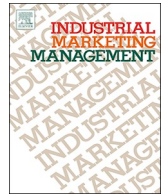




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Research paper

Sustainability agencing: The involvement of stakeholder networks in megaprojects

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ABSTRACT

This article explores the involvement of stakeholders agencing sustainability in the context of megaprojects, which represent an extreme setting with inherent uncertainty and complexity. Through the concept of milieu, project marketing has for many years studied the diversity of actors, their heterogeneous nature and their multiple interactions, but without really tackling the issue of sustainability. As part of a three-year interaction with a rail supplier company, this research is based on three case studies of urban rail projects in France. Actor-network theory was applied as method theory. Findings suggest that agential configurations for sustainability include non-business actants, as well as hybrid and future collectives. We differentiate stakeholders according to the role they play in agencing sustainability: promoters, translators and targets. The study enriches the concept of milieu through a distinction between actors from the territory, milieu and project network. We propose the concept of sustainability agencing to offer (1) a dynamic view of stakeholders in project and industrial marketing and (2) a project-centered perspective of sustainability in business markets. Implications for theory and practice are given to foster future research in this area.

1. Introduction

The notion of megaprojects refers to one-off and large projects designed to meet the requirements of large business or government customers (Brady & Hobday, 2012; Davies & Hobday, 2011; Hobday, 1998) in sectors such as defense, aerospace, telecommunications, transportation, construction and automobile. These projects form the backbone of our modern economy (Brady & Hobday, 2012), representing an average of 15% of international business over the 1990's (Dedehayir, Nokelainen, & Mäkinen, 2014). They also offer an extreme setting for sustainability issues (Flyvbjerg, Bruzelius, & Rothengatter, 2003). “Sustainability” refers to the long-term maintenance of systems according to environmental, economic and social considerations (Crane & Matten, 2004). On the one hand, the scale of megaprojects in terms of financial commitments, development time, lifespan and interaction with local issues and the number of stakeholders involved and their diversified nature (Crespin-Mazet & Flipo, 2009) imply a priori a very broad scope of sustainability-related problems (diversity of issues and levels of impact). On the other hand, megaprojects oblige suppliers to address sustainability issues beyond their own impacts as companies (known as the triple bottom line [Elkington, 1998] and corporate social responsibility [Carroll, 1999]), that is, with the specific articulation of sustainability issues for each individual project in which they

participate (a project-centered perspective).

Megaproject clients ask their suppliers to integrate sustainability. The extant literature underlines, however, the complexity of their procurement process leading to marketing challenges: (1) difficulty in integrating robust sustainable criteria in procurement given the technical, legal and financial complexity (Broesterhuizen, Vellinga, Taneja, & Docters van Leeuwen, 2014; Preuss, 2007; Uttam & Le Lann Roos, 2015); (2) significant uncertainties during the procurement process because of the overlap with environmental procedures (Priemus, 2010) and the adoption of new methods required by sustainability (Häkkinen & Belloni, 2011); and (3) a variety of stakeholders who influence the project's sustainability (Cova, Ghauri, & Salle, 2002; Lehtinen, Aaltonen, & Rajala, 2018; Pace, Calisti, Cova, & Salle, 2004).

Consequently, a marketing challenge consists of understanding how sustainability procurement criteria emerge and who influences them. Early on, project marketing literature drew on project anticipation and co-construction through the concept of milieu (Cova, Mazet, & Salle, 1996). A “milieu” is defined as “a socio-configuration that can be characterized by four elements: a territory, a network of heterogeneous actors related to each other on this territory, a representation constructed and shared by these actors, a set of rules [the law of the milieu] regulating the actions between these actors” (ibid, p. 654). Because project marketing has for many years questioned the diversity of actors,

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their heterogeneous nature and their multiple interactions through the concept of milieu, it could provide an interesting perspective on sustainability in project marketing. However, the few works that do deal with the link between milieu stakeholders and sustainability issues in the project marketing literature (Carù, Cova, & Pace, 2004; Crespim-Mazet & Flipo, 2009; Pace et al., 2004) fail to provide insights on how actors and stakeholders get involved and organized for increased sustainability.

Our intent is to contribute to filling this gap by using the actor-network theory (ANT) (Callon, 1986; Latour, 2005) as method theory (Lukka & Vinnari, 2014). This theoretical background provides an open stakeholder approach to understanding sustainability agencing (Callon, 2016; Cochoy, Trompette, & Araujo, 2016). Our purpose is to conceptualize how stakeholders get involved in sustainability issues in megaprojects. Our two research questions are (1) how are sustainability actors configured and (2) what role do they play? This research accordingly contributes to business-to-business and project marketing literature. It provides a renewed perspective on sustainability actors and their roles in agencing sustainability in megaprojects. It offers clarification of the actors from the territory, milieu and project networks dealing with sustainability issues. The concept of sustainability agencing also offers a dynamic and project-centered view of stakeholders and sustainability in business markets. From a managerial point of view, the research brings a method that takes into consideration the new interactions opened by sustainability. This method makes it possible to formulate marketing action through better identification and assessment of sustainability actors and stakeholders in the making and, particularly at difficult stages such as upstream of a project; it also offers guidelines according to the role of the actors in developing business opportunities, taking sustainability into account. The research therefore contributes to the ability of the actors to manage the complexity of megaprojects and their purchasing processes and allows business opportunities to be developed that integrate sustainability.

