

The dynamic role played by planning infrastructure in enhancing collaboration: evidence from La Scala Opera House

Abstract

This paper investigates the dynamic role played by planning infrastructure to enhance collaboration within the performing arts sector. Unfolding programming at La Scala Theatre, we study the role the Calendar plays in mitigating the aesthetic-economic tensions that arise during the proceedings to translate a projected opera into an opera that goes into full production (an objective opera). This Calendar is first introduced as an infrastructure, but it becomes a boundary object when the groups of people working permanently at the theatre, put into play resource obligations that have to be taken into account during the realization of the opera. These resource obligations led to collaboration among the various groups. During the phase in which an opera became an objective undertaking, the collective commitment (or obligation) towards the success of the opera stimulated collaboration, but this was not reciprocated by the individual singers due to their over-engagement with the desire to achieve success.

Keywords: performing arts; collaboration; infrastructure; epistemic object; boundary object

Introduction

“Works of art, from this point of view, are not the products of individual makers, “artists” who possess a rare and special gift. They are, rather, joint products of all the people who cooperate via an art world’s characteristic conventions to bring works like that into existence” (Becker, 1982, p. 35).

It has long been recognized that performing arts are a “collective process” (Becker, 1982, p. 35) that requires the joint commitment of different groups across diverse areas of expertise (Greig and Nicolini, 2015; see also Jones et al., 2016; Montanari et al., 2016; Lapsley and Rekers, 2017). Performing arts are an organized activity where a heterogeneous set of professional experts - the artists, singers, orchestra directors and dancers, with all their individualism and personal verve, together with the light and sound designers, costume makers and tailors, make-up artists and administrative staff - all work interdependently to achieve a totally unique artistic performance (Greig and Nicolini, 2015).

This collective action is pursued in a context where there are inevitable and critical tensions between aesthetic influences and economic influences (Hirsch, 1972; Lampel et al., 2000; Auvinen, 2001; Jones et al., 2006; DeFillippi et al., 2007; Reid and Karambayya, 2009; Austin et al., 2017). The aesthetic factors belong to the realm of the “expressive cultural workers” (Siciliano, 2016), who are the artists and creative professionals committed to innovation and keen to leave their own mark on the theatre (Jones et al., 2016). The economic factors, on the other hand, relate to the invisible work of the “routine cultural workers” (Siciliano, 2016), whose efforts, within performing arts, are also necessary to ensure the sustainability of the artistic offer. This tension is inevitably present in the performing arts sector, and managers “must navigate” through it (Lampel et al., 2000), with the situation being further accentuated in recent years because of the financial austerity and the severe cutbacks in public financing (Fryer, 2014; Cohen, Guillamón, Lapsley and Robbins, 2016). The tension between aesthetics and economy means that collaboration between the different groups of experts is a critical challenge for performing arts organizations that seek to put in place a given collective work of the art. The question remains, however, of how to achieve this collaboration, given the tension between aesthetics and economy.

According to the available literature, norms, standards and conventions are traditional forms of collaboration (Becker, 1982), while, in more recent studies, objects, both material and symbolic, can potentially contribute to the process of collaboration (Carlile, 2002; Nicolini et al., 2012, Lainer-Vos, 2013; Scarbrough et al., 2015). Boundary objects (Star and Griesemer, 1989) are considered as particularly suited to interpreting the process of collaboration among heterogeneous groups, even where there is no general consensus (see Star, 2010; Bowker and Star, 1999). Repositories, standardized forms, prototypes and maps, as well as abstract concepts such as narratives, slogans and visions, have all been investigated as boundary objects within different

contexts (Star and Griesemer, 1989; Boland and Tenkasi, 1995; Briers and Chua, 2001; Carlile, 2002, Yakura, 2002; Bechky, 2003). We have focused our attention here on a particular set of objects, planning objects, conceived as a “portfolio of instruments” (Carlile, 2002), examining their role in pursuing collaboration between diverse expert groups, together with their potential influence over the tension between aesthetics and economy.

In particular, we have drawn on the more recent literature on objects that concentrated on their relational properties (Nicolini et al., 2012). According to this literature, the fact that objects are able to support collaboration has “emerged not from their use independently, but rather from the routine way in which shared objects were interrelated and cross-referenced, with changes in one object prompting work to revise and update other objects.” (Scarborough, 2015 p. 212). In the light of this, objects are assigned one of three major roles, and can be infrastructures, boundary objects or epistemic objects depending on how they are deployed and how they relate to other objects. By endorsing this perspective, planning objects are here conceived as a portfolio of objects (Carlile, 2002), where the dynamics between boundary objects, infrastructures and epistemic objects influence the challenge of achieving collaboration (Nicolini et al., 2012). This study specifically addresses one planning object, in particular, that has a central role in performing arts organizations, the Programming Calendar. This study investigates the evolving role of the Calendar in terms of its influence over the process of collaboration in performing arts organizations when proceeding along the path flowing from a projected opera to an actual or objective (Nicolini et al., 2012) opera. In this paper, the following questions have been addressed: How do planning infrastructures relate to other objects in the pursuit of collaboration? How do planning infrastructures impact on the diverse expert groups? And how do they contribute towards moderating the seminal dichotomy between aesthetics and economy that is typical of the performing arts sector?

Empirically, this investigation was based upon a single four-year case study conducted at one of the world’s greatest opera houses, the Teatro alla Scala of Milan. The ensuing insights were derived from semi-structure interviews, archival data and participant observations. The main result of our study is to have determined what we have called *resource obligations*, which are the constraints to artistic actions that facilitate the Calendar’s dynamic transition from an infrastructure to a boundary object. While the Calendar was initially conceived as an infrastructure that is taken for granted and not questioned, by introducing these *resource obligations*, its structure moved from being closed to open and it became an item up for discussion and a set of boundary objects in flux. During the phase in which an opera becomes reality, collaboration is necessary, but, at the same time, tensions are clearly visible. At this time, the *success of the opera* acted as an epistemic object, creating a collective obligation towards its successful accomplishment. This collaborative process does not, however, stimulate the professional singer, who is too busy feeling personally responsible for the *success of the opera*. This imbalance between the individual responsibility and the collective commitment underlines the problems of over-engagement with epistemic objects. These insights are presented in the

next part of the paper, which is articulated as follows. We will first present the duality between aesthetics and economy, and the need for collaboration, and then introduce the concept whereby planning is defined as a hierarchy of objects. After this, the research approach is described, detailing the case setting of the Teatro alla Scala, and how data were collected and analysed. The results are then elaborated, and the paper winds up with a discussion and advances several conclusions.

