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**Citation:** Cacciatori, E. & Prencipe, A. (2023). Projects, capabilities, and innovation: Rome's Jubilee as vanguard project for the Italian Civil Protection Department. In: Davies, A., Lenfle, S., Loch, C. H. & Midler, C. (Eds.), *Handbook of Innovation and Project Management*. (pp. 393-407). Cheltenham, UK: Edward Elgar. ISBN 9781789901795 doi: 10.4337/9781789901801.00030

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**Link to published version:** <https://doi.org/10.4337/9781789901801.00030>

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**PROJECTS, CAPABILITIES, AND INNOVATION:  
ROME'S JUBILEE AS VANGUARD PROJECT FOR THE ITALIAN CIVIL  
PROTECTION DEPARTMENT**

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**ABSTRACT**

This chapter examines how the Italian Civil Protection Department developed its capabilities for handling major public events. Section 1 provides an introduction to project capabilities and their role in innovation. Section 2 discusses the case of the Italian Civil Protection Department. The case highlights the role of vanguard projects as formative events for participants. These formative events produced social networks that remained at the core of the Civil Protection Department activities, and supported economies of repetition in following projects. These social networks also provide the context for the contribution of expertise from different participant organizations and for the use of artifacts embodying past experience to coordinate activities. Economies of recombination become complemented by adaptation and by ad-hoc activities. Thus, the section highlights the role of social networks and artefacts as the micro-conditions to create and redeploy of project capabilities. Section 3 concludes by highlighting directions for further research.

**Acknowledgements.** We would like to thank the Dipartimento della Protezione Civile for providing access, and the interviewees for contributing their time and expertise. A special thank you goes to Stefano Ciavela (Dipartimento della Protezione Civile – Emergency Planning and Management) for sharing his deep knowledge of the department and helping us in organizing the fieldwork. The chapter reflects the authors' interpretation of the case study data and cannot be attributed to Dipartimento della Protezione Civile or its employees. Dajana D'Andrea's work as a research assistant is gratefully acknowledged. The chapter has benefited from comments and suggestions from Gernot Grabher. Partial funding from the Italian Ministry of Research (Grant No. RBNE0389NY) is gratefully acknowledged. Usual disclaimers apply.

**Suggested citation:**

Cacciatori, E., Prencipe, A., (forthcoming). Projects, capabilities, and innovation: Rome's Jubilee as vanguard project for the Italian Civil Protection Department, in: Davies, A., Lenfle, S., Loch, C.H., Midler, C. (Eds.), *Handbook of Innovation and Project Management*. Edward Elgar.

## PROJECT CAPABILITIES AND INNOVATION

Project capabilities refer to the “distinctive managerial knowledge, experience and skills, which are located within a single organisation (a firm) and are required to establish, coordinate and execute projects” (Davies and Brady, 2016: 314). The notion of project capabilities was first put forward by Davies and Brady (2000), and emerged from an effort to improve understanding of innovation dynamics in industries supplying complex customized goods, such as construction, engineering design, aerospace, software, and telecommunication networks, where production activity is carried out through projects. These “project-based industries” are a critical part of the economy, because they are a large share of it and because they tend to produce complex, technology-intensive investment goods that feed the economic and innovation activities of the rest of the economy (Hobday *et al.*, 2000). In these industries, innovation displays dynamics different from those characterizing the mass manufacturing contexts of mainstream innovation studies. In project-based contexts, innovation is often driven by specific clients demands, takes place together with the production phase during the project, involves the coordination of technical capabilities and innovations distributed among a large number of partners coordinated by a systems integrator, and is constrained by demands for reliability and often regulation to a much higher degree than most manufacturing goods (Davies *et al.*, 2011; Gann and Salter, 2000; Miller *et al.*, 1995)

Firms operating in these industries, which are often described as ‘project-based firms’ (PBFs) (Gann and Salter, 2000) or ‘project based organizations’ (Hobday, 2000), face distinctive challenges in their innovation activities.<sup>1</sup> A key such challenge stems from each project being an ad-hoc, temporary, and typically fairly autonomous organization, with its own structures and, at times, distinct organizational identity. This leads to projects being good at innovating, but bad at transferring innovation and learning across projects and to the firm as a whole (e.g., Gan and Salter, 1998; Hobday, 2000; Scarbrough *et al.*, 2004). PBFs were seen as particularly challenging environments for the development of firm-level capabilities. A firm’s capabilities embody its knowledge of how to do things. They take the form of organizational routines, that is, stable organizational processes that developed by trial and error as the firm works out how to carry out its activities (Nelson and Winter, 1982; Salvato, 2009). Thus, when innovating, a project would develop its own capabilities by developing new dedicated routines, but the learning embedded in these routines would be very

