional	2020	TELT	Confidential	English
Costs and Risk slides - BBT and TELT seminar	Financial/Performance Management	2015	TELT	Confidential	Italian
Planning Chemin de Fer		2015	TELT	Public	Italian/ French
Financial Report 2020	Financial	2020	TELT	Public	Italian/ French
Sustainability Report 2020	Institutional/Non Financial	2020	TELT	Public	Italian
Observatory Quaderno 1-15	Institional	2007–2019	Observatory	Public	Italian/ French
Observatory Report 2018	Institutional	2018	Observatory	Public	Italian
Observatory Report 2020	Institutional	2020	Observatory	Public	Italian
Report on the Variance Project	Insitiutional	2018	Ministry of Infrastracture (ITA)	Public	Italian
Works and compensatory measures for the territorial and social impact - Priority 1	Financial/Institutional	2014	Official Gazette of the Italian Republic	Public	Italian
Works and compensatory measures for the territorial and social impact - Priority 2	Financial/Institutional	2021	Official Gazette of the Italian Republic	Public	Italian

Appendix BInterview details

Interview No.	Interviewee	Year
1	HR Director (M)	2020
2	Development Manager (F)	2020
3	Deputy Director Italy (M)	2020
4	Construction Director (M)	2020
5	Engineering Director (M)	2020
6	Financial Director (M)	2020
7	Deputy Communication Director (M)	2020
8	Construction Coordinator Italy (M)	2020
9	Construction Site Project Manager 1 (M)	2020
10	Construction Site Project Manager 2 (M)	2020
11	Construction Site Project Manager 3 (M)	2020

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(continued)

Interview No.	terview No. Interviewee		
12	Construction Site Project Manager 4 (F)	2020	
13	Construction Site Project Manager 5 (M)	2020	
14	Construction Site Project Manager 6 (M)	2020	
15	Construction Site Project Manager 7 (M)	2020	
16	Construction Site Project Manager 8 (M)	2020	
17	Construction Coordinator France (M)	2020	
18	Legal Director (F)	2020	
19	General Director (M)	2020	
20	Head of Environment Department Italy (F)	2020	
21	Sustainable Development and Safety Director (F)	2020	
22	Environment Manager (F)	2020	
23	Financial Director (follow-up) (M)	2021	
24	Engineering Director (follow-up) (M)	2021	
25	General Director (follow-up) (M)	2021	
26	Planning and Project Control Manager (M)	2021	
27	Construction Director (follow-up) (M)	2021	

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