The duality between aesthetics and economy, and the need for collaboration

A feature specific to performing arts organizations is the need for collective action, understood as the importance of good collaboration between diverse expert groups for the purpose of achieving a final artistic production that is both outstanding and unique (Becker, 1982; Greig and Nicolini, 2015; Jones et al., 2016). Numerous expert groups are involved in this collective process, and they can be either “expressive cultural workers” or “routine cultural workers” (Siciliano, 2016). The expressive cultural workers are people engaged in artistic functions, who are usually employed on a temporary basis within the performing arts organization. Their main stimulus is to leave their mark on the organization, a sign indicating that they have passed through the theatre (Montanari et al., 2016; Stjerne and Svejenova, 2016). They strive to achieve artistic perfection and, crucially, they are wholly focused on the aesthetic side of things (Montanari et al., 2016; Siciliano, 2016). The routine cultural workers are people employed in administrative roles, who usually have permanent positions within the performing arts organization and are in charge of administrative and technical operations. For this category, ensuring the organization’s economic sustainability is central to its long-term survival. Both the expressive and the routine workers are needed to deliver the desired artistic performance, and tensions between aesthetics and economy are often recurrent (Auvinen, 2001; Jones et al., 2006; DeFillippi et al., 2007; Reid and Karambayya, 2009; Austin et al., 2017). On this point, it has been recognized that “managers involved with the creation, production, marketing, and distribution of cultural goods must navigate tensions that arise from opposing imperatives that result from these industry characteristics” (Lampel, 2000, p. 263).

Performing arts organizations must, therefore, address the critical challenge of achieving collaboration between the different expert groups. Despite their different views and interests, their collaboration is a necessary factor in view of achieving a unique and complete artistic output that works as a whole. (Greig and Nicolini, 2015).

In extant studies on how to ensure collaboration in performing arts entities, it has been suggested that organizational and managerial tools can provide the means to mitigate this aesthetics-economy tension.

With reference to organizational matters, one proposal is to introduce new functions and skills that can enhance cooperation in the performing arts. According to the empirical exploration carried out by Auvinen (2001) in five opera houses across Europe, the figure of the General Director is seen as essential in acting as a firewall between the opera house’s financial sustainability and the aesthetics of the artistic performance.

According to the author, when the economic and aesthetic influences are not in balance, then the General Director can face criticism and often be removed from this position. The study carried by Patriotta and Hirsch (2016), based on an empirical study on the American independent cinema industry, focused attention on how people's individual skills can facilitate this collective action. The scholars identified a special group, defined as the "amphibious artists" to describe particular individuals capable of incorporating both the internal and the external roles employed in the path of artistic innovation.

With reference to management matters, a range of flexible managerial approaches have been proposed as a means to balance the different needs of the many heterogeneous actors (Tajtakova, 2006). Among this group of flexible management approaches are, for example, a people-oriented style of management that exploits leadership, and the sharing of practices to facilitate collaboration between the two different spheres of an opera house (Nopper and Lapierre, 2005). For example, Nopper and Lapierre (2005) provided evidence in their study on how the Royal Opera House of London managed to extricate itself from a critical situation by bringing into play a particular style of leadership introduced by its then new director, Tony Hall.

On the point of management tools, the aspect of planning has been investigated, although the relative insights are controversial. Most studies see planning as somehow detracting from the aesthetics of performing arts (e.g. Lampel et al., 2000), exasperating tensions rather than contributing to collaboration (Baden-Fuller et al., 2007). In more recent studies, the suggestion has been to introduce a more subtle approach, not considering planning as good or bad per se, but rather exploring its possible mediating role in accordance with how it is deployed (Jeacle and Carter, 2012; Meier, 2016). We have limited evidence, however, on the way in which planning is able to enhance collaboration in the performing arts and mitigate the aesthetics-economy tension. This issue is addressed in the present study, exploring the role played by planning through the lens of boundary objects.

Planning as a hierarchy of objects: epistemic objects, boundary objects and infrastructures

Our investigation is informed through the theoretical lens of boundary objects, which was a concept introduced by Star and Griesemer (1989) to underline the possibility that some objects can bridge the gap between groups of heterogeneous individuals (see Star, 2010; Bowker and Star, 1999). In our paper, we have pursued Star and Griesemer's seminal objective of using the concept of boundary object "to analyze the nature of cooperative work in the absence of consensus" (Star, 2010, p. 604). A boundary object can be present when there is "central tension between divergent view points and the need for generalizable findings" (Star and Griesemer, 1989, p. 387).

The term object has a broad meaning, since it can refer to something "people act towards and with" (Star, 2010: 603) and thus this object can be an ideal, something abstract or even a real and tangible tool. Scholars in the organizational, accounting and, more broadly, management fields have sometimes endorsed the concept of a boundary object as a means of investigating the dynamics between the various groups of actors

who find themselves working together (e.g. Yakura, 2002; Briers and Chua, 2001; Dar, 2017). Repositories, standard forms, prototypes, timelines and maps, as well as abstract concepts such as narratives, slogans and visions, have all been employed as boundary objects for the purpose of investigation within a number of different fields (Star and Griesemer, 1989; Boland and Tenkasi, 1995; Briers and Chua, 2001; Carlile, 2002, Yakura, 2002; Bechky, 2003).

To inform our studies on planning, we have drawn above all on the recent developments within boundary object literature, where the researchers' attention has shifted from the actual objects to the relationships between these objects, as well as introducing the concept of infrastructure (Star and Ruhleder 1996; Nicolini et al., 2012). With this concept, scholars recognize that boundary objects can support collaboration, a fact that "emerged not from their use independently, but rather from the routine way in which shared objects were interrelated and cross-referenced, with changes in one object prompting work to revise and update other objects." (Scarborough, 2015, p. 212). According to this relational view, an object, whether symbolic or material, does not act as a boundary object per se because of its own internal features, but it becomes a boundary object under specific conditions when its actions are influenced by other actors and objects (Nicolini, 2012; Scarborough, 2015). As Lainer-Vos (2013) underlined, "the properties of things (just like the properties of humans) are not inherent to the objects themselves but rather emerge from the network of associations within which they are positioned" (p. 213). This relational view has led to scholars seeing objects under a pluralist light (Nicolini, 2012). They can act as boundary objects, infrastructures or epistemic objects, according to their contribution to collaboration (Nicolini et al., 2012; Scarborough et al., 2015).

The term Infrastructures refers to objects that are taken for granted and not put up for discussions, without them, cooperation would be impossible (Star and Ruhleder 1996; Star, 1999). Computers, emails and even rooms have all been designated as infrastructures in the collaborative process of creating innovation as part of new product development (Star and Ruhleder 1996; Nicolini et al., 2012). As its distinctive feature, an infrastructure relies in its invisibility and perceived stability (Star, 1999), giving infrastructures a closed structure that allows collaboration. In line with this relational view, potentially all objects can be infrastructures, "becoming a real infrastructure in relation to organized practice" (Star, 1999, p. 380). Despite this, the difference between infrastructures and boundary objects depends on their contribution to collaboration, since infrastructures act as a prerequisite for collaboration (Star, 1999; Ewenstein and Whyte, 2009) and boundary objects, by bridging the gap between different boundaries, support collaboration without explaining what determines this collaboration.

While infrastructures and boundary objects are unable to trigger or fuel the process of collaboration, this role is played by epistemic objects. Epistemic objects are abstract in nature and never fully defined. Their intrinsic open structure generates the questions that set collaboration in motion, leaving objects in a continuous status of becoming (Knorr Cetina, 2001; Ewenstein and Whyte, 2009). Unlike infrastructures, which, as we have said, are more stable and taken for granted (Star and Ruhleder 1996; Star, 1999), epistemic

objects are constantly in flux and never entirely defined: “they are characterized by lack and incompleteness. As they appear in temporary instantiations, they are defined at once by what they are and what they are not (or not yet)” (Ewenstein and Whyte, 2009, p.9). Moreover, unlike boundary objects, epistemic objects fuel collaboration and can explain why cooperation takes place (Nicolini et al., 2012).

