

# FOSTERING JUSTICE AND CARE IN COMPLEX PROJECT SYSTEMS: AN EMPIRICAL STUDY

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## ABSTRACT

While projects are becoming increasingly more complex in their organizational, technological, and environmental dimensions; complex systems are deemed by being unjust by nature. Previous research has suggested that heedful interconnection among the actors of the system can enhance organization's capability in ethical coping with complexity. However, project-based organizations tend to cope with complexity through developing adaptive capacity within the borders of the organization and marginalizing the demands and concerns of some stakeholders. By investigating the controversial project of Rome Metro Line C and drawing on ethics of care and ethics of justice, this article suggests that coping with complexity is attainable by extending the organization's border to include all stakeholders of the network. The empirical study proposes that by fostering the interrelation of a broader range of stakeholders with the organization through a decentralized decision making will improve the extended organization's capability in identifying and absorbing complexity.

## KEYWORDS

**Stakeholders, Complexity, Ethics of care, Ethics of justice, Extended organization**

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## 1. INTRODUCTION

It has long been discussed that traditional approaches are not capable of coping with the increasing complexity of contemporary projects [54], as these projects are constantly becoming more complex in diverse dimensions, and depict higher levels of indetermination and ambiguity. Complex projects are deemed by low performance levels [74], on the one hand, and over changing project scope resulted from emergent incidents, on the other. Particularly complex systems were historically indicated to be unjust by nature [72]. More recent researchers from different disciplines have argued that having a “collective mind” [47], “heedful interrelation” [11], or adopting a decentralized decision-making approach in the organization’s governance [49], would be ways to enhance organization’s capability in absorbing and coping with complexity with an ethical approach. By suggesting so, researchers shed light on the importance of “actors in the system construct their actions (contributions), understanding that the system consists of connected actions by themselves and others (representation), and interrelate their actions within the system (subordination)” [67; p.357].

These approaches, nevertheless, have limited applicability as preparation for coping with complexity in complex systems has been limited to the borders of the organization. The mechanisms introduced by these scholars to overcome complexity and to become more adaptive to the dynamics of the system are curbed to alternations in project goals, scope, methods, management structure, team composition and performance thus utterly relying on organization and its individuals’ capacity.

Moreover, adaptation of these approaches results in exclusion of certain groups of stakeholders that are not usually considered as the decision makers [16;18], and neglecting their demands and concerns. Hence, these limitations, as we argue, result in double side drawbacks on ethical and efficiency aspects alike. In pursuit of an inclusive ethical approach for coping with complexity by the organizations, in this article we study the actualities of a controversial transportation project in Rome, Italy, that is known for its considerable complexity, together with its very low performance and long range of unsatisfied stakeholders. Delving into this case and analyzing the perspectives of different stakeholders across the organization’s approach in managing the project will inform us on the drawbacks of adopting an organization-focused approach for coping with complexity and will shed light on alternative approaches for ethical management of complex systems. After reviewing the case we will draw on theory of ethics of care and justice and will answer the following research question: How a combination of care and justice will enhance the system’s capability towards an inclusive ethical approach to absorb and cope complexity in projects?.

## 2. LITERATURE REVIEW

### 2.1. Complexity

There is a vast literature on complexity in general management area from which project management scholars have drawn to mobilize and apply the relevant constructs in various project contexts [4]. Our aim in this article, however, is not to provide a comprehensive list of numerous categorizations of complexity in either of the fields, neither is to scrutinize and evaluate the content of these categorizations. We rather aim to define and identify the dimensions of complexity of our studied case to extend theory on managing complex organizations in an efficient and moral way. Therefore, in this section we will have a brief review of complexity and will indicate that among the plethora of complexity categorizations, what are the dimensions of complexity to be used for the purpose of our research.

From the early work of Baccarini [3], considering only technological and organizational complexity, other authors have contributed to the understanding of project complexity by taking uncertainty,

external factors and different kinds of 'soft' aspects into account. After reviewing the project complexity literature and based on the context of our study, in this article we consider project complexity as a multifaceted phenomenon composed of environmental, organizational and technological dimensions. Aggregated from previous studies, we define environmental complexity as the situation where divergent institutional logics collide in the project setting due to the existence of heterogeneous stakeholders. Organizational complexity equates with the number of activities and sub-systems in the organization. Nonetheless, the diversities in value and belief systems of the focal organization, the complexities in the process of decision making, and working procedures due to the size of the project and diverse actors involved. Technological complexity is about the nature and interdependencies between the tasks and methods deployed in the project.

The formulation of behaviors of complex systems has long been concluded with the absence of a unifying notion of complexity. Researchers from different disciplines attempted to depict various dimensions of complexity and find the commonalities among them [49]. According to the complexity theory, in order to label a system as complex, it needs to possess radical openness and contextuality. That is, first, complex systems are tightly woven into their interconnected environment and thus influence their surrounding systems, as the environment is influencing them and, second, they share some elements with other systems of the environment which take part in processes different from those of the complex system at hand [46].

In project settings, the radical openness and contextuality are represented by associating projects with nondeterministic paradigms [14]. Uncertainty and ambiguity in the processes and interaction among the actors and institutions incorporate into the project and the final outcome of the project becomes unpredictable [22]. Projects with complex nature, such as large infrastructure developments, are deemed by blurred and unclear scopes and boundaries, their influences on their surrounding environment extend well beyond primary estimations and the involvement of multi-objective stakeholders with diverse demands and concerns adds to the depth and breadth of their complexity [19; 23; 71]. The progress of the project in such conditions is turbulent and will not occur over a linear predetermined plan. Consequently, project goals, activities and allocated resources require constant modifications along the project life cycle.

Furthermore, theoretical and practical literature has suggested that in complex organizations, immoral behavior and overlooking justice to several stakeholders is not only likely to occur, but is rather normal [11]. Complex projects settings have long been deemed by their numerous unsatisfied stakeholders whose interests and rights are neglected by the focal organization [15; 62; 73].

Further investigation in project complexity literature divulges the origins of the tendency to immoral and unjust behavior in complex organizations. Previous studies suggest that organizations can adopt two approaches to tackle complexity. They can either reduce complexity through simplifying the input of the system and act upon much limited amount of interactions or, absorb complexity through creating innovative options and strategies through alliances [1; 14; 38; 41; 66]. At first glance these two approaches appear to have contradictory directions, with the former suggesting simplifying accountability and the latter proposing to embrace complexity. However, in reality they both connote to a centralized decision-making process, and together concentrate organization's attempts towards addressing the interests and concerns of a narrow groups of stakeholders, with the cost of excluding many of the elements of the system irrelevant to those stakeholders.

In a similar vein, project studies have illustrated a tendency towards investigating the technical and organizational dimensions of complexity and overlooking those aspects of complexity that have their origins on the other side of the organization's border. While many researchers tried to unfold ambiguities incorporated in the institutional structures and technologies applied in projects [see

e.g., 38; 64; 75], the academic outcomes which develop the organization's capacity in overcoming environmental complexity of projects are quite scarce. Coping with complexity in projects is enacted inside the borders of the organization. Extended to the project level or centralized at the focal organization, the mechanisms introduced by project management scholars to overcome complexity and to become more adaptive to the dynamics of the system are curbed to alternations in project goals, scope, methods, management structure, team composition and performance (see, e.g., 8; 39; 55; 66; 70), thus utterly relying on organization and its individuals' capacity. This approach is surprising because as the projects enlarge in size and influence on their surrounding environment, the question arises whether current centralized organizational approaches best fit the increased complexity compounded by project deployment.

Focusing on the abovementioned limited areas have, to some certain levels, allowed the organizations to develop their adaptive maturity in accordance to the emerging turbulences that are originated from the organization and structural element. Nevertheless, it can be argued that the aggregated level of maturity in adaptive complexity is achieved when organizations sustainably develop their capabilities that are not limited to the dynamics of the project system and demands of their 'salient' stakeholders [40], but also extends to creating space for new possibilities by coalition with conflicting elements of the system [5; 26; 42] and matching to the complexity of the environment [49].

Tackling those aspects of complexity which extend well beyond the organization's borders, to impact and even shape the surrounding society [57; 61], or interrelate with other autonomous and powerful institutions such as government [63], calls for encountering the phenomenon through broader lenses that interpret the societal aspects of projects. Becoming adaptive to the alternations in demands and concerns of external environment of the project and subsequently to the changes they induce to the project gains even more significance in moral aspirations where stakeholder satisfaction dresses the veil of organization's duty [20]. Seeking to alternative routes for achieving adaptive maturity about diverse dimensions of complexity, this research opts to a normative lens to explore how organizations can manage their complexities in an efficient and moral way.