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<sup>1</sup> In the rest of the chapter, we use PBFs as shorthand for both project-based firms and project-based organizations.

difficult to transfer to subsequent projects because routines are highly tacit and context-dependent, and thus difficult to transfer (Szulanski, 1996). The temporary and ad hoc nature of projects was thus seen as a major obstacle for developing firm-level routines that would effectively embody learning at project level (Bresnen *et al.*, 2005; Gann and Salter, 2000).<sup>2</sup> In other terms, PBFs seemed to be condemned to continuously ‘re-invent the wheel’ in each new project, thus innovating and then forgetting their innovations without developing their own capabilities. This would limit the innovation capacity of PBFs, as innovation is cumulative and path-dependent (Dosi, 1988).

Despite these misgivings, a body of research emerged highlighting the role of firm-wide capabilities in firm operating through projects (Lampel, 2001) and beginning to unpack the complex relations of continuity between firms and their projects (e.g., Engwall, 2003; Ibert, 2004). In the context of this growing focus on the role of firms in project-based contexts, subsequent research showed that PBFs do indeed develop capabilities at firm level. Specifically, PBFs enter into new markets through ‘vanguard projects’ (Brady and Davies, 2004). These vanguard projects, which are set up as a conscious innovation effort at the strategic level of the firm, initially build upon existing resources and capabilities, but modify and complement them in order to develop new ones. The strategic level of the firm then acts as a facilitator for the transfer of learning and capabilities, for instance setting up new dedicated divisions, which support the use and further development of the new capabilities into projects that are similar in terms of market or product. Thus, subsequent projects of the same type (e.g., turnkey telecommunication networks) reuse elements of previous projects generating ‘economies of repetition’ (Davies and Brady, 2000) and ‘economies of recombination’ by innovating through new combinations of existing elements or the integration of new and old elements (Grabher, 2002; Grabher, 2004). Thus, explorative vanguard projects usher into more exploitative projects. The punctuation of the sequence of regular exploitative projects with explorative vanguard projects leads to different project ‘eras’ in the evolutionary path of project-based firms producing complex products and systems (Söderlund and Tell, 2009). Similar dynamics have been also found in other industries, with for instance Shamsie and colleagues (2009) finding distinct strategies of ‘replication’ and ‘renewal’ projects for a Hollywood studio as it expands and consolidates in new markets. Project capabilities thus offer important insights into how the innovative activities of

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<sup>2</sup> For a review of routines in project-based contexts see Cacciatori, E., Prencipe, A., 2021. Project-based temporary organizing and routines dynamics, in: Feldman, M., Pentland, B., D’Adderio, L., Dittrich, K., Rerup, C., Seidl, D. (Eds.), *Cambridge Handbook of Routines Dynamics* Cambridge University Press, Cambridge, pp. 407-420.

project-based firms balance the needs for customization and innovation for new categories of projects with the need for efficiency and standardization for more routine projects.

In PBFs operating in complex products and systems, there is thus a complex dynamic between the firm level and the project level when innovation is concerned, with project capabilities sitting alongside traditional functional capabilities (such as engineering, planning and manufacturing) and guaranteeing the ability of firms to draw upon these functional capabilities residing at firm level to bid for and execute specific projects and manage client relationships (Davies and Brady, 2000; Ethiraj *et al.*, 2005). Davies and Brady (2016) further develop this framework distinguishing between project and strategic capabilities. While projects capabilities and operational capabilities are developed and located in the projects, strategic capabilities located at the centre of the organization play a crucial role, making the strategic decision to pursue a vanguard project, making sure it has access to adequate autonomy and resources and then making sure that learning and systematization of the newly acquired project capabilities take place (see also Davies *et al.*, 2018).

Research on the role of project and strategic capabilities in mediating the patterns of innovation of project-based firm has been expanded in a number of directions. Lobo and Whyte (2017) examined how firms innovate in their existing markets by adopting digital delivery, and showed that attempts of employing economies of repetition prevail in the first phases and are then followed by economies of recombination across different partners in later phases. This work thus provides a more fine grained analysis of the project capabilities as they develop across different partners. Similarly, Manning and Sydow (2011) extend the discussion of project capabilities beyond the production of complex goods and services to film making, and show that economies of repetition are favoured when projects are highly similar (and thus less innovative) and economies of recombination when projects are less similar (and thus more innovative). Second, another stream of work has looked at project capabilities in the context of “mega projects”, that is very large autonomous projects that are typically set up to manage large scale events or infrastructural projects, such as for instance major airport terminals (Davies *et al.*, 2009; Zerjav *et al.*, 2018) or the Olympic games (Grabher and Thiel, 2015). These very large projects might have limited chances to develop their own project capabilities and thus must rely on their participating organizations to provide them.