The fact that there is a profusion of objects has prompted scholars to explore the dynamics between infrastructures, boundary objects and epistemic objects (Ewenstein and Whyte, 2009; Nicolini et al., 2012; Scarbrough et al., 2015). On this point, academics have determined that the same object can take on different roles, depending on its relational properties, and at one point can be a boundary object and at another an epistemic object or infrastructure (Ewenstein and Whyte, 2009, p. 10). According to this viewpoint, objects can follow different trajectories and shift from being infrastructures to boundary objects or epistemic objects, which in turn suggests that they are regulated by a certain hierarchy (Nicolini et al., 2012). Nevertheless, how and why these dynamics actually occur are considerations that have received less attention to date.

By endorsing this relational view of objects, we have focused here on a particular planning object, the Calendar, examining how it interacts with the portfolio of other planning objects. Whether and how planning objects can help or hinder collaboration cannot be determined a-priori, but is the outcome of the relationship between the actors, activities, organizational roles and tasks (Scarbrough, et al. 2015). As a consequence, an investigation must be carried out into the micro-dynamics between the different expert groups, in order to scrutinize the contribution that planning objects bring to the process of collaboration within performing arts. Our proposed argument is that planning objects, through their dynamic relationships, take on different roles in the process of supporting collaboration, thereby creating a shared space between the various expert groups and, as a consequence, they also address the tension between aesthetics and economy. This gives rise to a series of questions. How do planning infrastructures relate to other objects in the effort to achieve collaboration? How do planning infrastructures impact on the diverse expert groups? How do they contribute towards moderating the seminal dichotomy between aesthetics and economy that is typical of performing arts?

Research design and method

The research approach adopted is an inductive single case study (Yin, 2014), which is a method used to fully explore a given phenomenon in its natural setting in order to reach an understanding and interpretation of how people create and maintain their social worlds (Eisenhardt and Graebner, 2007). The case study methodology is deemed particularly useful to investigate process dynamics (Yin, 2014) and grasp the complexity behind why and how infrastructures relate to other objects (Yin, 2014), as well as uncovering their contribution to the process of collaboration.

This study is based on the Teatro alla Scala, one of the world’s most famous opera houses. La Scala was established in 1778 as an independent organization and, in 1997, was transformed into a Foundation. This legal change is common to every opera house in Italy and, under this structure, all performing arts operations are co-financed by a group of stakeholders, mainly public bodies such as Italy’s Central Government and local government at regional and municipal level. This change in governance is particularly important from an economic perspective, since it involves paying strict attention to how funding is structured and to the long-term sustainability of the opera house itself. In recent years, government funding for the Teatro alla Scala (FUS, 2015) has been gradually reduced, leading to the critical need to balance the books and so search for additional sources of revenue. La Scala is renown worldwide for its artistic excellence and, when it presents its programme for each season, this event is more than a simple communications exercise. The public disclosure of La Scala’s artistic style and offer is a matter on which the theatre’s reputation relies. Its artistic offer has to be innovative and unique, it has to underline the creativity running through La Scala and it must also include well-known operas to bring in a good audience.

The importance of theatre economics linked to the need for an artistic offer of excellence means that the empirical setting of La Scala is especially suited to investigating the challenge of achieving collaboration between the aesthetic and the economic influences that create tension, examining the question from the perspective of planning objects.

Data collection

Data were collected over a period of three years and used to investigate how collaboration takes place across the entire process of preparing an opera, from its initial conception stage (*projected opera*) until the opera is actually realized and its final preview (out of several), or Premiere, takes place (*objective opera*). Data sources consist of semi-structured interviews, participant observations and internal and external documents.

Data type	Number	Original data source
Interviews	28	<ul style="list-style-type: none"> Managers and key informants at La Scala (CEO, head of marketing, production, HR and finance and control, stage engineer, casting director, orchestra director, artistic coordinator) Managers and key informants at the Teatro alla Scala Academy (CEO, head of education, fundraising and marketing, human resources and production) Managers and key informants at Ansaldo Workshop A Board Director from La Scala
Participant observations	Approximately 20 hours	Principal investigator’s report drawn up after taking part in daily meetings and discussions between managers held at La Scala’s offices, stages, during rehearsals and at workshop and theatre-craft sessions
Internal documents	Approximately 25 documents and 6 reports	Calendar, Budget, Daily Plan, cost analysis reports, audience and marketing reports

External documents	1,235	<ul style="list-style-type: none"> • Annual reports • Press reviews
Corporate websites	1	General information and communication concerning the Calendar
Social media	Facebook, Twitter, Instagram over a three-year period	Analysis of social media posts about La Scala

Table 1: Data sources

The initial interviews were held with people holding organizational positions at La Scala who were directly in charge of putting in place and updating the planning objects, and then they were gradually extended to additional expressive and routine workers who were found to be in contact with the planning objects. We used a “snowball technique” (Gioia et al., 2010) to identify the additional routine or expressive workers at La Scala involved in the phases when the opera was first projected and then transformed into an objective entity, allowing us to investigate how a planning object can affect the process of collaboration. We interviewed the Artistic Director, all senior managers at La Scala (including executives at the Teatro alla Scala Academy), a Board Director, and various expressive and cultural workers involved in programming and producing the operas (see Table 1 for details). We conducted 28 interviews in total over a three-year period. Each interview lasted between one and two and a half hours and, where possible, it was recorded and then transcribed verbatim. When recording was not allowed, detailed notes were taken and immediately transcribed after the meeting. The interviews were used to explore the relationship between aesthetic and routine tasks and the role played by planning objects in supporting collaboration during everyday operations. By the term participant observations, we are referring to the empirical evidence collected during the interviews, all conducted at La Scala headquarters (theatre, laboratory and offices). We were also able to gain insight into other areas by observing the arts and crafts professionals at work in the Ansaldo Workshops preparing the scenography, together with the working dynamics of routine workers in charge of lighting, sound and of moving the scenery, as well as the more routine cultural tasks undertaken by the administrative staff responsible for control, production and marketing. These observations of every day working practice were fundamental to understand the relational dynamics between the planning objects and the routine and expressive cultural workers.

The internal and external documents consist of confidential documents circulated internally to support programming and planning, and official documents published externally. Planning documents, such as the Calendar, Budget and Daily Plan, as well as further working documents, such as detailed cost analyses, market analyses and sustainability analyses, belong to the category of internal documents. The external documents consist of the annual report, the performance plan and the seasonal Calendar published on La Scala’s website and so visible to the general public.

We completed these data sources with data from press reports, web reviews and social media. These documents provided a comprehensive perspective on how the aspects of aesthetics and economy at La Scala are communicated to the outside world and how they are perceived by experts and the general public. The

press reports and web reviews were particularly useful for gaining an insight into how La Scala communicates its artistic offer externally, how its economics are disclosed publicly and how the public perceives the operas produced. We prepared a database containing 1,235 documents from press reviews on La Scala and its operas, obtaining them directly from La Scala's Press Office. The reviews covered five operas (Fidelio, Aida, CO2, Die Soldaten and Turandot) performed during the 2015-2016 season.

