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Institutional fragmentation in megaprojects: lessons from the Metro C project in Rome

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ABSTRACT

A strategic infrastructure project in Rome, Italy, and namely the Metro C line, is presented here for scrutinising how institutional frameworks and governance arrangements shape megaproject implementation.
On the one side, we look at legal endowments and institutional reforms related to a still incomplete territorial rescaling; on the other side, at routines and practices among actors in project management.
More precisely, we develop these two fundamental acceptations of the institutional, reconstructing the management of the project and the path of Italian downscaling reform still underway (that has implications for the governance of projects too). Both these realms

have been affected by the advent of the Legge Obiettivo, the special law that for fifteen years has been governing strategic projects in Italy – Metro C included.
Via a review of regulatory measures, relevant theoretical constructs in the fields of governance and project studies, and with the help of a number of interviews conducted in 2016 and 2017, we delve into the main reasons that explain the Metro C implementation failure as to cost overrun and delivery delays, and found the primary causes of these latter in the fragmented public client role that cannot guarantee the project's governability.

INTRODUCTION

Despite their employment as an object of study in the broad field of organisational studies, projects of any nature are seldom studied in reference to the institutional framework determined both by the place-specific socio-cultural roots and the variety of polities in which they can be embedded.

The institutional side of project organising is understood in many ways. The categorisation that we refer to in order to focus this paper is the one offered by Levitt & Scott (2017) in their contribution to the *Oxford Handbook of Megaprojects Management* (2017): in a nutshell, institutions can be studied either as legal-administrative frameworks or as normative and cultural-cognitive frameworks. The first macro-category refers to the value of formal regulative arrangements set up at a given polity to 'manage political and economic behaviour' (*ibidem*, p. 101); the second concentrates on the tacit and shared system of internalised values and sedimented moral codes that enables a certain community to work and cooperate according to a similar view of the world.

Most scholars agree that project failures depend to a large extent on a poor understanding of a polity's institutional roots and social milieu as well as on a superficial approach to coalition dynamics offered by the

law (e.g. the control of the contractor's activity by the client) (see Miller & Lessard, 2001; Flyvbjerg, 2014; Levitt & Scott, 2017).

In Italy, and particularly in the object of investigation in this paper, the question of government rescaling adds complexity to the typical project governance puzzle (Flyvbjerg, 2005, 2014; Priemus et al., 2008), with its unclear implementation that created the basis for a fragile stance of the public client in the dialectic with the private contractor.

A *turnkey* contracting firm should be able, on its part, to take on the construction's risk and financial sustainability on its own.

Infrastructural projects, therefore, represent ecosystems to research the institutional side of the management of projects, especially when participants' and stakeholders' roles are reformed as they have been in Italy following law 443/2001 – known as *Legge Obiettivo*[1].

The aim of this article is to offer evidence regarding the effects of the institutional reorganisation implemented through the Legge Obiettivo until 2016 on the implementation of the Metro C project in Italy's capital city, Rome. The effects could be summarised in a "disjointed" role of the project's client and a poor understanding of project management re-institutionalisation. This article is organised as follows: Section 1 frames the case in the scientific debate about rescaling, inter-governmental relations, and the most suitable contributions that explain the late institutional strand of project studies.

In the second section, the paper describes the methodology employed to research the case study. The consulted interviewees are listed and the logic of inquiry outlined together with a summary of the main questions which guided the semi-structured interviews and their outcomes.

[1] *Law 443/2001 governed strategic infrastructure construction from 2002 to 2016 when it was formally abrogated by the approval of the New Code for Public Contracts.*

Subsequently, section 3 explores briefly the recent Italian legislative path to institutional devolution that brought to the creation of downscaled governments. After this report, the main features of the *Legge Obiettivo* are outlined for the reader to appreciate the impact of this law on the institutional reorganisation.
In section 4, the case study of Metro C is discussed in order to highlight the reasons why the project has suffered a slow, costly and opaque implementation and show the relevance of this project for the issues framed in the literature review. Via the analysis of the legal framework and with the help of seven interviews with various key informants and stakeholders, we show that the Metro C project featured a *heterarchical* form of project governance. Also, in a poorly understanding of the 'project ecology' notion, the contractor emerges as a concentrator of functions able to blend government and management roles.
Although heterarchy is generally believed to be incremental to performance in project management, the main outcome that it produced in this project's execution was hardly a smart way to govern (project) complexity escaping – for instance – "scalar traps", as optimistically foretold by Ansell (2000). Nor was it a way to unleash the knowledge and learning potential within the project, as envisaged by the project ecology concept (Grabher & Ibert, 2012). The main outcome, on the contrary, was the neutralisation of the public actor's control function into scalar pulverisations.
The neglect of the available (and suitable) metropolitan scale comes as a corollary of all this. The paper concludes with some final remarks.

MEGA PROJECTS AS A MATTER OF INSTITUTIONS

This paper is organised around a large engineering project's (LEP) case study. The purpose of the work is to highlight how the institutional setting – namely the administrative-regulative apparatus that is

deployed in order to govern the implementation of a project – has conditioned this particular project's outcome and influenced heavily the actors' behaviour.

In order to do that, we refer particularly to the *regulative* acceptations that the concept of institutions plays in the literature (Levitt & Scott, 2017; Scott et al. 2011).

We reckon scalar government of projects as totally pertaining to the above acceptation of institutions. Therefore, for this work we choose to consider those aspects of the large literature on political rescaling that point at aspects of actors' interactions and governance arrangements. In particular, the concern here is on the (more or less explicit) conflicts on which scale is the more appropriate to govern a particular issue (in this case, an important public infrastructural project). This implies a redefinition of the governance composition and interactions (Brenner, 1999, 2001; Swyngedouw, 1997).