Whereas the idea of project capabilities has allowed a much-improved understanding of innovation processes in project-based firms, particularly those involved in, we know little about how capabilities are formed in vanguard projects (Davies and Brady 2016). In what follows, we use the case of how

the Italian Civil Protection Department developed capabilities for the management of major public events on the basis of its capabilities in emergency management to identify micro-conditions and processes that may help build new project capabilities in vanguard projects. Specifically, we look at how social networks and artefacts play an important role in the development of project capabilities in vanguard projects.

## **CAPABILITIES DEVELOPMENT AT THE ITALIAN CIVIL PROTECTION DEPARTMENT**

### **Methods**

The evidence that we use to illustrate our discussion comes from a study of the Italian Civil Protection Department (CPD) – the central government department that is in charge of coordinating the response to emergencies in Italy. From 2001 to 2011, the CPD remit included ensuring the orderly proceeding of major public events. The study was prompted by what at the time appeared to be its successful handling of the enormous influx of pilgrims in Rome occasioned by the funeral of the head of the Roman Catholic Church, Pope John Paul II, in 2005. The setting was ideal to investigate the question of how a project-based organization can build upon and expand their capabilities to take on new project types. The study, carried out in 2006, involved three main phases. In the first phase, we analysed press reports of the funerals and gathered publicly available documentation on and by the Italian CPD. This preliminary analysis showed that the management of John Paul II's funeral required the cooperation of numerous organizations, including the National Railways, Rome City Council, the Police, the Red Cross, and the National Health Service. These organizations were “brought together” in a “Coordination Working Group” headed by the CPD (Avvenire 10/4/2005). Further, press accounts suggested that the CPD had reapplied past experiences in managing the funeral – primarily the experience of the World Youth Day during the Jubilee in 2000 (La Repubblica 3/4/2005a) and the NATO summit in 2002 and Bush's visit in 2004 (La Repubblica 3/4/2005b). On the basis of this material and available literature, we formulated broad research questions centred on how new project capabilities emerge. As our study progressed, it became clear that the move into managing major events was routed into a critical vanguard project, the Jubilee 2000 in Rome, and then took shape through several other early projects. This provided further focus for our analysis.

In the second phase, we approached the CPD for interview that would enable us to reconstruct the development and evolution of its capabilities in managing major public events. We carried out two rounds of interviews with respondents in a 'workshop' setting. The workshop setting was proposed by the CPD. While we were initially puzzled by the approach, our initial interactions showed that this 'team' approach was coherent with the way they worked, and so accepted as we believed that this would provide us with further insights into CPD way of working. The two authors and a research assistant were hosted in the Operation Room in the main CPD building, which is where representatives of CPD and partner organizations gather to manage an emergency or a major event.

Before the first interview workshop, we circulated a description of the research project, containing the research questions, to the interviewees. At the start of the workshop, we presented our research and its objectives. The workshop participants comprised the Director of Major Public Events Office and six CPD division managers (our key interviewees) and some other CPD representatives. During the presentations from our interviewees, we interposed to ask for clarifications, and debated some of the issues raised to obtain more in depth understanding, interacting with the other participants. The two authors and the research assistant took notes during the presentations, making recording sentences and expressions verbatim that were particularly valuable in illuminating CPD's point of view. We also acquired copies of the PowerPoint presentations used by the CPD during the workshop.

The first workshop/interview round lasted half a day – from 9:00am to 1:00pm. Immediately after that, we met and discussed the major issues raised by the presentation. Our research assistant produced a first set of notes in the days immediately after the meeting, which also included points needing clarifications. We then integrated the research assistant's notes with our own, producing a summary document. We further circulated the summary document among ourselves, outlining the key themes and issues emerging from it. We also identified the elements we considered should be pursued further in the next round of interviews. We exchanged ideas and raised questions through mails, conference calls and face-to-face meetings. During these interactions, we reached agreement that the material and information we had so far gathered showed that, in CPD's account, three elements were key to its ability to reapply past experiences to "similar", even though "rare" events: (1) what our interviewees described as an "authoritarian" system that endowed them with broad and effective powers to coordinate (in the sense of command and control) the activities of other organizations; (2) the existence of a common, formative, experience in managing the activities of the Jubilee 2000 in Rome (our vanguard project) among a core group of people that then went on to