Social media data and the web reviews were continuously accessed throughout the entire period in which data were collected and analyzed, from 2015 to 2017. This continuous analysis was carried out through a joint collaboration between the larger research group of the authors and La Scala's marketing and communication office. The research group analysed social media posts about La Scala on both an annual and ad hoc basis, developing a special social media analytics platform for this purpose. Twitter, Facebook and Instagram were analyzed by downloading the posts published on the Teatro alla Scala official accounts and the messages mentioning La Scala posted by the general public. Content and sentiment analysis were performed on the database of downloaded social media posts. These were not the main data sources, but were particularly useful to add insight to the understanding gained from the primary sources, giving us a broader vision on the way in which aesthetics and economic matters were communicated and perceived outside the organization's boundaries.

Data analysis

The process of data analysis required a preliminary understanding of the artistic and economic context of La Scala. This was achieved by first analyzing the secondary sources and, from there, further fine-tuning the list of questions to be submitted during the semi-structure interviews. The interviews were conducted at the same time as the participant observations, press-reviews and the collection of social media data.

The data collected from the transcribed interviews were recursively correlated with the notes prepared from the observations and the non-recorded interviews, with the authors carrying out this exercise separately, sharing their insights and revising the key aspects that emerged (Langley, 1999). Despite being a long process, this phase was of critical importance in terms of evaluating the verbatim transcription of the interviews and the perceptions gained from the participant observations. At the end of this phase, we had acquired a general overview of the planning objects that came into play at La Scala throughout the process of producing an opera, from when it was first outlined until it was fully realized, highlighting the aesthetic and economy tensions, as well as any problems of collaboration.

After this initial phase, data were coded using NVivo software to keep track of the first order categories (Strauss and Corbin, 1998), which meant identifying the objects involved in the collaborative process. The two authors ran the NVivo coding separately and the results were compared and revised during regularly held meetings. Every sentence was assigned a tag, and these tags were grouped into first-order categories

that were then sorted into inductive themes, which, in turn, were dependent on the relational roles played by the planning infrastructure in supporting the collaborative process. The concepts of resource obligations, collective obligation and over-engagement with the epistemic object emerged at this stage. These emergent themes were cross-referenced with theory and again with additional data sources (i.e. additional interviews). This back and forth between data and theories led to greater internal validity and reliability of the collected data (Denzin, 1978), since it was possible to verify whether the empirical insights were supported by the theory and, vice versa, whether the theory supported our interpretation of the results. This triangulation between the interviews, participant observations and secondary data sources underpinned our exploration into the role played by planning objects in supporting cooperation within performing arts, as well as the implications connected with the aesthetics-economy dichotomy, a subject that will be discussed in the following.

Results

The results are organized into three main sections. The process of proceeding from the projected operas to the object(ive) operas at La Scala is presented in the first section, with particular emphasis on its associated planning objects. We then concentrated on one specific planning object, the Calendar, discussing its dynamic role in enhancing collaboration within the two major phases of producing an opera, that of when an opera is first outlined, projected operas, (in the second section) and that when an opera comes into being, object(ive) operas, (in the third section).

The process of realizing an opera: from projected operas to object(ive) operas

The work behind putting an opera on stage at La Scala is a collective process, and it implies full-scale collaboration between the various expert groups, including the expressive and routine cultural workers:

“The opera house is not only made up of artists, orchestra and dancers, it also composed of the technical and administrative staff. Without an electrician to turn on the lights, without a stagehand to contrive the scenography and without a costume maker to make the costumes it would be impossible to stage the opera. The audience sees a complete and whole end product, but this output is the result of a complex and intertwined work that should also strictly respect its associated timing” (Orchestra Director- Teatro alla Scala).

“The distinctive feature of putting on an opera at La Scala is that this is absolutely a group effort” (Artistic Coordinator).

These quotes show how producing an opera at La Scala is a complex path where collaboration between the expressive and routine workers is essential. This path towards realizing the opera goes through different

phases, from an initial phase in which the operas are conceived and outlined (projected) then gradually become reality (objectification), culminating with the final preview performance or Premiere.

The phase of *projected operas* covers the period when operas that will be staged at La Scala over the following season are defined and programmed. This phase starts with an initial brainstorming session for the entire artistic season, a process that is activated almost five years beforehand. It concludes when the artistic offer for the following year is presented to the public at a public conference held in May for the upcoming season, which always starts on December 7th. The phase of opera projection takes on a tangible form in the shape of the artistic Calendar.

By *objective operas*, we mean the operas that had been previously projected and are have become a physical reality. This phase usually starts one year before the final Premiere. This is when the opera gradually acquires life and a tangible form, the scenery, costumes and settings are completed and the rehearsals take place.

During this transition from a projected to an objective opera, the tensions between aesthetic and economic influences are always apparent. At the same time, collaboration between the various expert groups is absolutely necessary to ensure a unique and whole final outcome. In the early phases of the opera projection stage, the tensions are mainly associated with the discrepancy between the choice of artistic productions and the overall sustainability of the artistic offer. During the phase when an opera is physically put into place, there are clear tensions in how the required resources are selected, with many discussions around how to balance high quality resources with the need to square the costs for that specific opera.

During the phase from projecting an opera until the opera become an objective opera, the planning documents consist of the Calendar, the Budget and the Daily Plan.

The *Calendar*, or performance schedule, is the first type of planning object. The three types of production held at La Scala (operas, ballets and concerts) are inserted into the schedule as coloured boxes, as this helps users see that everything is in balance and check for any overlapping. This document is utilized to select the operas to be staged each season over a five-year period. Its cascading structure translates the five-year plan into an annual or seasonal Calendar, and this is also the document seen by the general public. The process of selecting the operas to stage is always a new and exciting experience and is determined by the style of the Scala's CEO.

The *Budget* is the second planning object and is also prepared on an annual basis. The Budget is managed and updated by the finance and control department directly, and is used specifically to assign the available resources for each expert group beforehand. This document is updated periodically with actual data, which in turn are used to check that each group respects their assigned threshold amount. Every opera being staged has its own Budget, which includes the number of performances arranged for each. This decision is by and large driven by economics, and hitting upon the right number of performances is essential to cover costs and make a profit for each performance and each production.

The *Daily Plan* is the third planning object, and is used on a daily basis to manage the various expert groups at La Scala in terms of their when and where. This document has a table structure, where the lines indicate the hours of each day and the columns denote the different locations within the theatre. Each cell contains the name of the expert group working in a specific theatre room at a given time. The Daily Plan is of foremost importance to ensure cooperation between the daily events, with particular reference to rehearsals.

The complete planning system links the expressive and routine expert groups in charge of the production and realization of the opera, albeit with different levels of involvement. The Calendar is restricted to a few senior executives at La Scala. The Budget for each department is transmitted to the relative head of that department and sets, for each, the threshold of their available resources for the opera, while the Daily Plan, which is the document used to allocate each person to a given room at a given time, is widely shared at individual level and everyone at the opera house receives their relative section.