## 2.2. Ethics of Justice, Ethics of Care

Established over Kantian philosophical stance, ethics of justice has been prevailing western moral judgment and the decision making of majority of societies over the past few decades [56; 65]. John Rawls [50; 51] is considered to be the most distinguished justice theorist [30], as majority of research around justice has been extended from his work. His work is known to be theoretically nuanced as well as practically applicable [43]. His theory primarily proposed principles of justice by which a well-ordered society could be governed, and also described a logic through which these principles could be derived.

Extended from Rawls's theory, Kohlberg [31; 32] established one of the most prominent justice-based theories. He argues that in order to apply justice in moral reasoning, the decision maker must abstract features of particular situations that are consistent with more general universal principles. Furthermore, Kohlberg introduced three stages of maturity in embodying justice. While in its most immature level of justice the moral constructs reflect individual's needs, in the second level, the fairness in decision making is grounded over a shared understanding of societal norms and values, and finally the most matured level of justice follows certain universal principles [56].

The justice approach to moral reasoning, has been found flawed, inadequate and incomprehensive by care ethicists, such as Tronto [58] and Gilligan [28], who embrace the possibility that other

concepts, rather than justice, are able to provide a basis for supporting humans' ethical decisions. More specifically the work of Gilligan [28], "In a Different Voice", has received wider attention from business ethic scholars such as Wicks et al. [69], and Burton and Dunn [12], who praised their work as the moral grounding of stakeholder theory.

Different dimensions of care are expanded by care ethicists as they tend to explain the contrasting aspects of making moral decisions based on justice or care (Table 1). Care oriented moral decision making is more organized around maintaining connections and nurturing the web of relationships within which the decision makers are embedded. According to Noddings [45], care starts with a universal obligation of care to those who are in the network of relations. This obligation in stakeholder settings is translated into the ethical caring to stakeholders or caring about their demands and concerns [58; 37; 53]. It also calls for being authentically open and receptive to the reality of others, rather than having an assumed knowledge of another's needs [43; 45]. Therefore, care is tailored to the particular needs of individuals and consequently, the organization's obligation has to be fulfilled through the process of social practicing where the organization gives primacy to the needs of concrete others, departing from the predefined rights that are essentially assigned to them. Through experience, individuals at the organization build capabilities as well as cognitive and emotional intelligence from the context and demands of those who are in their web of relationship [35].

Despite originally introduced as the ethics of care is suggested as a complementary to ethics of justice: "Caring does not take place at the cost of replacing justice considerations, rather the obligation to care is in tandem with the duty not to harm individual stakeholders and the duty not to exploit or take advantage of unequal relationships." [37, p. 674]. Justice theory has a number of weaknesses which can be covered by consideration of caring in ethical decision making [15].

Ethics of care, therefore, seeks to flesh out the moral decision making processes through replacement, or partially coverage, of predefined responsibilities with the recognized care needed to be given to the stakeholders who are in relationship with the organization. Despite there was original skeptics about possibility of giving care to stakeholders at the organization or nation level [45], further research elucidated that giving care must be performed through relationship at the individuals level, but the caring organizations need to actively support the individuals' efforts through development of goals, strategies and systems which allow the caring culture to flourish [34; 37; 44; 68].

Literature on the ethics of care has focused on studying care at the micro level of individuals [28; 45], or macro level of political implications of care [58]. However, few studies have examined care at the meso level of organization [2]. In this research we will enlarge our understanding from the process and practice of giving care to stakeholders and their analysis through the dimensions of care and justice [34; 37; 45; 53; 68].

**Table 1. Dimensions of ethics of justice and ethics of care**

| Justice              | Definition  | Care             | Definition  |
|----------------------|---|------------------|---|
| Autonomy             | The organization is defined as an independent, autonomous self with determined roles and rights and is the focal decision maker. The stakeholders are defined as others with determined static and homogeneous interests and values linked to their respective roles. | Interdependence  | The definitions of organizations and stakeholders are largely interdependent and relational since the “self” cannot be defined without “others,” and its existence cannot be separated from its relationships.  |
| Duty                 | Duties are defined through legal and contractual agreements. The organization is the autonomous decision maker that rationalizes the nature and process of addressing its duties.   | Care             | Responsibility is discussed through the notion of caring, and care is socially constructed and co-defined by the organization and its stakeholders. All stakeholders are responsible for recognizing that there is a need for care in themselves and in others.         |
| Universal hard facts | There is only one fact that is universally valid across cultures and by which the organization can establish the authenticity of its actions.   | Relativist truth | There are different interpretations of fact narrated by individuals based on their psychological, social and cultural stances.  |
| Reversing viewpoints | Organizations can recognize their responsibilities to stakeholders by attempting to see the world through their eyes.   | Communication    | Others’ motives, feelings and reactions in different contexts can be learned only through a process of communication and dialogue. Development of this mutual understanding would allow organizations to co-create value with their stakeholders in a contingent world. |

### 3. METHODOLOGY

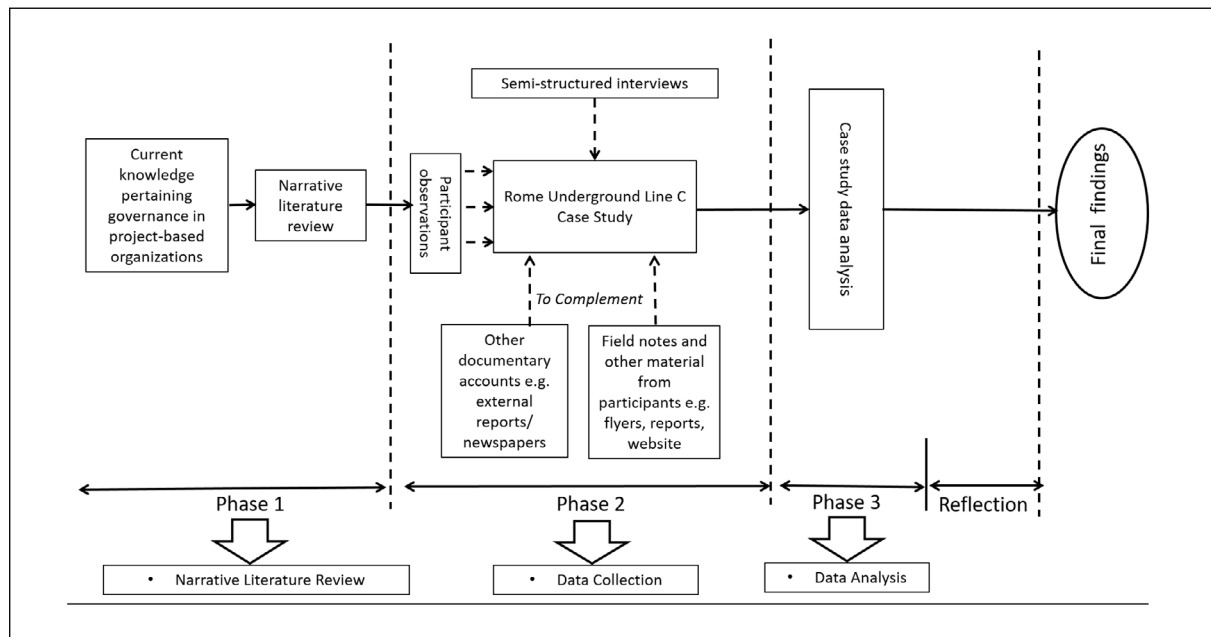
#### 3.1. Research Approach

The study's epistemological position is towards interpretivism [59]. This involves an examination of the relationship between the researcher and that which is being researched [10]. The aim behind the exploratory and inductive approach to the study is to advance knowledge on the moral stakeholder principles surrounding the complex social system of major infrastructure projects in which theory is developed from the observation of empirical reality.

A single case study design [23; 60] has been chosen in order to acquire rich data and provide in depth analysis deriving from a major transportation projects in Rome, Italy. This in turn encourages investigating real-life phenomenon through detailed contextual analysis of a limited number of events or conditions, and promotes theoretical reflections [10]. Large construction projects, such as Metro Line C, are known to depict a complex behavioral and institutional system, where divergent stakeholder interests have been widely recognized as one of the important issues impacting their performance [e.g., 15]. These projects have particular organizational characteristics including numerous internal and external stakeholders from both public and private sector, which interact

among each other regularly due to their diverse economic, social and environmental concerns and demands. These particular organizational characteristics make large construction projects a fruitful setting to explore the organization's capacity for overcoming organizational, technological and environmental complexity. The conceptual representation of the research method is represented in Figure 1.