occupy key leadership positions in the CPD and in other public sector institutions that are regularly involved in these major public events; (3) and a very simple set of high-level procedures, supplemented by archives of materials used in previous events, to help coordination among the various organizations involved. Points 2) and 3) were closely aligned with the aims of our study, and thus decided to focus on these last two elements. We contacted CPD to ask for another workshop meeting with the Director of Major Public Events and three – from the original six – CPD division managers to pursue these themes further.

During the second workshop, the two authors met with the three interviewees in the Operation Room for a discussion that lasted approximately two hours. Drawing on information obtained in the first workshop, we focused on aspects related to: (a) how the initial core set of participants was established and who acted as interfaces among the organizations involved in emergencies or major events; and (b) the role of tools and methods used to encode learning and how this enabled the redeployment and adaptation of the project capabilities of CPD. We took notes and gathered further documentary material. After this second workshop, we first developed a separate summary report, and then we integrated the additional data and ideas in our collaborative report. We mailed a draft of the document setting out our empirical results to CPD, including verbatim, to gain feedback.

The evidence presented draws on the workshop, interviews, and documentary sources, and describes the structure and operation of the CPD at the time of the study. Our evidence has some limitations, in that it is based entirely on sources from the senior CPD management, internal documents and news reports. This evidence provides an extensive overview of how CPD accounts for its own methods and performance, but it does not provide an equivalent account from CPD partners; and the lack of direct observations means that we have indirect access to actions. This notwithstanding, CPD capabilities have been recognized in other studies (OECD, 2010), despite having been subject to intense judicial scrutiny in recent years (Di Camillo *et al.*, 2014). In addition, as we illustrate below, this account matches what we know of capabilities in project environments sufficiently well to provide a useful illustration, while also highlighting themes that might be pursued in further research.

### **The Italian Civil Protection Service**

The basic structure of the Civil Protection Service at the time of the study had been developed in the early 1980s, when the CPD was restructured and set up as a dedicated government department

reporting directly to the Italian Prime Minister and administratively separate from the local civil protection bodies.<sup>3</sup> At the time of the study, CPD was located in Rome and employed around 600 people. During non-emergency periods, civil protection activities are integrated within the regular activities of the various ministries and local authorities. If there is a national emergency, the Prime Minister declares a state of emergency and responsibility for coordinating activities is assumed by the CPD. The Prime Minister appoints a commissioner, typically a member of the CPD, with power to formulate executive orders, with which public administration bodies as well as private organizations and individuals have a legal obligation to comply.

The declaration of a state of emergency produces a change in the organizational structure of the National Civil Protection Services into a project-based structure, organized around temporary tasks. Relief operations require coordination of the activities of a large number of organizations, ranging from the public sector organizations (including the army and the national health service), to transportation companies and a host of voluntary associations. During emergencies, the activities of these organizations are coordinated through the Civil Protection Executive Committee, chaired by the head of the CPD. Coordination of activities is ensured through what one of our interviewees described as an ‘authoritarian system’, in which the CPD makes executive orders based on the expert opinions of high-level representatives of the organizations represented in the committee. The seniority of these representatives in the hierarchies of their own organizations enables rapid implementation of decisions.

Between 2001 and 2011, CPD responsibilities included the management of ‘major public events’. Our interviewees argued that this extension of the CPD responsibilities was based on the similarity of the issues involved with dealing with large numbers of ‘displaced’ persons in both a major event, and the management of emergencies – an example of ‘labelling’ as a technique to generate capabilities paths in temporary organizations (Manning and Sydow, 2011). Defining a public event as ‘major’ depends on its impact on a community’s ordinary life course, the involvement of a large number of participants, and the need for special organizational, transport, safety and logistics

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<sup>3</sup> The primary Civil Protection Service units are at municipal level, and report to the respective mayors of the (over 8,000) Italian municipalities. There are also provincial, regional and ministerial civil protection services, and the police services, the armed forces, the fire service, etc. are integral parts of the service. One of our interviewees remarked that: ‘In Italy, each citizen is part of the Civil Protection Service’.

measures. Major public events and emergencies are managed similarly beginning with the 'Declaration of a Major Public Event' by the Prime Minister and the appointment of a commissioner.