All three planning objects were initially shown as black boxes and were tools taken for granted, invisible for many, but necessary to ensure that all artistic work undertaken fell under cost control. The Calendar was assumed to be incontestable since it outlines the artistic offer at La Scala, the Budget was perceived as the necessary planning object for managing resources efficiently and the Daily Plan was seen as a necessary object to place people in different locations at La Scala in any given moment in time.

Despite these premises, from the interviews and participant observations, it emerged that the planning objects actually have a more complex function, and were used in different ways by the expert groups involved in producing the opera. In this study, we examined the path taken by one specific planning object, the *Calendar*. We explored the Calendar's interaction with the various expert groups, its dynamic role in supporting collaboration and influencing the seminal aesthetics-economy tension, while it evolved from an infrastructure into a boundary object.

Projected operas and the role of the Calendar in enhancing collaboration

The Calendar is the document of reference for everyone within and without La Scala. It has been in place ever since La Scala opened in 1778 and is published every year, providing details of all the productions for the upcoming artistic season. The Calendar has a central role internally because it offers an overview of the artistic choices taken, and it also assumes a central importance for the general public because it determines the style of La Scala for every season. On this point, the Marketing Director noted that:

“The Calendar is one of La Scala's most important symbols. Its aesthetics are fundamental. See its colour? [pointing at the document]. It's been the same colour ever since the very first Calendar in 1778. For us, keeping the same colours year after year is both a matter of aesthetics and our reputation. So today, the Calendar is still in the same colour” (Marketing Director).

Preparing the Calendar is a work of collaboration between several people at La Scala, all of whom bring their different visions and perspectives to the process. This exercise involves the CEO, the Casting Director, the Scheduling Director, the General Director and the Theatre Board for approval. The CEO holds the highest position at La Scala, and is in charge of both the economic and the aesthetical aspects of the theatre. The Casting Director is responsible for finding the artists who will take part in the performance, including the orchestra directors, singers, scene directors, choreographers, principle dancers and lighting designers. The Scheduling Director deals with the actual feasibility of the performance after considering La Scala's internal resources, both physical and human. The General Director is accountable for the theatre's overall financial sustainability.

The way the Calendar is defined is a matter of La Scala's reputation and image. A whole series of factors lie behind its preparation, including the number and title of the productions and the correct balance between new productions, co-productions and old favourites. The CEO – who is also the Artistic Director at La Scala and is temporarily at the helm of La Scala - will always seek for aesthetic perfection:

“Every CEO who passes through La Scala wants to leave their mark on the theatre and be remembered, and sometimes can put La Scala's traditions under threat. We are always in the limelight, the official presentation of the Calendar is an international event, attracting the attention of journalists, seasonal ticketholders, sponsors and, of course, our public” (General Director).

This quest for that unique artistic offer often clashes with the views of the Scheduling and General Directors, who are permanent members of staff and have been at La Scala for more than twenty years. While they fully support the artistic perspective and recognize the uniqueness of La Scala, they are concerned with its financial sustainability, and often resort to staging co-productions, or they may simply underline the fact that some artistic choices are unprofitable:

“It is often necessary to co-produce an artistic performance with other opera houses to share production costs between two or more theatres. This is frequently not received well by our CEO, as he objects to scenery that has already been used in another theatre. But in some cases we have no choice if we are to balance the books” (General Director).

“If we have planned a totally unique artistic season, but expect it to not make a profit, then it's my job to inform the CEO about the expected financial results” (Controller).

The Calendar was initially presented as an accepted infrastructure intrinsic to the theatre, as we have mentioned previously, with the CEO “having the last say on all artistic and economic decisions” (Artistic Coordinator). Despite this, from our empirical evidence, it is immediately clear that it had become an object

of discussion, bridging the different expert groups working at La Scala and driving their collaborative commitment. The Calendar proposed by the CEO is never questioned in terms of its artistic content, but staff members and stakeholders will expose the *resource obligations* that fall under their responsibility. These obligations are constraints that affect the theatre's resources and its personnel, including the singers and artists. Surprisingly, the economic obligations were considered as changeable obligations, unlike the physical structure of the stage.

The first type of resource obligation concerns the stage and was elaborated by the Scheduling Director whose specialized perception was based on his deep knowledge of the theatre. The Director discussed the fact that several artistic plans initially defined were not feasible because the combined scenography was physically incompatible with the space backstage. For example, he explained that, if several operas are performed over the same period, their often cumbersome scene settings must coexist at the same time:

“As you can imagine, if we decide to perform La Traviata together with Tosca and Don Quixote, this is usually the Artistic Director's decision. He likes the thought of staging a magnificent performance, but putting them in place is something else entirely. We need to understand whether this is feasible, starting from all our constraints. My job is precisely this: I translate performance ideas into reality or I block them. Sometimes this happens to protect people. (Scheduling Director).

“For example, this year we realized [name of production omitted] and, according to our initial plan, it should have been in the Calendar alongside [name of production omitted]. It was impossible for us to get both productions on stage together and we told the CEO that ‘if you want to keep your place here for a few more months, you must decide between the one or the other’” (Scheduling Director).

Because of these physical *resource obligations*, the Calendar had to be re-opened without putting the artistic offer into question. The Calendar became an object of discussion and some of the debates in fact took place on stage and backstage to show how unrealistic some of the artistic choices were.

A second type of *resource obligation* consists of La Scala's personnel, with the General Director and the Scheduling Director upholding their obligations concerning the optimization of internal staff, which is an element of unfeasibility within the Calendar. Again, they based this obligation in their long experience at La Scala:

“La Scala has a staff of 800 people. We must optimize the working procedures for these persons if we are to improve their productivity. For example, we cannot schedule four ballets in a row and then an opera because, after four ballets, the corps de ballet is shattered and more of them are injured than those who survived. We need to optimize our artistic teams, that is our choir, orchestra and corps de ballet, as well as our technical teams, meaning our workshop personnel and stage hands. (General Director).

“On top of this, the mix between new productions and re-vamped ones matters and requires internal organization. A five-year performance schedule should mean that we can schedule our workshop commitments and consider internal productions as well as co-productions” (Scheduling Director).

Moreover, trade unions are in some cases brought in to show that plans can be out of the question due to safety rules:

“The physical obstacle is there; furthermore, our Stage Hand Director assures us that the performance is feasible from a technical point of view. We need to consider the safety aspect; we cannot joke about this aspect. If the Director tells you that this choice endangers your life or that by 8 pm the audience is seated and ready, but the scenery cannot always be assembled on the stage by then, the CEO has no say” (Scheduling Director).

A final resource obligation linked to personnel concerns a singer’s unpredictability. It can be the case that first the singer is chosen, above any other consideration, and then the opera is selected on the basis of what the singer wants. This singer-opera bond creates a certain fragility and instability in the planning process, as noted by the Artistic Coordinator:

“Working with artists continuously moves the value of the product, because one project may become another project that, in turn, becomes another one still. For example, we may want singer X and he wants to sing Tosca at La Scala, so we schedule Tosca for performance in three years’ time. Then he sings Tosca at the Metropolitan, gets whistled at and decides that he will never perform Tosca again. The outcome is that we have assembled everything for Tosca, but must take it all down and change opera” (Artistic Coordinator).