Figure 1. Conceptual representation of the research method



### 3.2. Data Collection

Case study research offers the opportunity to combine and capitalize from different data collection methods [60]. Primary data was collected through participant-observation, field notes and semi-structured interviews. The data drawn from the two and half months of participant-observation, and the secondary data collected such as official materials from the project organization (e.g. EIA and cost-benefits analysis), independent studies from local community groups, government reports, websites and newspapers, triangulate and validate the semi-structured interview findings, which have been used in this study as the main source of data.

The Metro Line C project was observed, discussed and contextualized between the 4th October and 22nd of December 2011. The years between 2010 and 2012 resulted the most controversial time for the project, questioning its viability and benefits justification, thus depicting an illuminating context for analyzing different stakeholders' claims and expectations. Participant-observation was carried out at various events: underground project excursion, labor organization meetings on different building sites, public hearings, local communities meetings, archeological commissioner and environmental organization workshops, supplemented with visits to project's organization headquarter. Due to the challenging economic conditions, technical difficulties faced by the project and consequent multiple-stakeholders dissatisfaction, the data captured at that specific point of time offered and advanced prospective on the governance challenges that the Metro C project had to face at the organizational, technological and environmental level.

Apart from participant-observation, a total of 26 interviews were held with different stakeholders of the project, which lead to theoretical saturation [7]. Interviews were all conducted face-to-face, recorded and transcribed verbatim. The interviews were conducted and coded in Italian, but the quotes used in the final paper were translated in English by the researchers. All informants have been directly involved in the project and impacted or being impacted at some degree by its outcome, providing in-depth understanding on organization’s approach in dealing with interests and demands of different stakeholders. The population of the study is presented in **Table 2**.

**Table 2. Interviewees**

| Stakeholder Group                | No. | Interviewees   |
|----------------------------------|-----|--|
| State Government                 | 1   | Counsellor to the Presidency of the Council of Ministers |
| Council of Rome                  | 2   | Local Counsellor   |
|                                  | 3   | Local Counsellor   |
| Roma Metropolitane               | 4   | Director   |
| General Contractor               | 5   | Director   |
| Ministry of Culture and Heritage | 6   | Archaeological Commissioner                              |
| Urban Planners                   | 7   | Urbanist from Urbanism National Insitute                 |
| Transport Engineers and Experts  | 8   | Senior Transport Engineer                                |
|                                  | 9   | Project Manager  |
|                                  | 10  | Consultant Engineer                                      |
|                                  | 11  | Technical Expert   |
|                                  | 12  | Technical Engineer Consultant                            |
|                                  | 13  | Senior Transport Engineer                                |
| Transport Architects             | 14  | Senior Transport Architect                               |
| Construction Workers             | 15  | Builder  |
|                                  | 16  | Builder  |
|                                  | 17  | Team Leader  |
|                                  | 18  | Builder  |
| Local Businesses                 | 19  | Local Shop-keeper  |
|                                  | 20  | Local Shop-keeper  |
| Labour Union Organizations       | 21  | Regional Secretary                                       |
|                                  | 22  | Labor Union Representative                               |
|                                  | 23  | Labor Union Representative                               |
| Environmental Organizations      | 24  | Environmental Organization Representative                |
| Local Community Organizations    | 25  | Local Community Group Representative                     |
|                                  | 26  | Local Community Group Representative                     |



The reliability of the results was increased through an in-depth use of secondary data which helped to satisfactorily track any significant evolution over time and to overcome, at least partially, the temporary gap between the collected data and the findings presented in this study. The use of secondary historical data, including archival information, copies of letters, official reports, documentaries, and quality daily national and international newspapers, enhanced the longitudinal elements and richness of the study (Table 3).

Table 3. Line C Source and Amount of Additional Data

| Data   | Amount           | Source  |
|--|------------------|---|
| Cost Benefit Analysis: 2 reports                                       | 251 pages        | Roma Metropolitane  |
| Environmental Impact Assessment (EIA): 1 nontechnical report           | 64 pages         | Roma Metropolitane  |
| EIA – Buildings’ stability studies: 4 maps                             | 4 pages          | Roma Metropolitane  |
| EIA – Buildings’ stability studies: 1 report                           | 35 pages         | S.T.A. Agenzia per la Mobilita’ del Comune di Roma – Commissioned by Roma Metropolitane |
| Independent EIA – Buildings’ stability studies: 6 maps                 | 6 pages          | Local Community Organizations   |
| Letter of complaint to Local, Regional and State Government: 5 letters | 17 pages         | Local Community Organizations   |
| Letter providing an answer to Local Community Organizations: 1 letter  | 12 pages         | Roma Metropolitane  |
| EIA Evaluation: 1 report   | 36 pages         | Region of Lazio   |
| Official Bulletin – Region of Lazio: 1 document                        | 4 pages          | Regional Government of Lazio  |
| Line C Technological Choice: 1 report                                  | 59 pages         | Council of Rome   |
| Project Informative Report: 1 document                                 | 11 pages         | Progetto Celio – Local Community Organization   |
| Archaeological studies of the Roma Metro Line C: 1 report              | 300 pages        | Soprintendenza Speciale per i Beni Archeologici di Roma                                 |
| Project Executive Summary: 1 report                                    | 34 pages         | Metro C Scpa  |
| List of Contractors working on the Metro Line C: 2 documents           | 11 pages         | Metro C Scpa  |
| Concertation Agreement for Major Infrastructure: 3 documents           | 13 pages         | Metro C Scpa and Labour Union Organizations   |
| Ordinary and Extra-work Regulations: 1 report                          | 42 pages         | Labour Union Organisations  |
| Informative Monthly Reports: 2 reports                                 | 62 pages         | CGIL – Labour Union Organization  |
| New transport city plan for the city of Rome: 1 report                 | 29 pages         | Ordine degli Ingegneri della Provincia di Roma – Commissione Taspoti                    |
| Newspaper articles: 24 documents                                       | 36 pages (appr.) | Italian National Newspapers   |
| Filed visits   | 5                | Line C Building Sites   |

### 3.3. Data analysis

Informed by Braun and Clarke [9], we followed a systematic inductive approach to concept development. The motives behind this approach were to employ an inductive study with qualitative rigour, while retaining the creative, revelatory potential for generating new concepts and ideas. Therefore, in order to write a compelling and focused account, we draw particular attention to: (1) honouring the worldview of informants, (2) providing sufficient evidence for claims, and (3) contributing to extant theory [49].

All the interview transcripts were imported into NVivo 11 software package and inductively coded. The data were analyzed by following the six-phases of thematic analysis suggested by Braun and Clarke [9] which include familiarization with the data, generating initial codes, searching for themes, reviewing potential themes, defining and naming themes and, producing the report. The descriptive first-order concepts from the interviews were inductively detected and then matched to the relevant literature for comparison, contrast and similarity (analytic concepts) in order to provide the ground for the subsequent creation of sub-themes and final aggregate dimensions [6].

The analysis of the interviews produced more than 1000 initial codes covering the organizational, technological and environmental context of the case. The identified codes were then aggregated into a first-order descriptive concepts, providing the theoretical ground for contrast and comparison against the dimensions of project complexity as suggested in the literature. By matching the emergent descriptive concepts with the literature, analytic concepts were identified to capture patterns within the data, thus shaping the thematic analysis into a process focusing on comparison, contrast and similarities against patterns.

The rigor of the data analysis approach was enhanced by organizing data into descriptive and analytic concepts to facilitate their later assembly into a more structured form of identified sub-themes and final aggregate dimensions. By collapsing or clustering codes (descriptive concepts) with identified features of project complexity that seemed to share some unifying characteristics (analytic concepts) as suggested in **Figure 2 (page 340)**, 11 sub-themes were generated which were considered important in relation to the research question, namely: *How a combination of care and justice will enhance the system's capability towards an inclusive ethical approach to absorb and cope complexity in projects?*. Both the thematic and content analysis described a coherent and meaningful pattern in the data set [9; 13]. Therefore, it was noticeable that sub-themes clustered around 'disparate project stakeholders needs and demands' and 'organization response to coping with project complexity'.