Actors and stakeholders exercising their functions in a certain administrative and regulative environment are embedded in a system that encourages compliance with formal rules; this system shapes their behaviour and the relational routines among each other. This is particularly true for economic inter-firm and intra-firm relations, as well as between firms and the state (Williamson, 1985).

Institutions can be seen as legal devices that – according to given resources and objectives – give *order* and *meaning* to individual and collective behaviour (North, 1990). According to this conceptualisation, public contracting laws and territorial government reforms belong by all means to the institutional realm.

Downscaling processes, for example, determine change in the specific weight each *polity* actor enjoys in a governance scheme. Such redistribution, however, is likely to not neglect the state actor: states keep on being present in the governance arrangements and mix with local civil societies. Chris Ansell called this type of relations «the networked polity», to signify the intertwined action in certain policy

undertakings that features the non-hierarchical exchange between «non-state organisations, public agencies, and the macro-structural organisation of the state» (2000, p. 309).

This non-hierarchical attribute refers to the relational exchange between the components of the network: they can work either horizontally or vertically but with no particular chain of command. This process might intersect other processes that interest city governance like new public management: as the public apparatus develops in a less monolithic entity, the private actor might take its role in key functions such as the delivery and planning of services (Lane, 2000). The division of labour determined by both rescaling (between different geographical scales) and public-private dynamics – in turn induced by new management organisation of the public – produces what we could call 'actors' equalisation', or *heterarchy*.

Coming to projects in particular, it has been eminently argued that solid, well-structured and coherent legal frameworks, regulations and practices (i.e. institutions) are *sine qua non* requirements for LEPs to take place effectively and efficiently (Miller & Lessard, 2001). More specifically, empirical research on LEPs suggests that sound, reliable and agreed institutions help shape less intricate contracts in order to (1) withstand and respond to economic and political turbulence, (2) limit the temptation for opportunistic behaviour, (3) build a better legitimacy for projects as they can be adequately discussed beforehand with communities, and (4) dealing with foreseeable risk in due time (see also Miller & Hobbs, 2005).

Sound institutions are substantiated primarily in indisputable constraints for actors' behaviour, consistent and *complementary* roles according to such constraints. These requirements, it has been argued, are primarily achieved with the hierarchical order of contractual agreements between clients and contractors, and between contractors and suppliers (Stinchcombe & Heimer, 1985).

Nonetheless, the latest insights on the success factors in project organising put a high premium on non-hierarchical relations among actors in complex project governance because flexible systems of this sort are believed to ultimately facilitate knowledge production and codification, and strengthen trust relationships among actors (Grabher & Ibert, 2012).

Such complexity, as it has been observed in a study published by Grabher (2002a), features increasingly non-hierarchical array of relationships, and has been famously termed "project ecology".

As Gernot Grabher argues (*ibidem*), it is worth acknowledging that, inside this complexity of relations, interplay of geographical layers is also at work. Significantly, in this complex environment it is hard to identify a particular chain of command – and governmental actors representing multiple scales of government are no exception. One of the collateral (and overlooked) effects that can emerge from this geographical layers' intersection is the fragmentation of the public actor in the urban policy agenda, a condition that has been observed, in Italy, in the implementation of urban public policies (see Allulli & Tortorella, 2013; d'Albergo, 2010).

Complex systems – like LEPs organisations – characterised by fragmentation and heterarchy can develop severe limits in project management, specifically in delivering the project on time and on budget.

In this view – as far as LEPs are concerned – governance issues are analysed mostly to explore how legal and regulatory institutions and project management influence one another (Michaud & Lessard, 2001). So far, however, the scientific literature has delivered little account of fragmentation in LEPs-based networks embedded in (and influenced by) territorial government reform. The aim of this paper is to cover this gap by using a LEP case study to explore how legislative and regulatory entropy contributed crucially to the institutional fragmentation in

project implementation that led to weaken the management and control power of the (public) client.

As mentioned, Metro C in Rome has been constructed until 2016 according to the Legge Obiettivo, a regulatory framework that after a decade or so of progressive government downscaling formally brings back the state actor into the game. The same law, from an organisational point of view, reforms the management of projects by placing greater responsibility and power in the private contractor's role.

CASE STUDY METHODOLOGY

In order to investigate the current institutional practices and policies that are shaped and affected by institutional reorganisation, we have decided to employ the case study method (Yin, 2009). By focusing on a specific relevant case of a transport infrastructure project (currently the biggest infrastructure project in Italy), in one of the most important metropolitan areas in Italy, Rome, we are able to identify the impact that the reorganisation of powers and functions related to the domain of LEPs have on the role of different government actors and the private contractor within project implementation. The study aims to build new understanding on how practices materialise in the new institutional environment embedded in both the Italian patchy institutional reform and the *Legge Obiettivo* attributions that are somehow related to that reform.

To conduct the case study research, we needed to have a clear picture of the administrative changes produced by law (discussed in Section 3) that over the years have reformed government functions and powers at different levels. We also started our study by conducting desk research on relevant projects and regulatory documents (e.g. master plan for the city of Rome, project planning document, project modifications dossiers and the like) that allowed us to identify fundamental aspects of

the Metro C project such as actor roles, route (related to urban spatial development), funding allocation, timing, and key decisions. These elements were preliminary to the main analysis phase, which allowed us to gain insights into the actors' roles and practices.

For this purpose, we used the semi-structured interview technique (Longhurst, 2003) with relevant informants who could provide important and first-hand information for a better understanding of the case.

We used the *purposive sampling technique* (Guest et al., 2006; Oliver & Jupp, 2006) to identify key informants (Bernard, 2017) and asked them on occasion to recommend others we could not approach or identify in the first place (i.e. snowball selection) who were able to improve our understanding in relation to the research question (e.g. the mayor of neighbouring municipality Monte Compatri and especially the experts involved as advisers of the municipality).