### **Creating networks: The Jubilee Agency**

The CPD's ability to manage major public events derives from its capabilities in emergency management, and the experience gained from celebration in Rome of the Jubilee of the Catholic Church in 2000. During our fieldwork, the Jubilee experience emerged as major contributor to: (a) the creation of specific expertise to manage major events, which included the development of specific artefacts; and (b) the development of social relationships that support CPD operations and the deployment of the artefacts developed as a result of (a). In order to show how the project capabilities for major events emerged out of CPD's emergency project management techniques, and the role of social networks and artefacts in enabling this adaptation, we focus first on the Jubilee experience – the 'vanguard' project.

The Jubilee Agency was key in the development of CPD's ability to manage major public events, since it allowed the combination of people and experience of the CPD and the Coordination Services Office of the Rome municipality. The Jubilee Agency was an independent body set up in 1995 by the municipality of Rome in collaboration with other public sector bodies, to coordinate the numerous events taking place in the city to celebrate the Jubilee of the Catholic Church in 2000. The Jubilee Agency worked in collaboration with the Coordination Services Office of the Rome municipality, which had been set up in 1998 to manage public events in Rome. These were numerous as Rome is a capital city, as well as a major religious and cultural centre. The Jubilee Agency – in collaboration with other parts of the public administration– was responsible also for developing a Welcome Plan. The Welcome Plan was designed to manage what was expected to be the higher than usual inflow of visitors to Rome. As part of the Welcome Plan, the Jubilee Agency was responsible for basic services, e.g. health and mobility. Franco (2000: 45) describes that: 'The Jubilee Agency had the role of technical advisor – partaken by Rome City Council, Rome Province, Lazio Region and composed of 150 people – that helped Rome City Council to planning ... that is develop *sector plans* on various topics, e.g. transports, health' (emphasis added). Sector plans, which are discussed below, are central to the management of major public events.

Management of the Jubilee was organized along similar lines to an emergency. A Situation Room (viale Baculli) had the high level coordinating function of the CPD Executive Committee, while the Operations Rooms was in charge of operational responses. The Operations Room (in Tor Vergata) managed the two main Jubilee events, on 1 May 2000 and 19-20 August 2000. The Operations Room represented CPD's contribution to the management of the Jubilee and was modelled directly on emergency management. Sector plans were developed specifically for the Jubilee and mostly by other organizations than the CPD.

The Jubilee Agency's and the Coordination Services' experience was crucial for creating continuity across different major public events, not only for the artefactual infrastructure it developed (e.g., sector plans, Operations Room), but also because it established a network of long-term relationships among participants. CPD staff worked within the framework provided by the Agency in running the Operations Room for the major events in the Jubilee. There, they worked side by side with people the Jubilee Agency and the Coordination Services. Several former Jubilee Agency and Coordination Services Office employees have been appointed to senior roles in various organizations involved in the CPD Executive Committee. Our interviewees argue that this significantly facilitated collaboration amongst CPD and those organizations involved in managing major public events because certain types of procedures were common background and CPD staff could trust their former colleagues to provide a reliable evaluation of the situation.

The work of the Jubilee Agency provided a focus for collaboration between Coordination Services and CPD personnel. When the Agency was disbanded in 2001, new legislation transferred responsibility for the management of all major public events to the CPD. A core group of people previously involved in the Jubilee Agency moved to CPD, which established core expertise in the area of events management. At the time of our interviews, several senior members of the CPD had been involved in the Jubilee arrangements (see Table 1). These included the Department Head, Mario Rossi (Director of the Major Public Events Office), Grazia Bianchi and Marco Grigi (Emergency Plans and Special Activities Service) and Dario Verdi (Director of the Organization and Implementation Office), who had all worked for the Jubilee Agency.<sup>4</sup> Mario Rossi was appointed Vice-Commissioner for the Jubilee Agency, from a position in National Civil Service; Dario Verdi acted as the liaison between Rome City Council and the Jubilee Agency. Mario Rossi had been Deputy Director of the

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<sup>4</sup>Names are pseudonyms.

Mayor of Rome's Cabinet, with responsibility for Mobility, and had experience of managing public events. He was the only one of our interviewees who, prior to joining the Jubilee Agency, had relevant experience. Mario Rossi was ultimately made responsible for the Jubilee Operations Room.

Grazia Bianchi and Marco Grigi participated in organizing Jubilee celebrations, as members of the CPD's Emergency Planning Service, which they had joined in 1999. Marco Grigi, Grazia Bianchi and a small group of people who joined the service in 1999 continued to work together. According to Marco Grigi, working together "*gives our group strength and reinforces our authority*". Marco Grigi and Grazia Bianchi first worked with Dario Verdi and Mario Rossi in the Jubilee Agency Operations Room.