## 4. FINDINGS

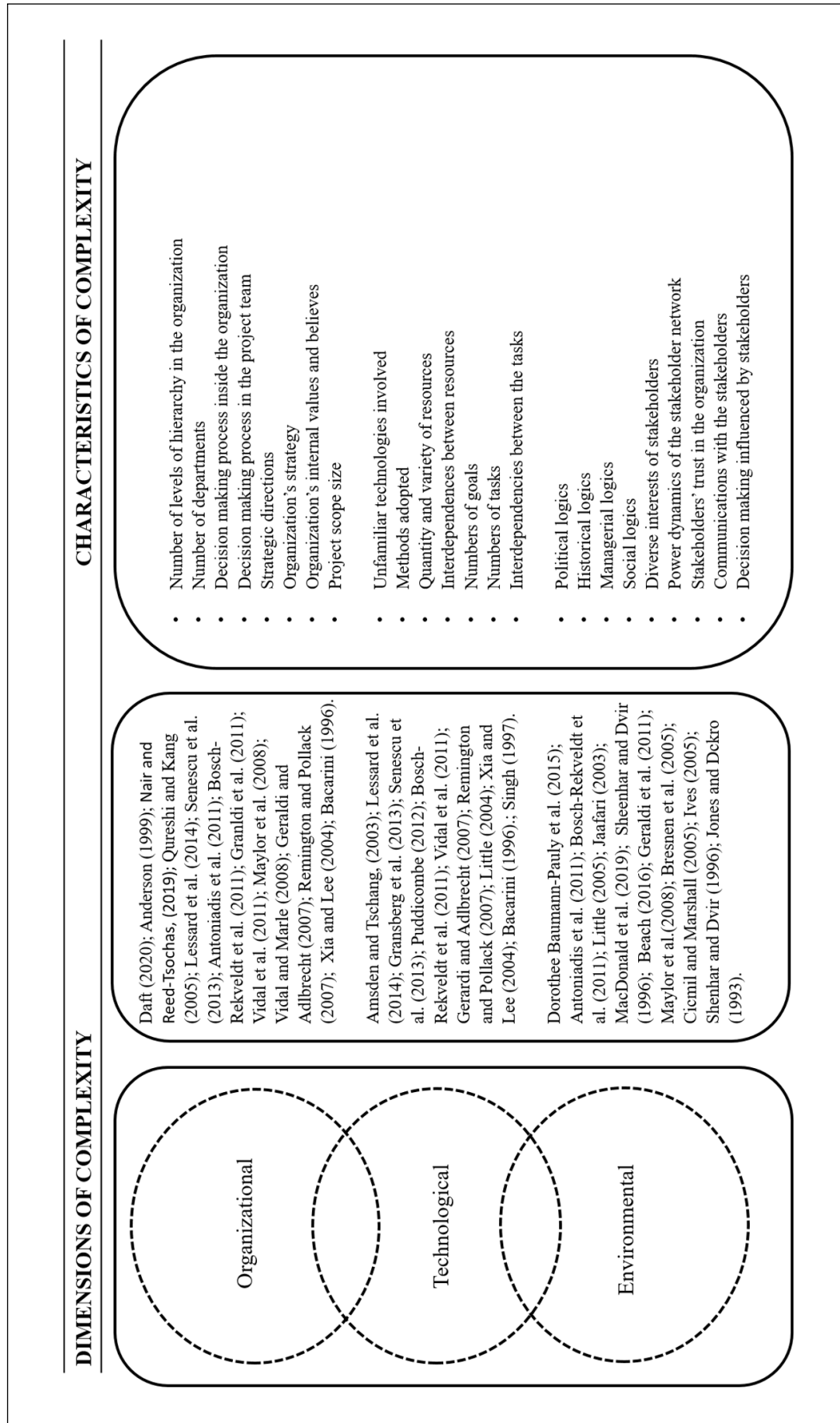
### 4.1. A flawed kickoff

Development of Line C metro in Rome was first announced in 1995 to great enthusiasm and support from both politicians and citizens. The project aimed to connect the city of Rome (with a population of three million people and only two other underground lines at that time) from the southeast to the northwest.

*"Line C was the main project in Rome, which covered the 70% of the total budget provided by the Government for the Jubilee 2000. This represented the two third of the total Italian infrastructure funding"* (Counsellor to the Presidency of the Council of Ministers)

Therefore, due to this strategic and financial significance, from the very first days the project became a place for politicians to impose their power and influence:

Figure 2. Analytic concepts development



Daft (2020); Anderson (1999); Nair and Reed-Isochas, (2019); Qureshi and Kang (2005); Lessard et al. (2014); Senescu et al. (2013); Antoniadis et al. (2011); Bosch-Rekveltdt et al. (2011); Granlidi et al. (2011); Vidal et al. (2011); Maylor et al. (2008); Vidal and Marte (2008); Geraldi and Adlbrecht (2007); Remington and Pollack (2007); Xia and Lee (2004); Bacarini (1996).  
Amsden and Tschang, (2003); Lessard et al. (2014); Gransberg et al. (2013); Senescu et al. (2013); Puddicombe (2012); Bosch-Rekveltdt et al. (2011); Vidal et al. (2011); Gerardi and Adlbrecht (2007); Remington and Pollack (2007); Little (2004); Xia and Lee (2004); Bacarini (1996); Singh (1997).  
Dorothee Baumann-Pauly et al. (2015); Antoniadis et al. (2011); Bosch-Rekveltdt et al. (2011); Little (2005); Jaafari (2003); MacDonald et al. (2019); Sheenhar and Dvir (1996); Beach (2016); Geraldi et al. (2011); Maylor et al.(2008); Bresnen et al. (2005); Cicmil and Marshall (2005); Ives (2005); Shenhar and Dvir (1996); Jones and Dekro (1993).

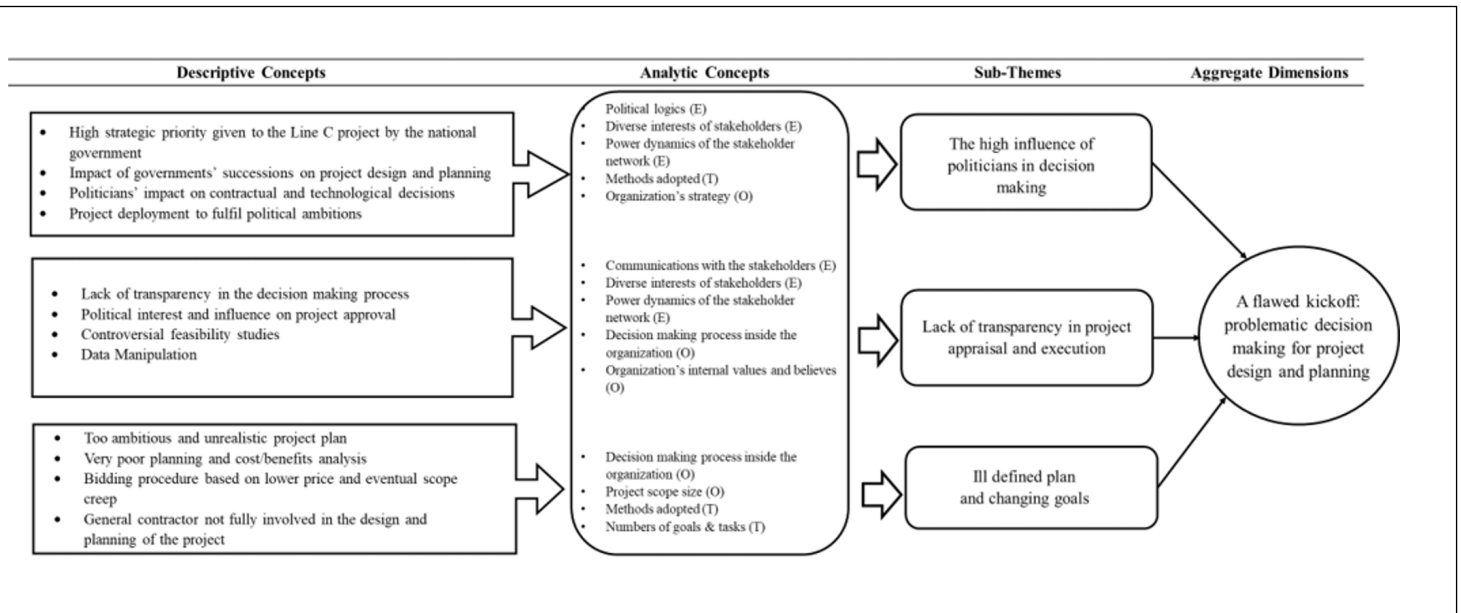
*“Every politician involved presented himself as promoter of an important project, proposing new ramifications.”* (Senior Transport Architect)

*“In 2001, new National and Local government replaced the previous one and the project was resuscitated with a different layout based on new political preferences. And this kept happening after each political change.”* (Local Counsellor)

From 1995 until 2000, Italian Ministry of Infrastructure and Transport of the time commissioned a set of feasibility studies for development of the preliminary plans of the project. In 2001, the Inter-departmental Committee for Economic Planning (CIPE) approved the strategic importance of the project and the necessity for funding. Roma Metropolitane, operating on behalf of the Municipality of Rome, was selected as the focal organization to deploy the project.