In total, 7 in-depth, semi-structured interviews were conducted between January 2016 and January 2017. We stopped with the interviews when we received no further names for the collection of relevant data and information. The interviewees selected are the following:

- *Andrea Sciotti* (*Roma Metropolitane*[2] – 'Responsible for the Procedure'[3] in the Metro C project);
- *Antonio Tamburrino* (Consultant engineer for Rome's former mayor Gianni Alemanno – mobility policy);
- *Marco de Carolis* (Mayor of the municipality of Monte Compatri);
- *Giulio Fioravanti* (Architect, consultant of the municipality of Rome with mayors Francesco Rutelli and Walter Veltroni);

[2] *Public contracting agency for the Metro C project.*
[3] *The R.U.P. – a public role in the Italian administrative system.*

- *Adriano La Regina* (Head of the Archaeological Superintendence of Rome);
- *Maurizio Canto* (*Roma Metropolitane*; member of the technical evaluating committee of Metro C's tender);
- *Walter Tocci* (Municipality of Rome, former deputy mayor and responsible for public mobility).

The number of interviews (7) is totally consistent with similar research on single projects (see research methodology applied in the research by IMEC (International Program in the Management of Engineering and Construction) – Miller & Lessard, 2001; Miller & Hobbs, 2005). The above face-to-face interviews lasted approximately 45 minutes to 1 hour and a half. Each interview was taped and successively transcribed word for word in order to avoid any misinterpretation and minimise personal biases in the analysis. Table 1 below summarises the main questions that guided the semi-structured interviews in relation to the main aspects under investigation. Table 2 below provides a very concise summary of the outcomes and intentions for each interview.

Table 1 – Summary of Interview Questions

Interviewee	**Main questions asked**
Walter Tocci	*1.* Can you describe the debate internal to the administration back then when the Legge Obiettivo was about to be employed for Metro C? *2.* What were the pros and cons of the turnkey project approach in that case? *3.* What were the main differences between the early project draft prepared by the municipality and the current one prepared by the contractor?
Adriano La Regina	*1.* What does it mean for an archaeological conservation body to take advantage of such a major campaign of excavations (like the Metro C works)?

	2. Would you say that the archaeological superintendence has been exploited in that case, for instance using the "meticulousness" of its operators for prolonging the works more than necessary? 3. In your opinion, were all the (archaeological-discovery related) changes issued by the contractor during the project actually unexpected, as claimed?
Andrea Sciotti	1. What is the rationale of turnkey type of contract in the field of public works? 2. In your opinion, to what extent is Metro C's cost overrun due to archaeological-related modifications? 3. Can you briefly describe the evaluation process when a modification request is issued by the contractor?
Antonio Tamburrino	1. What is your opinion on the impacts the Metro C project might have on the city of Rome? 2. What were the project options (also regarding city mobility as a whole) examined by the municipality when you were working as adviser? 3. What were the main changes in the approach between the centre-left and centre-right city administration on the project? 4. According to your experience [Tamburrino worked abroad in the past, authors' note], are there cultural determinants that might explain the different performance worldwide of turnkey contracting?
Giulio Fioravanti	1. You worked on the early version of the project (drafted completely by the municipality), can you briefly point out the main differences and technical implications for the Metro C project when the Legge Obiettivo was chosen for its implementation?

	2. According to your experience, is there an optimal institutional organisation for projects to be effectively and efficiently carried out – e.g. roles that fit better the private or the public sector?
Marco De Carolis	1. What were the main issues discussed in the Conferenza dei Servizi for the Metro C? 2. Did you – as a neighbouring municipality - have an appropriate weight in the table, or did you feel somehow left out?
Maurizio Canto	1. As a member of the evaluation committee of Roma Metropolitane on this project's entrustment, how would you judge the average level (in technological and innovative terms especially) of the firms that bid for the Metro C work? 2. The terms defined by the municipality for the Metro C demanded great attention by the firm for the timely and in-budget delivery of the work; do you think these two types of requests (economic and technical) were well balanced?

Source: Authors.

Table 2 – Very Brief Summary of Interview Responses

Interviewee	**Outcomes and intentions for each interview**
Walter Tocci	Public sector point of view. Mr Tocci provided a partisan but informed interpretation of the project's governance. This interview helped to clarify the political rationality that stood at the basis of the Legge Obiettivo adoption. Also – as former council member appointed with mobility policy responsibilities – Mr Tocci was the one of the main contributors to the snowball selection of the other interviewees.
Adriano La Regina	The archaeological conservation point of view. As a very important rationality in Italian policy making

	altogether, historical tutorship has had a prominent role on the Metro C project as it involved intensive excavation in Rome underground. Mr La Regina's interview was valuable to the appreciation of the technical and archaeological issues at stake, as well as a testimony of the dialogue between the public sector's and the private contractor's logics.
Andrea Sciotti	The contracting agency point of view. The agency Roma Metropolitane is the operative agency of Rome's municipality on public transit projects. The interview focused on the institutional rationale of the Legge Obiettivo, the changing nature of contractors under this new regulation, and the relationships between Roma Metropolitane and Metro C S.c.p.a. (the project's contractor).
Antonio Tamburrino	Embodying the logic of technical expertise, Mr Tamburrino helped reconstructing the various engineering and mobility policy options that have been time after time on the decision makers' table. He counselled for a political coalition (centre-right) that came later (2008-2013).
Giulio Fioravanti	Embodying the logic of technical expertise, somewhat Mr Tamburrino's counterpart as Fioravanti was a technical consultant of Mr Tocci in the centre-left city administration. Fioravanti drafted first the Metro C project and had a crucial role in re-thinking some technical aspects after the Legge Obiettivo was adopted. He also contributed to shape the idea of a changing role for contractors under the Legge Obiettivo, particularly by discerning between moral and legal values involved.
Marco De Carolis	The bordering municipality point of view. The interview with Mr De Carolis helped to appreciate the confusion in the Metro C governance especially by attending (and giving testimony) on the project-related Conferenze dei Servizi (the Italian inter-institutional table of negotiation). It also helped clarifying the lack of an actual 'metropolitan' perspective in the governance of metropolitan line.