Bianchi remarked that:

*Past becomes essential for our work. When we hire new people, they are trained on the job working closely with an older – in terms of experience within CPD – mentor.*

In our interviewees' view, movement of personnel over the years has strengthened the CPD's links with other organizations, such as the army, the police, the fire service, etc. Grigi stressed that these changes resulted in losses in the organization's "historical memory". However, these were partly compensated by the "operational core" of those managing the emergency and major event services remaining stable – and especially the Emergency Plans and Special Assignments group where he and Bianchi worked.

Dario Verdi was of the opinion that:

*Personal relationships do weaken, as they are a function of the work context. In other words, you lose internal relationships, but you gain external ones. With Fabrizio Gialli, we had to interact as he was at Air Force and we had to relate with him for the control of air space. He has now joined CPD.*

### **Artifacts and the development of project capabilities: The Event Planning Method**

CPD's expertise in managing emergencies is summarized in the "Augustus method", an emergency response framework that was developed by a CPD task force in 1997-98 ((for details see Galanti, 1998). In 2001, the "Event planning method" for the management of major public events was

developed on the template of the August Method, drawing on the Jubilee experience. The major public event planning method consists of:

- a coordination plan;
- a list of the areas that need to be addressed;
- a set of sector plans targeted to the areas that needs addressing and consisting of:
  - “Guidelines”, essentially “to do” checklists
  - “Objectives” of the plan
  - “Output” from the planning process.

These elements are complemented by the archive of previous sector plans and material on previous emergencies/major public events.

The archive of plans and materials from previous events is an important resource for the CPD when planning new events.

*For instance, during our latest national exercise, we wanted to test the new procedure to send SMS [i.e. text messages via mobile phones] to the population. I went straight to the folder to get the forms we used with the telecom operators during the black out in September 2003 [when they first experimented with this] (Bianchi)*

*When we planned for the Pope’s funeral the first thing we did was to take the sector plans for the Jubilee and look at them. (Bianchi)*

The interviewees considered that access to already developed sector plans covered 70% of the effort required to manage an event in Rome. However, this does not hold for other regions/cities with less experience of major events and/or fewer established links:

*If we had to plan something in Bari, we would have about 30% of the work done, as we have much less experience there.*

Sector plans were important in helping coordination with organizations with which the CPD has not previously collaborated.

*There are two moments: one is the interfacing at the table of the Executive Committee, but then we also “get into” the other organizations through the sector plans. Sector plans are solutions to each of the issues that need to be addressed. A major event requires a mobility plan (outlining how people will get to and leave from the place of the event, where they will stay during the event, where road signs will need to be put, etc.), a security plan, health and safety plan. (Grigi)*

*Keep in mind that we do rely on the specific expertise of each organization sitting around the table to get things done. Therefore, we tell them what are the factors that they need to take into account and what we need, but then it is their task to develop the plan. (Bianchi)*

*We usually deal with very competent people, who are a bit lost because they have never dealt with a major public event before. So what we do is to tell them what they need to look at. (Verdi)*

Therefore, the sector plans provide the parameters for the plans developed by other organizations.

The only plan developed only by the CPD is the “coordination plan”. Bianchi again told us

*Our real strength is our ability to interface [with all the organizations involved in managing an emergency or major public event] and to decide what organizations we need to involve. We can vary the numbers according to the situation.*

The planning method structure is modular allowing CPD to assemble the elements required for a particular situation (see e.g., Bigley and Roberts (2001)). Modularity applies both horizontally – each specific sector plan and its elements can be exploited according to the specificities of the context, and vertically – different levels of local administrations, e.g. regional, provincial, local, can be involved or not according to need.

Similarly, sector plans are hierarchical. For instance, a critical decision would be identifying the access and exit routes for the public, the health professionals, the police, etc. Dealing with the competing needs for access and exit routes creates a structure for the management of the event around which the other decisions are taken. While CPD used debriefs, the methods are the scaffolding that makes possible to incorporate the knowledge gained through them.