Due to the high strategic priority given to the Line C project by the national government, it was approved under the “Objective Law” allowing the Italian government to approve the project funding even in the lack of a definitive plan. According to the informants, this law was the origin of excessive flexibility in the project and was extensively misused by the politicians and project organization, both. The politicians used this law to change the project scheme constantly based on their personal interests, and Roma Metropolitane used this as a justification for their problematic management: *“The indecisive project led to infinitive changes in planning and development process dictated by political games and the politicians’ self-interests. This was also a saving anchor for the project team, as it covered their flawed decision making and to their lack of competencies in managing the project.”* (Regional Secretary)

Figure 3. Data analysis process leading to a flawed kickoff dimension



Prior to 2003, no information about the project was disclosed to the citizens of Rome. A governmental law obliged Roma Metropolitane to publish the relevant documents to the public. The published documents were so deviated from the reality that our informants from local community describe them as “shocking”. Many of the informants believe that the Environmental Impact Assessment studies of the project, together with the ridership estimations, justifying the ambitious scope of the project, were manipulated by the focal organization, or were poorly conducted at best, just to satisfy the politicians’ ambitions. The decisions made based on these studies imposed high levels of risk to many stakeholders and engender scope shrink, cost overrun and delay in the project:

*“It was their priority to receive funding from the government rather than conducting a thorough feasibility study. There were many controversies regarding archaeological issues, health and safety, and ridership forecasts. As a result, few stations had to be removed from the initial plan or and the overall route is drastically changed.” (Senior Transport Engineer)*

*“We could have taken the local government to court for such a criminal act... We were not informed about the risk of the project on the stability of our houses as a result of tunneling activities in the old town” (Local Community Group Representative)*

Considering the peculiar conditions of the old city of Rome, together with the high number of archaeologically significant locations along the route, the experts suggested opting for a rubber-tyred mini-metro, instead of the traditional steel rail system. This option would have mitigated the vibrations and secured the stability of the old houses. Yet again politicians' interest influenced the outcome of this crucial decision; while the *“experts' recommending mini-metro option never received any feedback, the mayor of Rome rushed to sign a contract with the state railways' president to procure the steel rail system.”* (Environmental Organization Representative).

In 2005, the project bid was finally published by Roma Metropolitana, to be assigned in 2006 to the general contractor, Metro C ScpA – a consortium comprising from five major Italian companies. While Metro C ScpA was responsible for the construction activities, as the focal organization, Roma Metropolitana remained in charge of the planning, design and governance of the overall project.

## 4.2. A faulty management

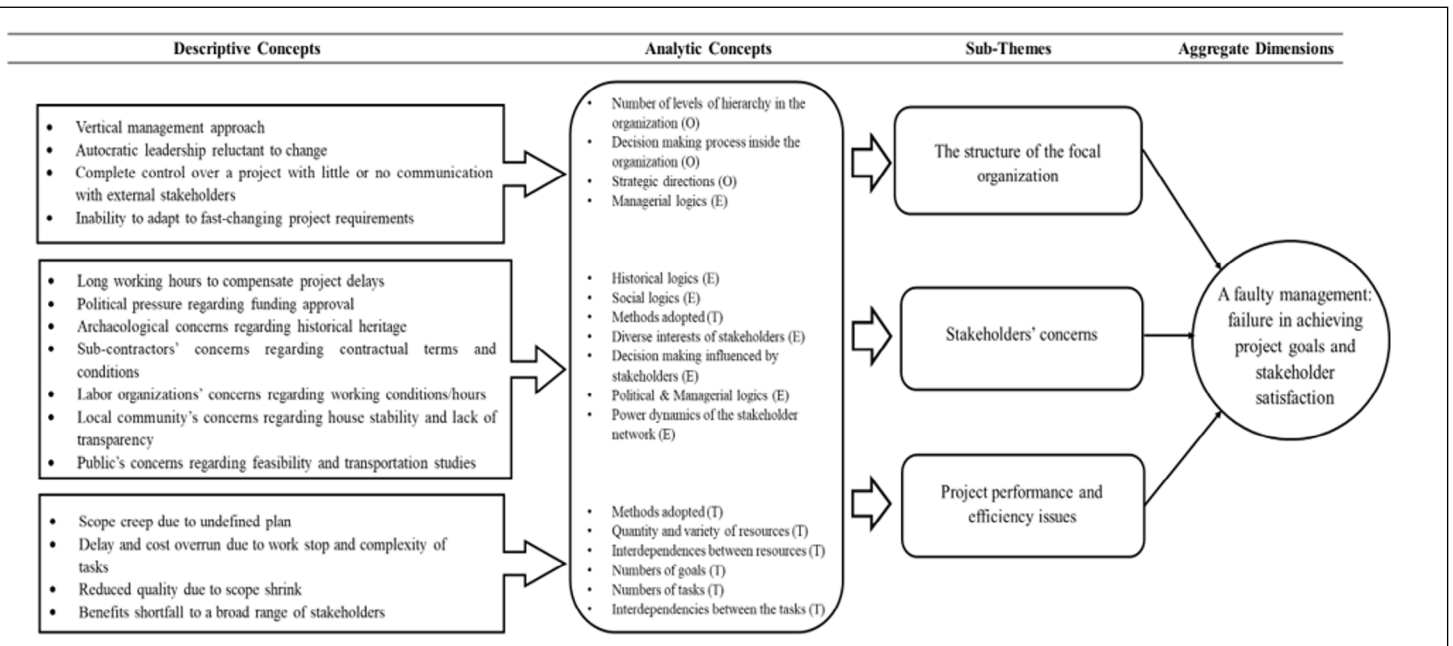
The political pressure exercised over the Line C, together with the complex context of the project, had an impact on the management approach of the Roma Metropolitana. The focal organization operated in isolations driven by an autocratic approach in the decision-making process. This simplified approach considered close inclusion of politicians and the general contractor at the organization level of the project and exclusion of all other stakeholders. The focal organization, together with the involved politicians and the general contractor barely involved other stakeholders in the process of decision making and moreover, the stakeholders' request for receiving information about the project was constantly rejected.

From 2003, when the first information about the project was released, the local community, the council of Rome, archeologists and even the technicians and managers who were involved in project execution on a daily basis started to question the general feasibility of the project and the potential value it can deliver to the public: *“I really hope that the Environmental Impact Assessment (EIA) will be conducted again for a better evaluation. This project is executed to satisfy its constructors. It does not belong to the public.”* (Project Manager)

*“The main route is planned to pass beneath the old town. The building foundations are quite weak in this area and even a few millimeters of sinking can result in considerable disruptions.”*  
(Senior Transport Engineer)

*“Any destruction of these archaeological sites is like murdering not only your past civilization but the civilization of Europe. This is what the project will do.”* (Archaeological Commissioner)

Figure 4. Data analysis process leading to a faulty management dimension



An association from citizens of old Rome commissioned a set of independent studies to evaluate the influence of the tunneling activities beneath their homes. Quite differently from the official announcements, the results of these studies showed that the construction of the metro line in that area is very hazardous for the stability of the homes. Local community asked for immediate suspension of the project work: *“We wrote several letters to both state government and the regional government. We subsequently received a lame excuse from Rome Metropolitane.”* (Local Community Group Representative)

While according to the interviewed technicians even very sophisticated retrofitting structures could not guarantee the safety of vulnerable buildings of the old Rome, the Roma Metropolitane suggested that *“using a stronger layer of concrete above the tunnels”* (Senior Transport Architect) would solve the safety issue of these homes. Nevertheless, using this suggested technique in the construction of Barberini station resulted in cracking in the nearby buildings.