Maurizio Canto	Member of the contracting agency's evaluation committee. Mr Canto took part to the committee that decided to entrust the work for the Metro C to the current contractor. The interview with him was sought to understand more deeply the desired technical (as well as the economic) capacity of contractors in important infrastructural projects of this sort.

Source: Authors.

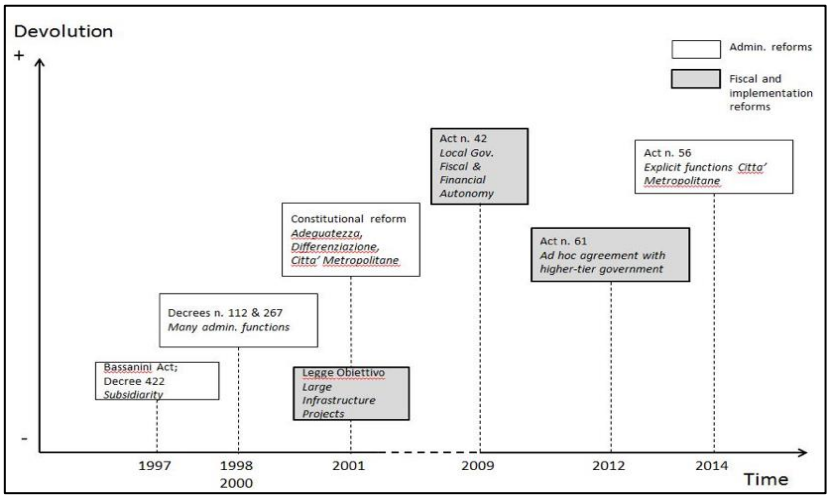
ADMINISTRATIVE REFORMS: A ROUGH PATH TO RESCALING

This section deals with the administrative reforms that have had an impact on the organizational and polity aspects at the local level and touches upon the financial-related measures that determine funding for Metro C. In general, on the basis of the subsidiarity principle (Colombo, 2004), the trend of administrative reforms has been one of ever-increasing devolution of government functions to the sub-national levels of government (see Fig. 1) (Maltoni, 2002; Clarich, 2012). This became especially clear in the late 1990s with the *Bassanini Laws* and early 2000s with the Constitutional reform. Local public transport was then identified as administrative competence of both local and provincial governments for which collaboration would be expected if the service and circumstances require it. *Città Metropolitane* (Metropolitan Cities) were first introduced as a new tier of local government in 2001, and inherited the same boundaries and functions of the old Provinces in 2014. This was confirmed for the city of Rome in 2014 ('Del Rio Act' and Statute of the Metropolitan City of Rome) until the metropolitan level of government (*Città Metropolitana di Roma Capitale*) was established (1 January 2015).

However, a financial decree in 2012 denied the importance of the soon to be formed metropolitan level of government. Specifically, it provided

that for decisions on infrastructure investment an ad-hoc agreement was to be signed between the city of Rome and the regional and national institutions, denying, in such a way, the importance of the metropolitan level of government and therefore the inclusion of the municipalities that are part of it in matters concerning the metropolitan scale. The projects and investments resulting from the agreement were thus included in the national investment plan under law 443/2001 (known as *Legge Obiettivo*). Legge Obiettivo assumes great relevance and importance for our discussion since it provided special legislation for large infrastructure projects and national financial resources earmarked over the years through special laws and decrees.

Figure 1 - Rescaling: relevant acts and laws in Italy (1997-2014)



Source: Authors.

The rationale and operation of the Legge Obiettivo

The regulatory framework that governed the construction and implementation of strategic megaprojects from 2002 to 2016[4] has been introduced, in Italy, by law no. 443/2001 (publicly known as *Legge Obiettivo*) and it changed profoundly the institutional setting of megaprojects' implementation in the country. This law was voted after a decade of profound discontent in the Italian construction sector, due to the supposed punitive treatment the sector was suffering after the bribery scandal of Tangentopoli was uncovered[5].

The *Legge Obiettivo* was, in this sense, a way to unleash the private potential to innovate, relieve the financial burden for public administrations for megaprojects' construction, and consequently guarantee quick and efficient project implementation.

The *Legge Obiettivo* reformed the previous legal framework about public works' contracting, regarding especially:

a) the rules to comply to for the entrustment of contractors;
b) the responsibility for preliminary, final and executive plans;
c) the tasks of both the local authorities and the contractor (i.e. procurement rules);
d) the provision of Environmental Impact Analysis (EIA) and Strategic Environmental Assessment (SEA);
e) the control over the actual work in progress (construction site's management).

[4] The Legge Obiettivo has been overcome by the New Code for Public Contracts in 2016 (D. Lgs. 50/2016), but the legislation on the matter of public works and projects is constantly being revisited, adjusted, and integrated with new regulations.

[5] The framework law applied until the Legge Obiettivo was adopted (the so called Legge Merloni – L. 109/1985) was constructed to establish a sound public control on public works. Private construction firms, under this regime, were no more than mere executors of public projects.