These quotes highlight how, while not questioning the actual offer, *resource obligations* can transform the Calendar from an infrastructure into a boundary object, open to discussion and revision. According to our key informants, singers bring the most uncertainty to the programming process and, therefore, the Calendar is never considered closed and definite.

To summarize, the Calendar was initially presented as a given infrastructure that could be taken for granted and never be questioned. However, both the expressive and the routine workers, because there are *resource obligations*, questioned the feasibility of the Calendar as an infrastructure (although not the artistic content), meaning that the Calendar took on the status of a boundary object. On that point, discussions arose and a time-based frame of collaboration was created, allowing the projected opera to transit into objective opera status.

Objective operas and the role of the Calendar

When the Calendar is approved and presented to the public (in May, with the artistic season starting in December), the opera starts taking on a material shape with the completion of scenery, costumes, lighting and stage setting, and then reaching the final rehearsal and Premiere. This is the moment when collaboration

is crucial and it takes in all the expert groups at La Scala, which must work together to ensure that the opera on stage is perfect.

Artists focus on preparing their performance (their singing, music or dancing) under the supervision of the Artistic Director. The Scheduling Director, the Production Director, the Stage Engineer and the Director of the Ansaldo Workshop are all concerned with preparing the scenery and costumes, together with their work teams. The General Director and the head of Administration and Finance are driven by the strict need to respect costs and ensure that each performance and whole production is in surplus. The aesthetics-economy paradox reaches its peak during this phase, and routine workers also find themselves championing the aesthetics side:

“They [referring to the administrative and finance expert group] would acquire all necessary equipment and staff at a discount to save money and balance their books” (Stage Engineer).

“Our physical components are not cheap, but they are of high quality. Cost is peripheral. The Ansaldo Workshop is at the heart of our theatre and always delivers on La Scala’s traditions” (Head of Ansaldo Workshop).

This position was, by and large, unexpected given that, up to that point, the aesthetic choices were mostly restricted to the expressive workers, such as the artists and creative teams. In this phase, the Calendar is no longer changed and continues to act as an infrastructure. Collaboration takes place, despite the tension between aesthetics and economy, due to the importance given to the general desire of achieving the *success of the opera*, which bestowed a collective obligation to each individual expert group at La Scala.

“Everyone at La Scala, down to the least stage hand, is aware of his or her importance in producing the opera. Everyone is proud to be part of La Scala” (Orchestra Director).

The *success of the opera* meant different things to the different actors. The marketing and communication manager considered success in terms of press reviews and positive debate around La Scala. Artists and creative teams considered success in terms of applause at the end of the opera. The finance and control department considered success in terms of the opera house’s financial sustainability.

These different meanings of success of the opera underline the idea that success means what still has to happen, and this creates a collective obligation for the different expert groups. Everyone, whether an expressive or a routine worker, becomes part of this collective contribution aiming at the opera’s success, and everyone is motivated to contribute, although there still are a number of divergences and some conflict between aesthetics and economy:

“I had a budget of X million Euros earmarked for the production. I must not fail to deliver perfection and performance success. If I want the best artist, the one who makes all the difference to a performance, he or she will ask for more money than my threshold for the artists’ costs. You cannot say ‘no’ even when an artist costs more than the total budget, you just accept and get on with it and save money somewhere else. It’s the principle of communicating vessels. This is an important job” (Artistic Coordinator).

The moment of highest collaboration emerges during rehearsals, where the different expert groups are physically in the same space, the stage.

“For us this is an all-important moment, and we can see everything together for the first time, music, costumes, scenery, singers, choir); we may need to make changes” (Music Director).

At this moment, the collective obligation towards the success of the opera is highly visible in every action that helps the final production and Premiere to be perfect:

“We brought in a children’s choir for our performance, and they were dressed in a special way. A couple of days before the Premiere, we needed to make a change requested by the Artist Director and use pre-teenagers rather than primary school children. It was only at the final rehearsal that we realized we needed bigger clothes and it was a rush to get them ready on time” (Stage Engineer).

“When things come up a couple of days before the performance, or maybe just a few hours beforehand, all that matters is to be quick and hierarchies fly out of the window. If you need to solve a technical problem, you talk to the stage hand directly, not with his supervisor” (Director of Production).

Any request for additional resources is solved temporarily by postponing any economic concerns and adjust matters by resorting to extra-budgetary requests. This means that additional money can be obtained over and above the initial threshold assigned by the finance and control department - which also means that the overall cost of the production goes up - by asking the CEO to authorize additional funding. While this procedure is in general exceptional, it is something that happens and, ultimately, it is always accepted, as highlighted by the Administrative Director:

“In 30 years, I have never come across a “no” to additional resources when we [artists and artist managers] are all in agreement” (Administrative Director).

One such case occurred in relation to the [omitted], when the theatre had to bring in an extra-budgetary resource procedure.

“In order to deliver the desired scenography, we set up an extra-budget procedure which was accepted, in part, because we had no other option. If a production cannot be staged, the costs of the loss are higher than any additional costs. So in the end it was accepted” (Controller).

While this collective commitment or obligation towards the *success of the opera*, with all its different meanings, is able to motivate the routine workers and most of the expressive workers at La Scala, it can create problems for the singers. As the Casting Director noted:

“Singers are the most fragile and capricious personalities found in a theatre. They are unreliable, unstable, they get sick all the time and make it impossible to manage daily operations. I have seen an Orchestra Director attend rehearsals with the flu, but as soon as they have a sore throat, singers don’t show up. Or they may come to the rehearsal, but if the Director wants to change something, they get miffed and walk out. They are supremely fragile.” (Casting Director).

Artist unpredictability is a complex matter, not only for the Casting Director, but also for the Stage Engineer, who has to go from managing the complexity of physical space to handling the complexity of “looking after” the artists. He stated:

“During rehearsal, you have to manage and orchestrate a whole bunch of different groups of people with different backgrounds, different slots in the theatre hierarchy and different personalities. It is a psychological exercise: you need to cuddle them and they need to be reassured. Very often the problem lies with them, rather than being a real and objective need” (Stage Engineer).

It was underlined that the singers can, in some cases, feel such high pressure that they do not show up to rehearsals or, even worse, to the night of the Premiere, or they can leave the stage after the first act if they feel inadequate. This is because singers are switched on to high engagement towards success, a fact observed by the Orchestra Director:

“When you have fourteen violins and one of them plays out of tune, that’s a huge failure. You break the precise and perfect equilibrium. If a note played in the orchestra or sung by a singer is not the right one, you break that perfection, you fail” (Orchestra Director).

“If the opera is a success, it’s down to everyone, but the icing on the cake is given by the singer. The singer is the one making all the difference” (Orchestra Director).

The close bond between singers and their desire to achieve personal success, which acts as the main determinant of the success of the opera, clearly has severe implications for the collaborative whole when singers do not show up to rehearsal or, even worse, exit after the first act:

“I have seen Orchestra Directors on stage with the flu, but never singers. If they don’t feel perfectly fine, they won’t show up. It’s not simply a matter of being sick, it is also psychological: if they’re not in the right place psychologically, they will literally disappear” (Artistic Coordinator).