Discovering items with archeological significance during the excavations and the consequent controversy, forced the focal organization to initiate archaeological investigations at one of the ends of the metro’s main route in 2006. To address the controversies, the general contractor states that since they were not involved in the feasibility studies of the project, and that: *“The available feasibility studies focused more on the central part of Rome. It was believed that the suburban areas were archaeologically less risky. This turned to be wrong.”* (Director of Metro C ScpA)

The results of the new studies revealed that the negative impacts of the project on the historical heritage of the city are even beyond the previous estimations. Yet the focal organization refused to stop the project: *“Lots of money has been spent in the project and the Line C must be completed despite the public opinion. We are not taking the project completion as an option. It is a fundamental plan for the sustainability of Rome’s transportation system as it aims to reduce traffic in the city center.”* (Director of Roma Metropolitane)

*“The main point is whether the archaeological preservation must prevail to the general public interest to build a new underground line?”* (Urbanist from Urbanism National Institute)

Despite the Roma Metropolitana's persistency on continuing the project, removal of some of the stations was inevitable. Some other stations were also removed from the initial plan due to their potential risks to stability of the homes or archaeological impediments. The focal organization decided to add 10 other stations "*where the recently renovated tram-line was more than sufficient for the traffic load of that area*" (Technical Expert).

The construction process was constantly suspended due to the two abovementioned issues; the house stability and archaeological heritage. Consequently, the project experienced substantial delay and cost overrun, resulting to a funding issue in 2009. "*The funding was substantially reduced from € 1.2 billion to €760 million.*" (Regional Secretary). The initial plan included construction of a museum at Colosseo station. This museum was removed from the plan in response to the lack of financial resources. The overall route of the project was also shortened for the same reason, as announced by the Director of Roma Metropolitana. Nevertheless, according to our informants "*the decision (route reduction) was motivated by new ridership forecast that did not justify the construction of the longer metro line.*" (Urbanist from Urbanism National Institute)

Due to these changes in the project scope a sense of deception rose among stakeholders questioning the real value of the project and its economic and social benefits. Both interviews and secondary data show that transportation studies did not justify a project which lost important nodes and stations in the city centre:

*"The Line C won't have enough passengers. A valid alternative route was proposed by the Association for the Traffic and Transport Engineering, but it was ignored and not even used by Rome Metropolitana as a comparison with the chosen layout. There is a clear autocratic approach not willing to listen."* (Senior Transport Engineer)

*"The most important stations and the exchange nodes that were the main driving reason for construction of the metro line have been removed one after the other. This rose doubts about the viability and quality of an underground line that has no connections in the city center."* (Urbanist from Urbanism National Institute).

*"Stations in the suburbs are really close to each other, in the city center they are less frequent. It should be the opposite! This will negatively affect the users."* (Technical Engineer Consultant)

The unethical culture of excluding stakeholders and imposing high risks to them for little value was not only established in the focal organization but was also extended to the main organizations close to the Roma Metropolitana. The consortium of five main Italian construction companies, Metro C ScpA, did not directly execute any piece of work of the project. They rather subcontracted the project work to many smaller construction companies "*with thin margins and under their own terms and conditions*" (Regional Secretary). There were two issues incorporated with the agreements made with these companies. First, these small companies had no clue of the amount of risk they were going to bear by signing the contract, as the detailed information about the complex condition of the project location and the unforeseen archeological restrictions was never shared with them. Second, many of these small companies did not even have enough managerial competencies to understand that the conditions of the contract proposed to them were extremely unfair: "*These (contractual) problems are born out of lack of qualified managerial personnel within the small businesses. They do not understand the higher risks of contract terms and conditions stipulated by the General Contractor.*" (Labor Union Representative)

Therefore, during the suspension period the subcontracted companies were penalized by Metro C ScpA for not completing the work package within the given timeframe, even though they were not responsible for the unforeseen issues. Subcontractors went bankrupt one after the other while the Roma Metropolitana and Metro C ScpA continued to receive the funding from the Italian government [33]. Similarly, during several project suspension Metro C ScpA laid off the construction workers within

short notice and without paying them: *“In the morning we went to work, and in the afternoon we were told we had to leave the building site. Fortunately, I managed to sign a contract with another company. Otherwise, I would have been jobless like many of my colleagues.”* (Builder)

And when the construction work initiated again, the workers were asked to work overtime to cover the delayed work, without the extra payment: *“We already work 9 hours per day and often on Saturdays too. Metro C ScpA always asks us to work for even more hours. We would willingly do so if they pay us for the extra work. But they do not.”* (Construction Team Leader)

*The disagreeable working condition raised concerns from European Union and Italian labor unions: “A strong criticism came from Brussels regarding the Metro C ScpA, since, according to the European regulations, workers must not work more than 250 extra hours per year.”* (Labor Union Representative).

Italian labor unions tried to arrange joint meetings with workers and the general contractor to discuss and improve the working condition. However, the general contractor did not even permit the labor gathering, not to mention sending their representatives to participate in the labor union meeting.

### 4.3. A backfire

Roma Metropolitana and its allies tended to have an absolute control over the project and the amount of risk imposed to the stakeholders. The project’s unforeseen costs, much of which engendered by the politicians’ ambition in project deployment and consequent flawed planning of the project, were all bore by marginalized stakeholders of the project, such as citizens of Rome, local community, construction workers and subcontractors.

After several amendments in the project scope, the formerly ambitious project had to find new reasons for its existence, and justify the drastic scope creep, together with the substantial cost it imposed on the state and public. When questioned, the Director of Roma Metropolitana blamed the archaeological constraints for the poor performance of the project. Nonetheless, according to the Archeological Commissioner: *“[the archeological concerns] can only take the 50% of blame but not 100% for the unnecessary suspension... There was never an adequate and solid plan for the project”*.

Roma Metropolitana and the general contractor tended to safeguard each other constantly. In 2013, for instance, a new contract agreement was signed between the focal organization and Metro C ScpA to impose penalties to the general contractor for any delays not resulted from archeological issues. Enacted by this contract, Metro C ScpA was able to link all time overruns to the archeological issues and still receive funding from government.

A sense of uncertainty and lack of clear directions was perceived across all participants directly and indirectly involved in the Line C project. Both secondary data sources and interviews elucidate how through the years project managers and political parties involved in the promotion of the Rome’s transport system have made inaccurate claims on Metro Line C project: *“Project promoters for years have made numerous unrealistic claims on time schedule for completion and budget for the Line C project. These communications were too often misleading and inconsistent. The fact is that they did not have a clear idea of the project since the beginning.”* (Technical Engineer Consultant)

The inconsistent messages towards stakeholders have generated general skepticism and mistrust around the project: *“Metro Line C project is a pawn in [the politicians’] political games. The citizen consultations have never been carried out to understand their needs.”* (Regional Secretary)



*“It is easy for Roma Metropolitana to hide the fact by mentioning the reason for frequent project suspension is due to the archaeological issue to cover their own lack of planning competence”*  
(Archaeological Commissioner)

After several tries, the citizens of Old Rome managed to unearth the lies within the Roma Metropolitana reports. Roma Metropolitana finally had to admit its incompetency and mismanagement yet again with another fabricated claim that the wrong information was published because of ‘a printing mistake’. On account of widespread dispute around the project, in 2018, 25 individuals were investigated by the Italian Finance Guards, among whom is the former mayor of Rome and director of Roma Metropolitana, for accusation of bribery of a total amount of €320 million during their tenure in the years 2011–2013 [33].