The *Legge Obiettivo* introduced in Italy the figure of the *main contractor* (or 'general' contractor) adopted from the Anglo-American systems; along with this figure came the practice of *turnkey* contracts[6] for large infrastructure projects. This law configured a totalising regime for public infrastructure works, even though it could only apply to those projects that held national strategic importance. Such a status was bestowed by the national Ministry for Transport. A project that could enjoy this preferential status had to be included in a dedicated multi-year plan – the Strategic Infrastructures Programme (PIS).
The decision to insert a public infrastructure in the PIS could be either a national initiative or indirectly sponsored by the local authority in which the infrastructure is located. When the Ministry of Transport makes the decision official, the project gets three levels of joint funding (from the state, the region and the municipality – the national state normally bears the major share of the funding).
In the specific case of Metro C, the decision to demand the insertion of the project in the framework of the *Legge Obiettivo* was taken by the then Mayor Walter Veltroni. According to the interviewee Water Tocci:

«*That was a wrong decision – by all means dictated by reasons of distension between the city government and the national government from Veltroni's side (Silvio Berlusconi's centre-right coalition, authors' note). Nevertheless, the preparation of the Legge Obiettivo itself was a huge lobby endeavour performed by those big engineering companies that had been left aside in the post-Tangentopoli period (the*

[6] *Turnkey projects are peculiar types of public procurements: a turnkey project is not only executed by the private contractor, but also planned and possibly fully subcontracted by it. It represents a fundamental turning point for both public administrations and private sector actors. The former are reduced in their control and planning roles, the latter are subject to higher profile competition that now involves issues of management and supply chain organisation.*

Italian bribery scandal uncovered in 1993, authors' note). For them, an environment that is less bound to public prescriptions was more suitable. The Legge Obiettivo, as we now know, substantially hollows out the public capacity to keep control on public works it puts to tender.»

Different roles for the contractor and the municipality

The *Legge Obiettivo* defines different roles for the contractor and the government involved. Once the authorisation from the Ministry is received, the municipality, in this case, has responsibility to design the tender terms, the awarding criteria, and the typology of the auction (i.e. how many firms to be admitted to the tender, the required characteristics and the like).
From the moment when the tender is won onwards, the contractor has full operative responsibility over the work's delivery. Most importantly – for the sake of this paper – the contractor finds a further institutional reference in the Ministry for Transport, possibly bypassing the local scale if needed. For instance, veto power and negative advice about the project's modifications (often causing remarkable cost overruns), are unclearly determined: one level of government could be easily bypassed by the contractor by turning to the other (through the act of changing the type of the modification request issued, e.g. an archaeological discovery).
The tasks related to the project's implementation are allocated as follows.
The main contractor:

- Has full responsibility on the planning of the project[7];

[7] *Even though it is just optional, the general contractor can be appointed with tasks covering all three levels of planning: preliminary, final and executive.*

- Finances the work in advance;
- Appoints the construction manager [8] and controls the construction site;
- Takes on the construction risk management;
- Has the power to subcontract the whole work [9] *according to private contracts.*

The municipality, instead:

- Is appointed with 'high surveillance' tasks over the work in progress[10];
- Chooses the private contractor through a *private* call for bids;
- Approves small-range modifications[11];
- Bears a minor share on the project's funding;
- Receives the management of the work, when executed and put in operation.

A special mention has to be done to the role of the construction manager – that with the *Legge Obiettivo* is fulfilled by the contractor itself. In public contracts, this role – that more than other legal instruments

[8] *Once (with the previous law: 109/1994) an emanation of the municipality.*
[9] *According to the rules, a further tier of subcontracting is possible; for this third level, contracting firms are not easily accountable in the public records and this is one of the aspects that make corruption an actual possibility in Italian megaprojects.*
[10] *Note that this task fatally overlaps with the ones of the construction manager (as said, appointed by the contractor). As a senior executive of the contracting agency Roma Metropolitane says: «taking over even occasional surveillance functions in the construction site means incurring in new costs for the Public Administration and further delays».*
[11] *However, the decisive say on the approval of the modifications is held by the technical unit (*Struttura Tecnica di Missione*) inside the Ministry. The contractor can appeal to the national ministry for rejected modifications.*

assures the consistency of the project's implementation with financial and technical constraints – is typically a direct expression of the (public) client, as a key planning and control prerogative.
This role – if fulfilled by the private contractor – makes it possible to have full latitude to decide whether, for instance, an archaeological occurrence is worth a normal modification or a special one (*variante sostanziale*[12]). This latter is called in during the construction of a public work when an unexpected event determines a significant budget increase: it is a key element of the project's cost overrun.

THE METRO C PROJECT

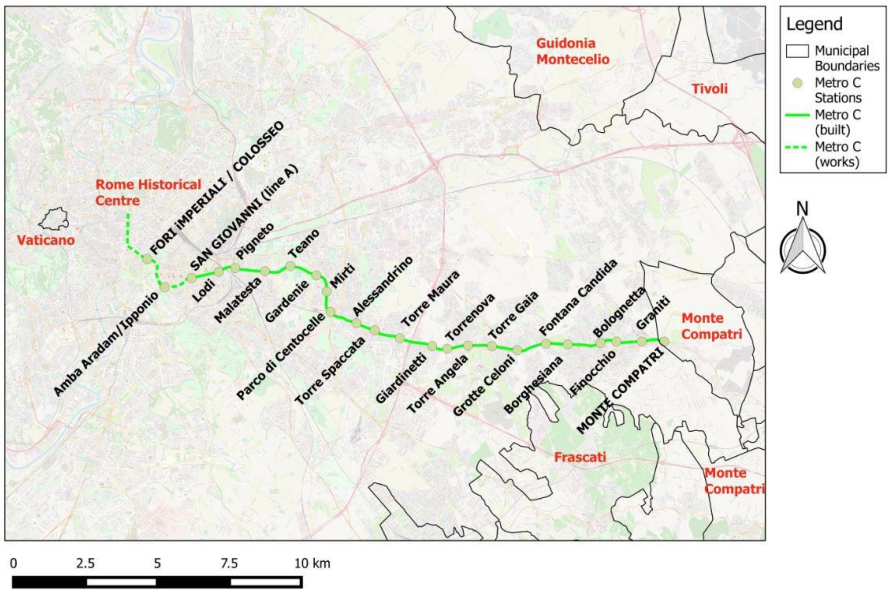
Line C (Fig. 2[13]) – the third line of Rome's subway – originates in the municipality of Monte Compatri, in the metropolitan area of Rome. The project's primary scope was to link the spatially and socially marginal south-eastern quadrant of the city with the historical centre of Rome. The project, in its full extent, was also meant to take the line further north-west, making it the longest subway line in Italy. By intersecting the other two subway lines (A and B) in two points (stations of Colosseum and San Giovanni), the completion of the new line is expected to increase dramatically the network effect of Rome's public mobility as a whole (see Comune di Roma, 1995).
The line is 25,6 kilometres long, for a total of 30 stations. 30% of the route constitutes over-ground rail whereas the remaining 70% is dug