*We do debrief after an emergency and we adapt the methods as a consequence – but there’s very little time so that the methods are updated more in practice than formally. In fact, formally the “Event planning method” has not been modified since its development. (Bianchi)*

## **DISCUSSION AND CONCLUSIONS**

Previous research has highlighted some key characteristics of project capabilities and the process of their development. First, project capabilities are specific to classes of projects, which are similar in terms of products and industries (Davies and Brady, 2000)– for instance, project capabilities for Private Finance Initiatives projects in UK construction are different from project capabilities for turnkey telecommunication networks projects in the communication industry. The similarity in context among projects within each class allows economies of repetition (Davies and Brady, 2000)

and recombination (Grabher, 2002, 2004, Lobo and Whyte, 2017). Second, project capabilities emerge through a Penrosian process in which “vanguard projects” in new, related, classes of projects make use of and adapt existing resources and capabilities (Brady and Davies, 2004; Manning and Sydow, 2011). Third, the strategic level of PBFs plays a key role in the development and nurturing of project capabilities through the selection of vanguard projects and by actively managing the processes through which capabilities are first developed and then transferred within the organization (Brady and Davies, 2004; Davies *et al.*, 2018).

Our detailed study of the development of the capabilities for the management of major public events at the Italian CPD is consistent with previous literature and enables us to provide more evidence about the micro-processes whereby existing capabilities and resources are adapted to create new capabilities in vanguard projects and then refined in subsequent projects to give rise to new, mature capabilities. Our evidence points to the crucial importance of two mechanisms for the transfer of learning in project contexts, i.e., social networks and artefacts. Whereas the importance of these mechanisms in learning in project is well established in the literature on project-based organizing, we highlight here their importance for project capabilities’ development.

In the CPD, social networks linked key members of organizations involved in the management of emergencies and events. These network relationships, fundamental to the effectiveness of CPD operations, emerged through the workings of an organization – the Jubilee Agency – which was created to manage the Jubilee event – the vanguard project for the development of project capabilities related to the major public events. The individuals who acted as interfaces between the Rome municipality, the Agency, and the other organizations involved in managing the Jubilee, acted as brokers, and assumed key positions in the networks related to events and emergencies. Those who subsequently joined the CPD brought with them individual know-how, the relationships established through the Jubilee experience, and tools and methods or artefacts allowing the encoding of re-usable knowledge. Others joined other organizations with whom the CPD frequently interact, ensuring a shared understanding of what managing a major event entails.

Our case illustrates, coherently with the literature on project-based organizing, the social embeddedness of projects and the crucial importance of social networks in the context of projects particularly in the management of expertise and careers (e.g., Grabher, 2002; Grabher, 2004; Sydow *et al.*, 2004). Individual expertise and, relatedly, mobility of people are key mechanisms in the transmission of learning across temporary projects, including the important role they play in

sustaining and reproducing project capabilities across time and organizations (Grabher and Thiel, 2015). Starkey *et al.* (2000) argued that networks act as latent organizations. Latent organizations can endure in latent form over long periods and might only partly be re-activated in a re-occurring (organizational, personal) constellation (Starkey *et al.*, 2000). Latent organizations – in the particular circumstances of large and unpredictable events (like disasters) – rely on brokers for their activation, re-configuration and sustainability (Starkey *et al.*, 2000). The brokers constitute network nodes that function as link pins, relied on and trusted by other parts/members (Maurer, 2010; Meyerson *et al.*, 1996).

CPD network relationships share several elements of latent organizations, which are reactivated through the declaration of major public event. Rather than reconstituting the organization as in the TV networks, here it is more a matter of reactivating latent processes. In addition, our case shows that the formation of social networks is a crucial aspect of the emergence of new projects capabilities and that new project capabilities emerge from common shared experiences which lead to the merging of previously separated capabilities; and how the personal networks that emerge during these events enable the re-activation of these capabilities across projects and organizations. Unlike the case of the London games (Grabher and Thiel, 2015), we do not have here a “breathing organization” that absorbs and expels individual capabilities. Rather, we have a latent network that was first established during the vanguard Jubilee project and then keeps evolving among a relatively limited number of key organizations that might need to operate together – but not always do.

Networks can act also as social devices allowing the creation of shared mental models – what Bigley and Roberts (2001) call *cognition management methods*. The CPD case shows that the knowledge embodied in networks allows the identification of appropriate organizational interfaces among participating organizations. Grabher *et al.* (2007) who studied the organization of the 2006 Football World Championships, show that some people were given jobs not on the basis that they corresponded with their “home organization’s” task domain, but because they were considered able to handle particular problems based on observation of past major events. Our case shows that vanguard projects provide the settings in which core social networks are formed and then sustain the “repetition” of project capabilities in subsequent projects.