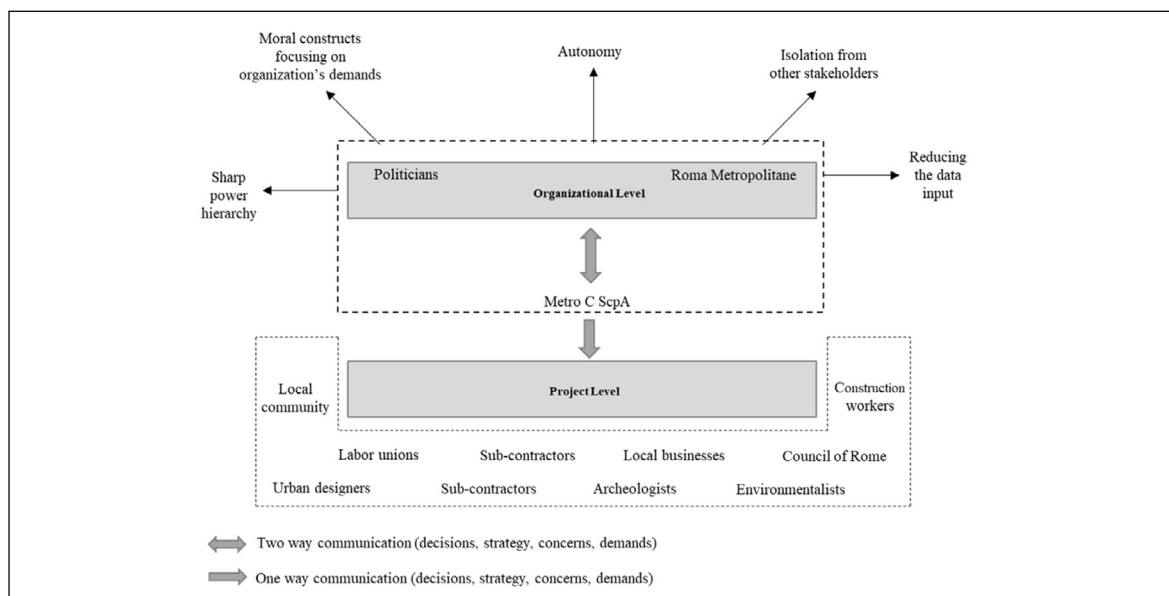
The wishes for a positive economic spin due to the development of high-speed transport systems of Rome quickly turned up to drain the public resources available, transforming the project into one of the most controversial developments ever undertaken in Italy. From its initial 42.2 kilometers and 41 stations, the metro has shortened to 25.6 kilometers and 30 stations, with an unreliable promise of opening in 2023, the project has so far resulted in bankruptcy of many of 200 subcontracted companies involved in the construction works with their workforce and contributed to anxiety and disappointment of many citizens.

As this drastic condition can tell, not only the focal organization’s decision to exclude stakeholders’ input from the initiating phase of the project resulted in stakeholder disappointed, but rather the following poor project performance added to the mistrust of diverse groups of stakeholders. The organization’s decision to simplify the context by limiting the stakeholder input backfired to complex the condition ever more, to the level to swamp the Roma Metropolitana, the politicians and Metro C ScpA, altogether.

## 5. DISCUSSION

Our discussion in this section will examine the decisions made at the organizational level, and their implementation at the project level in relation to the complexity and the immoral behavior conducted at all levels of this case. At the end of this section, we will propose an alternative approach to be adopted for organization’s moral behavior.

Figure 5. Decision making process and management structure of Metro Line C project



## 5.1. Organizational level

From the very early stages of the project, Roma Metropolitana was aware of different dimensions of complexity embedded in the project and present at its context. The results of our analysis indicate that, although not fully and clearly, yet the plausible issues with archeology and the stability of the houses in old Rome, the ambiguities regarding the ridership and the length and direction of the route were all known to the organization. Therefore, it can be argued that the focal organization was able to forecast that the project would negatively influence a wide range of stakeholders. Nevertheless, Roma Metropolitana exhibited no intention of considering these negative influences in their decision makings. On the contrary, to cope with complexity, Roma Metropolitana reduced the data input from many stakeholders [48], and limited the focus on satisfaction of few powerful actors of the network of stakeholders.

As a result of this approach, the focal organization utterly isolated itself from the complex environment. The communications with majority of stakeholders either did not exist or conducted at very superficial levels. This approach created a hard border between the focal organization and the external world [17; 45], avoiding any engagement with other stakeholders. This isolation was also driven by the aim for project justification and approval through misrepresentation of data and simplification in the process of decision-making [24].

Roma Metropolitana's approach to the stakeholder resembles immature justice oriented approach [32; 31], where the organization has an autonomous ontological definition isolated from its network of stakeholders [69], and the considered moral constructs reflect the organization's needs solely [56]. Roma Metropolitana was adopting a top-down managerial approach with a sharp hierarchy inside and outside of the organization with majority of decisions being made inside the borders of the organization, concentrated at the top level managerial board, and in collaboration with powerful politicians. That is, the ultimate authority was hold by top managers while other personnel at different levels of organization were just receiving the results of the decision-making processes to implement them. These decisions were not democratic as they were not open to alternations according to the new knowledge received from the actualities of the project and implemented decisions.

Centralized decision-making process of Roma Metropolitane, based on command and control and extreme hierarchy, resulted in neglecting a vast majority of new inputs that could be received from diverse sources of knowledge about the project. This attitude further widened the border between the organization and the external world and resulted in a big gap of knowledge transform between the both sides of this border and stakeholders distrust in the decisions that may influence them the most. The intrusion of powerful actors in the stakeholder network has eventually taken the control of the relationship between other stakeholders of the network and the focal organization. Expressly, the power dynamics of the network of stakeholders shaped the engagement and communication with the stakeholders trying to align them with project objectives, another resemblance to immature justice-oriented approach [15].

## 5.2. Project level

Our analysis reveals that the immature justice-oriented behavior was not only observed at the organizational level, but was also permeated to the project level, where Metro C ScpA was encountering the sub-contractors, engineering experts, construction workers, local businesses and citizens of Rome. Quite similarly to the approach adopted by Rome Metropolitana, the general contractor tended to repeatedly justify its decisions with the importance of deploying the project and neglect the substantial harm the project was imposing to many of the stakeholders. At the project level,

this behaviour resulted in sharpening the power hierarchy of the network stakeholders. During the project execution, the less powerful stakeholders, such as construction workers and local business owners, were shoved to a weaker position, while the general contractor kept its position as the most powerful stakeholder at the project level.

Metro C ScpA maintained its strong relationship with the organizational level, pursuing to fulfil the ambitions of politicians and Roma Metropolitana, yet barely made any direct contacts with the less powerful stakeholders. The efforts of labour unions, citizens of Rome and other stakeholders to make their demands and concern vocal was often blocked by Roma Metropolitana. Being engaged with the project activities on a daily basis, the stakeholders at the project level could be the best source of knowledge about the ambiguities and complexities of the project. Nevertheless, this valuable source never received any attention from the alliance of the focal organization, general contractor and politicians and, as it was explained before, other actors at the project level were only expected to implement the decisions made at the organizational level.

The approach adopted by focal organization and its alliances, resulted in project being always behind the emergent changes imposed by the context. Embedded in a highly complex environment, being reactive to the changes of the environment was not a wise strategy as the organization was always surprised by emergent alternations. This has consequently led to the organization's poor performance in not only addressing the concerns of divergent stakeholders, but also in delivering an output (i.e. metro line) that can be efficiently used by the citizens of Rome and make politicians and the focal organization proud.

The question then rises, in such complex settings and with several convoluted ambiguities, with several stakeholders' divergent concerns and demands, was it possible to adopt a moral behavior towards stakeholders? In another words, can decision makers of such complex system consider the demands of all stakeholders and be ethical to them, and if so, then what should happen to the project itself?

To address these challenges, in the following section, we propose our framework for ethical management of complex systems.

### 5.3. A proposed framework to cope with complexity

Our suggested framework builds on and contributes to the research on ethics of care [12; 29; 37; 68; 69], and moral management of complex systems [5; 21; 36; 48; 67]. Drawn from ethics of care and justice, this model considers a new definition for the organization as an entity. This definition departs from the traditional definition of organization as a proxy of top management and powerful stakeholders and their interests [68], and, instead, views the organization as a web of contractual and non-contractual relationships [37]. Together with the focal organization, the stakeholders at the network in which the organization exists, are able to have their valuable inputs into and support the organization in making better decisions. The existence of the organization, in this view, is being influenced by other members of the network [37; 42].