[12] *Note that, at the national level, a recent report on the Legge Obiettivo implementation from the Anticorruption Authority estimated the occurrence of modifications to be around 70% of all the works present in the PIS. In 183 out of 263 cases (measured in work's parcels) the modifications increased the budget.*
[13] *Dotted segments are still under construction.*

underground with about 2,4 million cubic metres of excavations done to date (late 2018).

The Metro C project is fractioned into 5,000 sub-contracts involving over 2,000 companies and suppliers. All in all, more than 10,000 workers are employed in the entire supply chain.

Figure 1 – The Metro C Route



Source: Authors.

The project organisation, as governed through the *Legge Obiettivo* mechanism, showed a number of severe inefficiencies for technical and moral reasons. Line C was originally scheduled to open (in its full extent) in 2011 at an estimated cost (2.5 billion euros) that was less than half of what is now believed to be on the hand-in day (approximately 6 billion euros). A significant share of the cost's increase is to be attributed to the many modifications issued for unexpected archaeological occurrences. If such estimations are confirmed, the project will be completed over ten years behind schedule and nearly three times over budget (Italian Court

of Audit, 2011). Such huge cost and time overruns are currently object of a number of judicial inquiries investigating on allegations of corruption of public officials and treasury offense (Tab. 3).

Table 3 – Poor performance of the Metro C project implementation

Delays	**Cost Overrun**	**Modifications**	**Judicial enquiries**
Supposed to be entirely completed in 2011. In terms of budget spent, only 57% is completed to date (late 2018). The 'fundamental section' (through the historical centre) has been completed only by 5%.	2006: 2,5 billion euros (award of the tender) 2016: 3,8 billion euros To date 52% of cost overrun, with the most technically difficult part still to be undertaken. If the original cost (1.9 billion euros) of the line is considered (approved in 2001 by the CIPE[14] deliberation no. 121), the cost overrun to date would be over 97%. The Italian Court of Audit in 2011 forecasted the budget to exceed	45 modifications on the project's plan so far since 2006, 20% of which are for archaeological reasons. 33 out of 45 modifications increased the budget. Modifications to the project for archaeological discoveries alone account for over 320 million euros in cost overrun.	2015 by the Italian Anti-corruption Authority (ANAC). 2011 by the Italian Court of Audit (treasury offense). Public Prosecutor's Office of Rome.

[14] *Comitato Interministeriale per la Programmazione Economica (Interministerial Committee for Economic Planning).*

	6 billion euros when the project will be fully completed.		

Source: Authors

THE METRO C CASE ANALYSIS

Urban transit projects are ideal cases for researching the institutional face of government. Their huge costs determine frequently mixed finance allocations (Altshuler & Luberoff, 2003; Ponti, et al. 2015; Weiner, 1999). Also, large engineering projects bear systematic risk management for which exclusive public sector control appears to be increasingly inefficient (Miller & Lessard 2001; Flyvbjerg et al. 2003). All these aspects reveal crucial parts of the institutional context of a given territorial unit. The Metro C project has been examined here – on the one hand – because we believe it is particularly revealing about how multi-level governance could be significant for project failure. In fact, state governmental levels, archaeological tutorship body[15], and the contractor firm fulfilled unclear and overlapping functions in the Metro C project implementation.

[15] *Also, the Superintendence for Archaeological and Cultural Heritage is fragmented between a national and a local actor. This division creates overlapping jurisdictions as to the* property *of a new archaeological discovery because it is not clear which body of the two is primarily responsible for its tutorship.*

The *Legge Obiettivo* acts in this context as an institution itself, able to influence the norms, relations and the routines in megaprojects' organisation.

Institutional fragmentation in the networked polity of Metro C's implementation

This case study of a project implementation finds reflections in both governance and organisational bodies of literature. Firstly, the concept of 'networked polity' (Ansell, 2000) expresses that policy undertakings have become increasingly intergovernmental relational environments, the fundamental actors of which are acting following an equal level of sovereignty and in which the institutions of the central state is back into actual function, sharing quotas of control function with other public actors and with the private contractor. The case of the Metro C is suitable for this concept's demonstration for a number of reasons.
First of all, the incoherent gait that the institutional reforms have been keeping in Italy to date as to polity definition (devolution of legislative powers): the national state, that had been put aside in the management of big projects in the early 1990s, came back with the approval of the *Legge Obiettivo*. This passage was instrumental to a formal re-centralisation of power, but with the private actor actually driving the governance of projects[16].
The municipality, appointed with tasks of surveillance and modifications' approval can be (and has actually been) overcome by the private executor by issuing different types of project modifications, while its traditional tasks of control over construction sites are

[16] *In Rome, also, it has been observed that political coordination stalemates have often been resolved by the more or less explicit juxtaposition of the national state in the governance (d'Albergo et al. 2018).*

cancelled because the construction manager is now *internal* to the firm. The main contractor is in fact on the same level of the project client.