Our case analysis also illustrates how the project capabilities in managing major public events emerged from integrating and adapting a heterogeneous collections of artefacts that were contributed by different organizations, similarly to what is shown by Lobo and Whyte (2017). Some

of these already existed and were adapted to the new context (e.g., the operations rooms, the Augustus Method becoming the Events Methods); some of them were developed from scratch for the specific circumstances (the sector plans). Thus, economies of recombination appear to be important in the early phases of establishing project capabilities, and then, when the new capabilities are stabilized, economies of repetition take over – the opposite pattern as observed by Lobo and Whyte (2017).

Sector plans encode experience-based learning about how to deal with a set of issues that CPD encounters regularly. Their checklist structure ensures that whatever is relevant is considered and selected in or out of a specific project. These methods are cues to actions repertoires stored in technical specialist bodies of knowledge and in the personal experience of people in applying them. These cues are complemented by stockpiles of examples of previous implementations that provide partial solutions to the new problem (e.g., Cacciatori, 2008; Feldman, 1989)) (i.e., as one of our interviewees argued, the existence of already developed sector plans constitutes about 70% of the work needed to plan anything in Rome and perhaps 30% in the case of other towns, e.g. Bari). This set of artefacts provides resources for individual agency enabling them to “repeat” organizational capabilities with sufficient flexibility to enable meeting the local conditions but sufficient consistency to enable coordination among actors. Indeed, research on routines dynamics has noted, in a study of civil protection in Germany, that artifacts dealing with processes perceived as stable across projects describe workflows, whereas for processes that were perceived as unstable across projects they described tasks (Danner-Schröder and Geiger, 2016). Notably, the lists of areas that need addressing and the sectors plans in their general format were used primarily to support the repetition of project capabilities across different network of actors i.e., to enable the CPD to draw on the capabilities of other, and possibly new, partners while adapting them to needs of both major public events in general, and the specific event being planned in particular. The archives of past plans were instead used primarily as a means to sustain capabilities across time, within CPD.

The vanguard projects and later, early projects, developed the new capabilities by establishing new social networks and new collection of artefacts partly derived from previous capabilities. These social connections, methods and tools provided the anchors of the new capabilities, and a way to redeploy them in subsequent projects of the same kind. Methods and tools provide anchors, which, without overloading actors with details, make it possible to adapt to specific circumstances and simultaneously to maintain continuity across different contexts. Thus, they act as complements to the skills and capabilities of individuals in the context of social network for the re-enactment of

project capabilities. During a major event or emergency, sector plans selectively define the organizational interfaces to be activated and the ensuing network relationships that will enable re-enactment of previous experience. Artefacts in the CPD created and cemented channels of collaboration amongst individuals that became important and beneficial components of subsequent projects.

There are several areas in which research on project capabilities can further proceed. First, in our chapter we have provided initial insights on the role of social network and pattern of connections in enabling project capabilities, and Manning and Sydow (2011) and Thiel and Grabher (2015) provide further analysis and insights. Yet, there is space to further deepen these insights investigating in more detail their role in the development of new capabilities, particularly in the context of complex products and systems. Connectedly, we might need to further develop the concept of project capabilities to better account for the multiorganizational nature of projects.

Second, our analysis of the role of artifacts, and the processes whereby they were inherited from previous “traditional” projects, mixed, matched and expanded shows that a focus on artifacts is a promising route to study how project (and strategic) capabilities emerge and evolve over time. Here, routines dynamics (Feldman *et al.*, 2021), with its intensive study of the role of artifacts in routines can provide many useful insights.

Third, much of what we know about project capabilities relies on a rather sharp distinction between “new, innovative” and “old and repetitive” projects. This distinction is clearly supported by the evidence in the field, in that participants clearly identify (at least ex-post) the role of particular projects as game-changers. However, the literature suggests that the distinctions between “new” and “old” types of project are enacted by participants through multiple means, rather than being “out there”. For instance, Lobo and Whyte (2017) show how the enactment of project capabilities relies on “aligning” practices aimed at making economies of repetition possible. Thus, organizations can actively shape the project with the aim of configuring it in ways that are more familiar, even though success in doing so might be only partial. Additionally, Manning and Sydow (2011) show how participants judge similarity between film projects on the basis of multiple different factors such as genre, cast and format, so that similarity is a vector rather than monodimensional. They also show how project participants actively use “connecting practices”, such as labelling, that construct and highlight elements of similarity and this ‘help embed new projects’ into sequences that offer

different opportunities for expansion and renewal. More attention to these practices and how they influence project capabilities and innovation in project-based contexts is warranted.

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