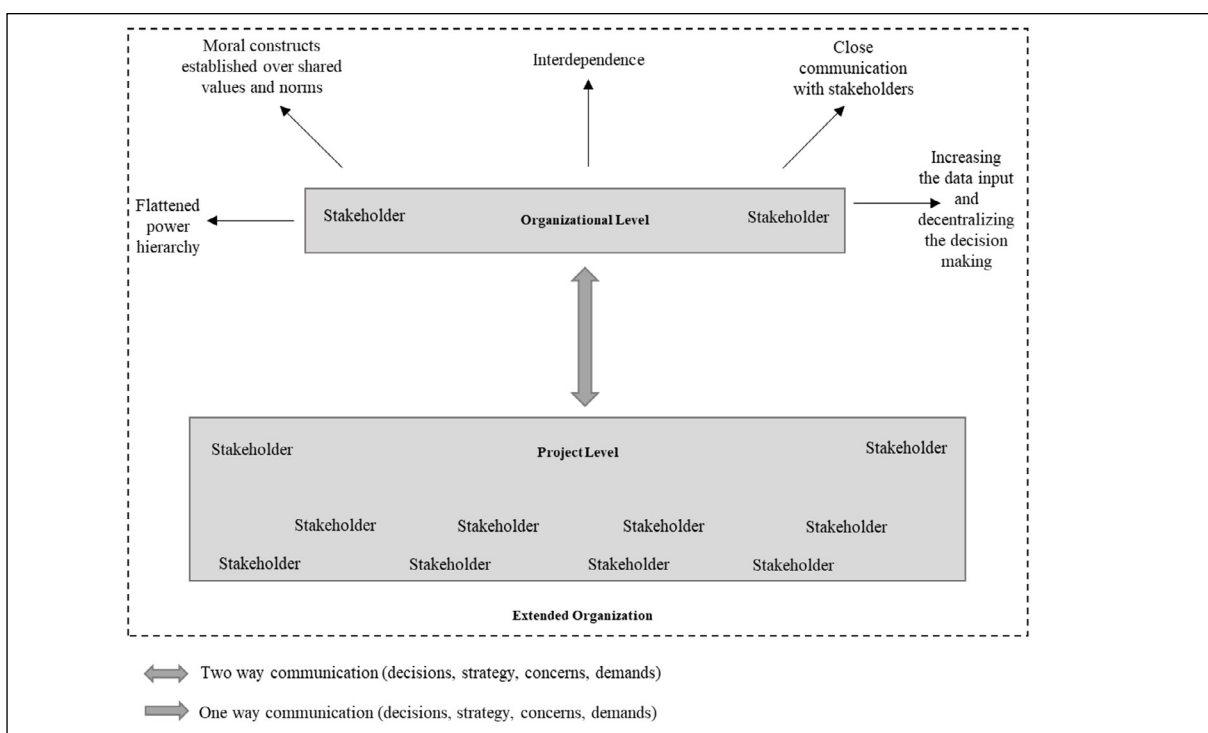
Stemmed from ethics of care, we define that the organization's existence cannot be separated from its relationships [52; 53]. As we propose, an organization managing within a complex setting needs to extend its borders to include more sources of data input from diverse stakeholders into the extended organization. Yet this interdependence does not aim to dissolve the organization, as an entity, in the nexus of stakeholders [29; 68]. At the organizational level, established over shared understanding of societal norms and values or certain universal principles [15; 56], thus with inclination to mature justice [31; 32], organization provides the formal contracts, codes of ethics, and

mission statements, as the sources of ethical reasoning for all of the actors and conducted processes in the extended organization. Such organization is characterized by its reluctance to simplify the set of stakeholders to whom the organization or individuals within the organization should hold themselves accountable [5]. Therefore, at the organizational level mature justice secures the moral consideration of stakeholders concerns, while the organization maintains its existence as the main actor in the network of stakeholders.

Applying this alternative approach to the studied case, for instance, Roma Metropolitane could have made agreements with the Italian government for considering the design and development of a metro line in Rome. But in addition to maintaining the relationship with politicians, general contractors and Italian government, Roma Metropolitane would have the responsibility of assuring that close communications with all stakeholders would ensure that their voice are heard, their concerns are considered in the decision makings and that all stakeholders are protected agaist any harm imposed to them because of the project. The detailed decisions about the applied technology, route and stations should have been remained as a gap. A gap that would be filled by the input coming from the stakeholders at the project level. Those who have the adequate experience, knowledge and expertise to fill that gap.

In highly complex structures with diverse stakeholders involved, the duty of communication with these stakeholders cannot be centralized into the top management level. Identification of the needs of others, or attentiveness, is prone to contamination with the viewpoint of the organization decision makers or even the needs of the organization [34]. Therefore, the perfect understanding of the needs of others is not possible [52; 53], but developing a mutual understanding is doable through continuous practice and within close relationships [37; 42]. The relationships between the organization and its stakeholders lead to clarification of other dimensions of care as it defines what are the demanded cares (caring about or *attentiveness*), what should be taken care of (taking care of or *responsibility*), how caring activities must be carried on (care giving or *empathy*) and finally how the care is received by those who demanded that (care receiving or *responsiveness*).

Figure 6. Decision making process and management structure of the extended organization



Therefore, in our proposed model the project level, the loci of communication, and consequently decision making, are decentralized to include the views of stakeholders or their representatives. By following an ethical approach in achieving organizational purpose and goals by fostering the proactive involvement and harmonizing the interests of all stakeholders [e.g., 25] the focal organization encourages the powerful stakeholders at the project level, such as Metro C ScpA, to keep the close communication with a broader range of stakeholders and follow the focal organization's code of conducts. The organization's responsibilities towards the stakeholders transform into giving care to them, where the meaning of care is socially constructed between the care giver (i.e. the organization) and the care receiver (i.e. the stakeholders) [12; 42], rather than being essentially defined by the organization and its allies at the organizational level. This approach will accordingly result in flattening the power hierarchy of the network of stakeholders [37], as several stakeholders with different roles acquire decision-making authority and are protected against the harm that could have been imposed to them because of the project. In addition, decentralizing decision making will empower stakeholders as their concerns and demands are considered in the decision-making process and their vulnerabilities are protected by the care given to them.

Despite this approach will increase the collective complexity of the system as a whole, it in fact amends the over allocation of complexity of decision making imposed to a certain group of stakeholders (i.e., top managers), thus preventing overwhelming and incidents of mistakes [48]. Due to the vicinity of decision makers to the sources of complexity in the ambient, the system as a whole (i.e., the extended organization), becomes more adaptive to the complexities and ambiguities of the projects at the organizational, technological and environmental level.

The flexibility embedded in caring allows for creative resolution of ethical decision makings [27]. This capacity becomes more significant within complex contexts as allowing the individuals to become more creative in diagnosing and solving issues would support the organization in increasing the efficiency of the project as well. In fact, the complexity literature has noted that too much emphasis on extensive rules, standards, and procedures may actually increase errors by disallowing initiatives in responding to situational nuances that require different behavior [11].

With the help of legitimate stakeholders at the local level, the focal organization develops close bond relationships with these stakeholders at the project level and the benefits of such bonds are twofold; they allow the organization to identify better the complexities of the project and its context and provides stakeholders with the care they ask for.

## 6. CONTRIBUTIONS TO THEORY

In this article we aimed at bringing an alternative view on tackling complexity in projects which does not only allow the organizations to become more adaptive to the changes imposed to the project system by the external world, but secures a moral behavior towards a wider group of stakeholders. In doing so we delved into a in-depth case of Rome Metro Line C project and analyzed the viewpoints of several stakeholders influenced by the decisions made within this project.

Analyzing the data gained through 26 interviews, direct observations and secondary data elucidated that, quite similar to the prevalent approach of organizations facing complexity, the approach adopted by project organization in metro Line C for coping with the demands of numerous stakeholders was simplifying the context with neglecting the concerns of majority of them and focusing on fulfilling the duties towards a much narrower group of actors. From a moral perspective this reductionist approach has resulted in considerable dissatisfaction of those legitimate stakeholders who are marginalized in the decision makings while, on the other hand, has led the project organ-

ization to a condition of total alienation from its external environment and constantly becoming surprised by the emergent changes imposed to that from the complex external environment. In the alternative view we proposed in this article, coping with complexity is done through making the coping system more complex. Extended from ethics of care we suggest that in highly complex contexts, the army of individuals tackling the complexity must be increased. That is done through organization hampering its hierarchy, making close bond relationships with stakeholders at the organization's border and constructing its knowledge, from the stakeholders' demanded care and their emerging concerns alike, on that level. As the diametrical opposition to the justice approach which suggests having an autonomous decision maker at the focal organization, this approach decentralizes the decision making to several loci of communication, thus makes the system more complex while is better able to cope with the complexity of the project environment.

We believe this alternation in coping with complexity provides one stepping stone for the emerging discussion on managing projects in complex settings while, simultaneously, it contributes to the ethical aspects of managing projects by suggesting a more inclusive approach to stakeholders. By embracing this perspective, future empirical research can explore how over relying on justice can be moderated by care giving in complex settings and how within diverse contexts care giving can be embodied by individuals and organizations to tackle complexity. The actualities of incidents of successfully coping complexity through relationship building and knowledge construction must be observed, analyzed and discussed in order to flesh out the approach suggested in this article.

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