Although the notion of 'networked polity' is conceived as a consequence of multi-scalar administrative empowerment, that in turn is believed to have an overall beneficial effect on democratisation and effectiveness of public policy action (Kassim & Le Galès, 2010; Morgan, 2004), the case of Metro C is a demonstration of how in absence of a clear chain of command, with great dispersion of powers and in fluid jurisdictions, efficiency is dramatically reduced. An unclear chain of command has determined the delays and cost overrun stemming from the broader manoeuvre margin enjoyed by the private actor.

Another instrument for conflating institutional public action could have been the activation of the metropolitan scale by proceeding with giving content to the legislative framework already in place (see previous sections). The failure of this approach is well pictured in the interview with the mayor of Monte Compatri, the municipality in which the Metro C ends.

«No request for an inter-municipal cooperation was ever advanced to my municipality to manage the critical aspects of this infrastructure; we (the Municipality of Monte Compatri, authors' note*) were formally taken in only because in the territory of Monte Compatri is the segment of the old railway line to be renovated in order to get the early state funding.*

The conferenze di servizi *(the Italian inter-institutional table of negotiation,* authors' note*) were totally useless as they were crowded with a number of governmental and civil society actors, more or less insignificant.»*

Also the Responsible for the Procedure[17], Mr Andrea Sciotti, in his interview highlights the conflicts that systematically emerge when the role of the project client is played incoherently:

«'High surveillance' tasks retained by the municipality overlap with the command that the contractor has over the work's construction sites – through the figure of the construction manager. Note that controlling the everyday functioning of construction sites is key for the fair evaluation of the modification issued when, for instance, an archaeological discovery occurs. That was once a prerogative of the municipality […].
Under these circumstances, […] the actual control role is the one that is physically present on the site – the construction manager. »

To this ambiguous role game adds the national institutional level that exert the same functions of approval of project modifications. Both the municipality (through the contracting agency) and the national Ministry are formally involved in the evaluation and approval of the modifications.
This exemplifies the fragmentation of public control competences amongst institutional levels; a situation in which the public actor is substantially expelled from the process of realisation of public infrastructures (Bortoli, 2011) by diluting it into a leadership-free organisation, while conferring a prominent sovereignty over project management to the main contractor.

[17] *The responsible for the Procedure is a public juridical figure in Italy – in this case an employee of in-house company* Roma Metropolitane*. The responsibility for the procedure has been introduced in 1990 law 241/1990 and it guarantees the transparency of the administrative procedure.*

Not surprisingly, the judicial inquiry of the Italian Anti-corruption Authority (ANAC, 2015) on the Metro C project denounced that many modifications were illegitimately paid to the contractor by the public sector, and we would advance the explanation that a publicly paid modification (which is illegitimate *in principle* in a turnkey type of entrustment) is correctly evaluated when a *single* body is accountable for it. In any other circumstance, the likelihood of benefit exchange between politics and economy are highly increased.

The Metro C project ecology

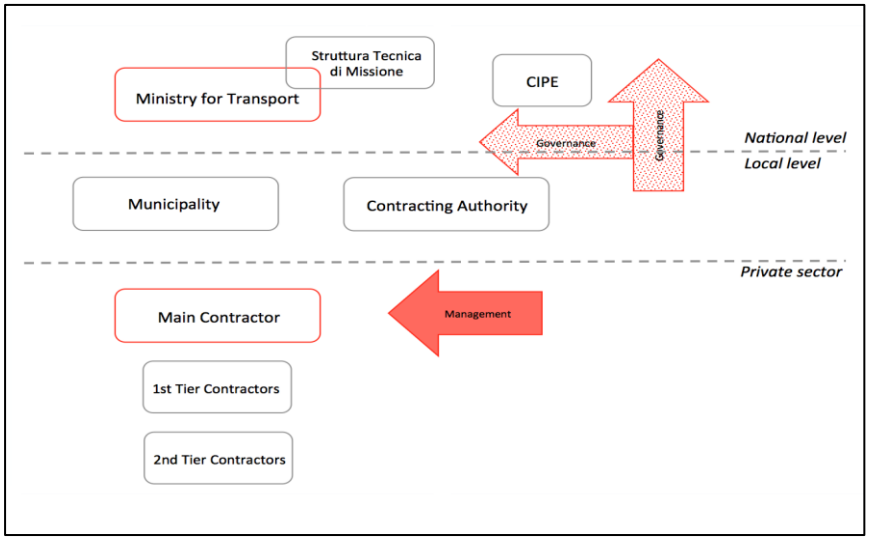
A second characteristic that the Metro C project displayed is the prominent importance acquired by the relational network of the private contractor. The law enables the firm to implement projects arbitrarily as to the choice and management of suppliers and sub-contractors. Also, the resort to private contracting makes possible for the firm to prevent these relations from being accountable by the public client.
Therefore, the project ecology that emerges is characterised by a plenipotentiary contractor that bears no obligation to the client (see Fig. 3), triggering a potentially opportunistic domino effect: a typical principal-agent organisational problem (Stiglitz, 1989) in which the project responsibility decreases as the actual involvement in it increases.
As it stood in the Metro C facts, the two key aspects that provoked a reshaping of the institutional relations between actors are:

- The insertion in the system of a new sovereignty (that of the main contractor) that with its new attributions as to the management of the work creates an unprecedented imbalance between public and private;

- Not having taken into account that the new regime (the Legge Obiettivo) would have conflicted with existing sectorial norms (notably construction site regulations and subcontracting regulations).

Therefore, the public side of the governance is fragmented and virtually unaware of what is going on at the other hand of the supply chain, where the financial allocations are actually administered.

Figure 2 – Concentrated management vs. fragmented governance



Source: Authors.

Without going into the deepest detail of the project ecology concept, we argue that the public client figure sketched after the introduction of the *Legge Obiettivo* was severely undermined, and the contractor benefitted from the ensuing *heterarchy* of institutional roles (Hedlund, 1986; Hedlund & Rolander, 1990).