In summary, during the phase when objective operas are taking shape, the Calendar retains its infrastructural role, while collaboration is ensured by the epistemic role of the *success of the opera*, which stimulates all the expert groups to work together in overcoming the problems relating to resources or aesthetics. Singers,

however, have an over-developed sense of engagement with this desire of achieving success, and they perceive the success of the opera as a personal success rather than as a collective process. This personal and individual perception of success creates problems in terms of putting on an opera through the collective effort of many.

Discussion

This study investigates the role of planning objects in supporting collaboration within performing arts, and also examines the associated implications relating to the aesthetics-economy dichotomy. Although our results are specific to a particular time and space, by endorsing a relational perspective on objects (Scarborough et al., 2015) and relying on the hierarchy existing between the objects (Nicolini et al., 2012), our empirical investigation at La Scala allowed us to draw several more general insights, with a specific focus on the Programming Calendar. The Calendar is a planning object that has the purpose of encouraging collective and individual action, and it is – and has always been - taken for granted. It has been in use ever since the theatre was founded, it is produced in printed form and it still retains its original colours and layout as a symbol of La Scala's long-standing tradition. On the flip side, during the process in which a production is transformed from a projected opera into an object(ive) opera, we found that the Calendar dynamically had evolved into a boundary object, stimulating collaboration. During the phase when the object(ive) opera comes into being, the collective obligation – and consequent desire – of ensuring the *success of the opera* acts as epistemic object, by highlighting the problem of the singers' over-engagement.

With reference to these findings, three main insights are discussed below in connection with the role played by objects to influence collaboration in performing arts. The first insight relates to the emergence of *resource obligations* as the main relational element for enhancing collaboration around the Calendar. The second insight is linked to the problem of personal over-engagement with the epistemic object, which affects collaboration, and how this over-engagement is tied in to the progress of the Calendar, leading to an increased sense of personal responsibility as time goes on. The third area of results relates to the temporary role played by success of the opera in *reframing* the aesthetics-economy tension.

Resource obligations and the dynamics of infrastructures

The first insight was linked to the fact that *resource obligations* were found to be a central relational element, and can explain how the Calendar plays a dynamic role throughout various phases of its lifespan.

The Calendar is a document that sets out the theatre's annual plan for the operas, singers and directors. It is the key reference planning infrastructure used by everyone within and without the theatre, denoting La Scala's identity and the most visible sign of the CEO's time at La Scala. The Calendar is the outcome of a long process, but it is also produces a tangible output in the form of posters and pamphlets. These objects are

preserved and become archival material testifying the time a CEO has spent at La Scala and the mark he (it has only ever been a man to date) left on the theatre. The current CEO, similarly to all those who preceded him, wants to leave his imprint on the Calendar and so proposes his own individual line-up of operas, singers and directors. In line with his assigned role, the CEO has “the first and last word on the subject of artistic programming” (in the words of a key informant). Despite this concentrated and formal ownership, from our empirical observations, it emerged that the Calendar evolves dynamically, being transformed from an infrastructure into a boundary object when the voices of other actors indirectly enter the equation through *resource obligations*.

Resource obligations are both tangible and intangible constraints, set in action by experts, and linked to the theatre’s resources, both in the form of its physical structure and its permanent staff. When these *resource obligations* come into play, this creates a shared space of collaboration between the expressive and the routine workers. These obligations are strong enough to challenge the CEO’s ideas because they do not oppose his (see previous comment) artistic views, but rather are put forward as eventualities that could potentially undermine how his “dreams are translated into reality” (in the words of the key informant). They are based on people’s knowledge of routine practice and resources, and can sometimes bring in external actors indirectly, such as trade unions, but they are always concerned with the normal working space and routine. Interestingly, economic factors are never called into play, as the general view is that economic constraints can be removed, as explained by a key informant: “In thirty years, I have never seen a request being rejected for financial reasons”. Although financial sustainability is increasingly more central, it is not considered severe enough to challenge the Calendar.

These *resource obligations* impact on the role of the Calendar, and its status shifts from being an infrastructure to a boundary object. To understand this process of continuously reopening the Calendar, it is important to highlight another relational element linked to resource obligations, the progressive recruitment of actors. At the basis of its very existence at La Scala is the fact that the Calendar is an infrastructure that is taken for granted. When starting to discuss the Calendar for a future season, the various *resource obligations* take effect and the Calendar temporarily changes into a boundary object through the creation of a shared space for collaboration between the Artistic Director, in this case the CEO, and the senior managers, who see themselves as routine workers. The moment the Calendar is submitted to the Board of Directors and made public, it reverts to being an infrastructure, and once more is an implicit element that is taken for granted and reflects the artistic offer without being questioned. The Calendar is then re-opened when an opera is actually being produced and the artists make their way to the theatre. The abstract concept of the opera then takes on a physical shape and more and more routine workers are involved in the process and start collaborating with the directors, singers and designers. Once again, it is clear that routine workers can have their say through the *resource obligations*, which are imbedded in their knowledge of the theatre. Looking at costumes, for example, the costume designers fail if they dispute a choice made by the Artistic Director, for

example questioning whether costumes are too modern for a traditional opera (this is a real case in point). They, instead, can reopen discussions when they draw attention to what the audience can see best from the different sectors of the theatre. The process of expanding proceedings to more actors is strictly connected with the timings that come into effect during the production of the opera, specifically when the whole operation shifts from a projected to an object(ive) opera. In the phase of projecting an opera, the Calendar acts as a boundary object when the artistic leader and senior managers come on board. Subsequently, in the phase when the opera becomes objective, senior managers are joined by more operational and routine workers, and the Calendar continues to act as a boundary object for the many expert groups involved in producing the opera. However, despite this progressive enlistment of expert groups, the Calendar has no influence over what was previously decided and has already been published, that is, the seasonal Calendar. Collaboration continues at a lower level of detail, with the components belonging to each opera being defined.

This insight contributes to the literature on the relational nature of objects (Nicolini et al., 2012; Scarbrough et al., 2015), by adding the notion that *resource obligations* are a conceptual element that can explain *how* the transition comes about from being an infrastructure to taking on the role of a boundary object role. By delving into the *resource obligations*, the Calendar changes temporarily from an infrastructure that is taken for granted and never put into question into a boundary object, because this process creates a shared space for collaboration between expressive and routine workers. The artistic ideas are never questioned, but the feasibility of an opera can be put up for discussion, initially by raising questions about the portfolio of operas and then by querying the specific solutions (costumes, settings). The path from a projected opera to an object(ive) opera is activated through the *resource obligations*. These obligations mean that the implicit, taken for granted infrastructure of the Calendar is cross-examined, by bringing the various expert groups together in a collaborative exercise.

Resource obligations, furthermore, acquire the status of a relational viewpoint that can explain why collaborative tension is maintained even when there is disagreement about how the symbolic points of the Calendar are defined, which leads to our second area of results: success as an epistemic object.

The problem of individual over-engagement with epistemic object

The second insight concerns the problem for collaboration regarding personal or individual over-engagement with epistemic objects. As the previous literature on epistemic objects highlights, there is both a personal and a collective dimension to these objects: “emotional investment toward the epistemic object was not limited to individuals but also operated as the engine of solidarity among groups of scientists from different disciplines” (Nicolini et al., 2012, p. 619). In this way, “The emergence of an epistemic object introduces a

form of a collective obligation toward it—an emotional affiliation that becomes a morally binding force among the coresearchers” (Nicolini et al., 2012, p. 614).