Without a leading player able to impose budget constraints and ensure coordination, control tasks were remixed and doubled between the

contractor and different governmental scales so that these latter could not ensure the planned delivery of the project.

However, clear leadership-followership relations implied by a hierarchical institutional architecture (Stinchcombe & Heimer, 1985) are instead re-produced between the main contractor and the sub-contractors to which the work has been entrusted.

In this way, the city-based firm could exploit its own system of relations, creating a project ecology in which it is the only actor responsible for performance without bearing the ultimate burden of funding. Former deputy mayor Walter Tocci admitted in an interview that the rationale behind the adoption of the *Legge Obiettivo* as a new regulatory tool might be understood as a way to reach out to the *local* entrepreneurial community in the sector while keeping the discretion to resort to national contacts (in the Ministry for Transport and ancillary bodies) when needed.

Therefore, the 'scalar interpenetration' together with the *Legge Obiettivo* turned the relational environment of the project into a new and discretionary project ecology legitimising and securing the contractor's own system of contacts. On the one hand, the main contractor was able to entertain administrative relations with the national governmental level. On the other hand, the contractor was able to do the same at the municipal level (through the municipality's contracting agency), often for similar matters, according to its convenience.

The overall effect of this mechanism was that the contractor could (1) inflate cost overrun virtually indefinitely, (2) abuse the resort to project modifications for any kind of construction contingency, and (3) extend deadlines accordingly (see Table 2). This circumstance is well exemplified by the dialectic between contractor and archaeologists in case of an archaeological discovery during the work. Citing the then Head of Archaeological Superintendence, Adriano La Regina:

«As far as I know, [Metro C] has been an example of opportunistic use of the proverbial zeal of archaeologists by the contractor.
The only institutional figure an archaeologist could refer to in a construction site was the site manager that had no pressure for making an archaeological inspection as quick and effective as possible.»

Although a significant part of the newest literature on project studies (see for instance Brady & Davies, 2014; Davies & Mackenzie, 2014; Grabher & Thiel, 2014) puts a premium on more heterarchical institutional organisation in complex projects, it seems that, in the Metro C case, this has only weakened the smooth and *accountable* progression of project delivery, with no significant impact on the innovative and cognitive potential of project environments.
The idea that complex projects cannot be confined to silos – either scalar or relational – subsumed in the project ecology notion gains credibility only as a precondition for incentivising innovation (with the ultimate outcome of having the costs and time scheduled monitored). This is certainly the case for advanced projects embedded in fairly 'advanced' political-economic systems. The eloquent title by Gernot Grabher (2002b) – *Cool Projects, Boring Institutions* – refers to the need for cognitive capital in projects to be able to transcend scale. Nevertheless, one should also consider the possibility that this kind of re-institutionalisation might produce some sort of *willful negligence*, as Pinto (2018) addressed it, in projects that are embedded in poorly goal-oriented polities.
In the words of an important transport policy consultant (Mr Giulio Fioravanti) for the Municipality of Rome in those days:

«Turnkey projects are run in lots of places all around the world – of course they are not bad in themselves. Nonetheless, it seems to me that in the end their failure or success is largely determined by the quality of the "performers".

The problem, here, were the actors».

A hypothetical metropolitan governance for the project would have possibly ensured a stronger public leadership that would have affected both governance and project management of Metro C, possibly without resorting to a turnkey contracting system. On the other hand, even in the case of a turnkey project, many problems stemming from a fragmented project client could have been avoided by a supra-municipal government able to coalesce public tasks and competences.
The effects of the fragmented institutions are here summarised:

- The functions and roles of the public client have been pulverised among the various bodies representing the national and the city level.
- These two levels are, furthermore, somehow discretionary interlocutors for the private contractor that simultaneously covers project management functions and supervise construction sites.
- The institution of the main contractor in the Italian legal system – with its new attributions for the management of the supply chain – provoked a legislative void as to the relations with 1st and 2nd tier sub-contractors: these are regulated to private contracting and substantially accountable to the main contractor only.
- The administrative level that would have enabled integrated public control functions (the metropolitan government) have been deliberately avoided.

CONCLUSIONS AND FINAL REMARKS

This paper tried to spot the critical points that determined the failure of a large engineering project (LEP) – Metro C in Rome –in terms of governmental coordination and public-private relationship.

The paper described the complex (and contradictory, in places) legal framework in which the management of the Metro C project in Rome was embedded, and the ensuing weak institutional environment.

Specifically, the focus of this paper was to outline the phenomenology of institutional fragmentation determined by the adoption of the *Legge Obiettivo* in a LEP's concrete implementation.

The case study showed that, in the concomitant presence of (i) a hollowed-out (public) client, (ii) a patched regulatory-legal framework, and (iii) a plenipotentiary contractor, large engineering projects are doomed to miss their budget and schedule targets. This is because project responsibility is dissolved among too many players.

Moreover, the Metro C case suggests that multi-level governance on the one hand and the managerial centrality of the contractor on the other (both generally considered positive approaches as to respectively policy implementation and project management) can be counterproductive, creating the bases for opportunism and poor performance.

The differences in the propensity for innovation in polities are also a variable to be seriously considered. There is extensive evidence that shows how turnkey projects proved beneficial in project organising all over the world. Through greater responsibility, flexibility and freedom, contractors feel more motivated to contrive creative and innovative paths for achieving project goals in conditions of complexity and uncertainty. For this to happen, though, the responsibility of project needs to be formally and clearly undertaken by a single institutional body. In case of public infrastructure, for instance, projects need to avoid ambiguities as to project sponsorship.

Such precondition enables the project client to establish a flexible yet still demanding relationship with contractors and limit the occurrence of opportunism and free riding.

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