The empirical case of La Scala highlighted the epistemic role played by the *success of the opera* in terms of generating personal emotional investment (Knorr Cetina, 1997) while, at the same time, it stimulated collaboration. This point emerged several times from the interviews, indicating that, even down to the “least technician”, collaboration is crucial to bring about a perfect end production. Although everyone is interested in their specific field, they are also aware that their own contribution, even if only small, is central to the *success of the opera*. In this context, while the tension between aesthetics and economy is never resolved, the desire to achieve success stimulates the collective obligation among the different expert groups to pursue collaboration. In this way, individuals are driven by the desire to achieve success by collaborating and they are pressurized by the overall collective obligation and emotional engagement with success.

While individual and collective obligations associated with the epistemic object are traditionally described as positive for collaboration, our study reveals that there is a problem of *individual over-engagement* with the epistemic object. This is clearly the case with singers, who are said to be “the most fragile element of opera” (in the words of a key informant).

Because of our long engagement with La Scala, we were able to go beyond the simple assumption that singers are simply being capricious. Singers are intensely bound up in their desire to achieve success to the point that they perceive the success of the opera as their personal responsibility. As was stated:

“If you fail in your performance, if you realize that your performance is not understood and people are laughing, this is your failure, it’s your own personal failure, and it hits you deep down ” (Orchestra Director).

This observation makes a good point about the problems connected to *the singers’ over-engagement* with the epistemic role of the success of the opera. Over-engagement gives rise to problems within the collective action, leading to singers deciding not to go on stage on the day of the Premiere or even leaving the opera after the first act. This is explained through their acute sense of personal responsibility for a successful outcome. Although the success of the opera is the collective outcome of a process where everyone is engaged emotionally and personally, over-engagement risks undermining the collective process.

This result sheds a new light on problems connected with epistemic objects. While epistemic objects are traditionally described as the fuel of collaboration (Knorr Cetina, 1997; Ewenstein and Whyte, 2009), problems can also emerge. Recent studies place emphasis on the possible conflicts associated with the co-existence of different epistemic objects (Nicolini et al., 2012). Our study, on the other hand, brought up problems within the individual-collective action when individual persons develop an overly deep involvement with the epistemic object.

Reframing the aesthetics-economy tension

The third contribution is related to the role that objects play in addressing the aesthetics-economy tension that is at the basis of performing arts. The empirical evidence that emerged at La Scala showed that this tension is never resolved, but is reframed into the collective obligation of ensuring the success of the opera. Timing plays a crucial role in this progressive reframing path.

In the early stage, when operas are projected, tensions between aesthetics and economy are highly visible. The General Director strives to balance the expected revenue with costs, while the Artistic Director searches for a unique artistic offer. Although the tensions are clearly on display here, the theatre's hierarchy prevails and the Artistic Director, who is also La Scala's CEO, has the "last" say on the Calendar. Apparently, when hierarchy comes into play and the Calendar is approved, the artistic choices seem to prevail over the economic factors. Yet, this is only a temporary situation, and tension emerges once again at a more operational level during the phase when the opera is physically coming to life.

During the progressive projection of the opera, tensions between aesthetics and economy are once more on show, but this time they involve the horizontal roles. To be more specific, tension goes back and forth between all the expert groups involved in producing the opera and the finance and control department. The casting managers, costume-makers and tailors, make-up artists, choreographers and stage managers involved in physically bringing the opera to life request material and resources of high quality. Obviously, every expert group wants the best resources. On the contrary, the finance and control department is in charge of managing the financial resources and setting a threshold for the expenses of each expert group. This generates tension between the overseeing function and every expert group demanding more resources. At this level, there is no hierarchical pressure. Tensions are not cleared up, but they are reframed into a collective obligation committed to the *success of the opera*.

The aim of this result is to contribute specifically to the literature on creative industries, and performing arts more specifically, by highlighting that no one tension prevails over another, as some authors argue (Eikhof and Haunschild, 2007). We are, instead, more aligned with Austin et al. (2017), who suggested that it was possible to "live with" the two tensions: "conversational belonging, or "living with," can thus be described as an achieved sociality, one that involves risk-taking and being responsive" (p. 12).

More specifically, our main argument here is that the aesthetics-economic tension is not as successfully managed as some studies seem to suggest (Gotsi et al., 2010) and, in no case, does one dimension prevail over another (Eikhof and Haunschild, 2007). On the contrary, we argue that the tension is reframed into achieving the success of the opera, enhancing, at the same time, a temporal collaboration between the various expert groups.

Conclusion

This study centred on the role played by planning objects to support collaboration in performing arts organizations and their function in connection with the inevitable aesthetics-economy dichotomy. Basing ourselves on boundary object literature, with particularly reference to the relational properties of objects and the hierarchy between them (Nicolini et al., 2012; Scarbrough et al., 2015), we decided to focus on the Calendar as a planning object that can potentially assume different roles with regards to its capacity of enhancing collaboration. After conducting an empirical analysis at the Teatro alla Scala, three main areas of results emerged.

The first area is related to the emergence of *resource obligations* as key element in the oscillation of the Calendar between being an infrastructure and being a boundary object. The Calendar was initially conceived as an infrastructure that was both taken for granted and not questionable (Star, 2010), but because *resource obligations* that could potentially impinge on its feasibility were then raised, this led to the infrastructure being opened, becoming an element of discussion and a boundary object in flux. This result adds to the recent argument that objects have relational properties and their role cannot be defined in advance (Nicolini et al., 2012; Lainer-Vos, 2013; Scarbrough et al., 2015), by setting forth an explanation about *how* objects can move from being infrastructures to boundary objects through the additional notion of *resource obligation*. Once *obligations* are deployed, the Calendar shifts from being infrastructure that is taken for granted to becoming a questionable document that progressively creates a shared space for cooperation, bridging the boundaries between the various expert groups. While previous literature suggests that an infrastructure can be transformed into a boundary object when problems occur, for example when an infrastructure does not function (Star, 2010), our study shows that it is not merely a physical or structural problem. An infrastructure can purposefully become a boundary object when expert groups set *obligations* in motion.

The second area of results is related to individual over-engagement with the epistemic role, which lead to the violation of collective obligation, undermining collaboration. While current literature acknowledges the contribution of epistemic objects in providing the motivation for collaboration (Ewenstein and Whyte, 2009; Scarbrough et al., 2015), our study emphasises the problems that arise in connection with the epistemic object. In particular, we have shed light on how a deep and intimate engagement with the epistemic object can potentially reverse the collaborative endeavour behind the epistemic objects, with singers, specifically, focusing on their own individual performance, rather than considering the overall collaborative dimension. This insight has opened further avenues of research into the implications of over-engagement with epistemic objects and the strategies for resolving these issues.

The third area of results is specifically centred on performing arts organizations and aesthetics-economy tensions. Our study showed that the hierarchy of the objects involved does not solve the tension, but it is reframed into a collective obligation when the overarching aim is to pursue the success of the opera.

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