The article begins with a literature review on (1) the emergence of stakeholder networks for sustainability in the context of megaprojects and industrial business relationships and (2) the central concept of milieu. We propose in a third section a renewed view based on ANT. This is followed in a fourth section by the rationale for a qualitative methodology to be used to fulfill research objectives. The three in-depth cases studies are presented in Section 5, they explore stakeholder involvement in agencing sustainability. Section 6 begins with a cross-case analysis to compare our cases and is followed in a seventh section by a theoretical discussion and a conclusion in Section 8.

2. Literature review

2.1. Stakeholder networks for sustainability in megaprojects

A stakeholder is defined as “any group or individual who can affect or be affected by the achievement of organizational goals” (Freeman, 1984, p. 46). Aaltonen and Kujala (2010) show that megaprojects affect and are affected by multiple stakeholders with different interests and demands. The literature using this perspective has extensively covered the recurrent question of who are stakeholders? Abundant typologies classify them according to the existence or not of a contractual relationship with the business (Aaltonen, 2011; Clarkson, 1995; Donaldson & Preston, 1995); according to their characteristics: urgency, power, legitimacy (Mitchell, Agle, & Wood, 1997); group categories: regulatory, organizational, community stakeholders, the media (Henriques & Sadorsky, 1999); and according to the existence and degree of a societal commitment on their part (Girard & Sobczak, 2012) or even to active versus passive behaviors (Achterkamp & Vos, 2008). Mok, Shen, and Yang (2015), who draw a systematic review of stakeholder management in megaprojects, consider that the literature primarily focuses on individual stakeholder attributes and salience. This recurring perspective leads to a conflict-driven approach in which

secondary stakeholders are taken into account to reduce risks.

Recent developments of stakeholder management have shifted to a network-level perspective (Rowley, 1997) that highlights multiple stakeholders who “come together in order to find a common approach to an issue that affects them all” (Roloff, 2008, p. 238). This view moves the focal point of the analysis from the traditional stakeholder approach that emphasizes risk faced by a company to issues related to a specific project. This approach also calls for a dynamic stakeholder analysis (Lehtinen et al., 2018; Missonier & Loufrani-Fedida, 2014) because it requires understanding the expectations of a temporary emerging collective.

IMP Group researchers extensively mobilized a network approach to study industrial business relationships considering business in a global environment (Hakansson & Waluszewski, 2013). In some cases researchers integrate non-business actors, such as political actors (Hadjikhani & Sjögren, 1995; Hadjikhani & Thilenius, 2005), because these secondary stakeholders are in fact essential within business relationships (resource control, public policy development). The network is also primarily understood in the restrictive meaning of business relationships, and so far studies going beyond the networks of economic actors are rare. If Hadjikhani and Sjögren (1995) consider the question of media or political actors as stakeholders, they mainly address a utilitarian view (barriers to entry, uncertainties reduction).

Recently, sustainability has begun to drive industrial business relationships research (Patala et al., 2016; Ramirez, Gonzalez, & Moreira, 2014; Sharma, Iyer, Mehrotra, & Krishnan, 2010). Consequently, the literature has gone beyond a conflict-driven and utilitarian approach to identify stakeholders. Esse, Szántó, and Wimmer (2012) highlight the criteria of “relationship reciprocity” to identify them. Similarly, the main contribution of Ivens and Pardo (2010) is to state the necessity of taking the concept of externalities into account with behavior norms, leading companies that want to manage this responsibility to adopt a stakeholder approach. Ryan, Kajzer-Mitchell, and Daskou (2008) suggest an integrative model for sustainable industrial marketing that includes the relationship among the system (including the environment), business networks, inter-organizational dyads, direct business actors (suppliers and clients) and non-direct business actors (non-governmental organizations [NGOs]). At a local level, Ritvala and Salmi (2010, 2012) analyze how a special category of stakeholders – the NGOs – mobilize business actors in networks based on values. A second group of research studies highlights the complexity of managing stakeholder relationships when addressing sustainability. Finke, Gilchrist, and Mouzas (2016) show the failure of a collective response to climate change due to the multiplicity of stakeholder interests involved in global networks. Wilson, Bunn, and Savage (2010) put into perspective the diverging interests and roles among stakeholders involving a mix of for-profit and nonprofit organizations that have to cooperate in projects of societal impact.

Therefore, the literature dealing with stakeholder networks in megaprojects seldom goes beyond contractualist and utilitarian approaches (reaction posture) and remains anchored in morphological analysis even when using a network approach (Missonier & Loufrani-Fedida, 2014). And when stakeholder networks for sustainability are studied, the literature still mainly builds categories that bring stakeholders into opposition. It reveals a dichotomous view that doesn't focus on the emergence of stakeholder networks contributing to sustainability in megaprojects.

2.2. Milieu: A promising approach toward the emergence of stakeholder networks for sustainability

As a sub-branch of industrial marketing, project marketing integrates the principles of the IMP Group (Cova, Bansard, & Flipo, 1992) but goes one step further. Indeed, the questions behind the selling of megaprojects encouraged Cova, Crespim-Mazet and Salle (Cova et al., 1996; Cova, Mazet, & Salle, 1994) to develop the concept of milieu:

“Contrasting with the idea of market which refers to a group of companies, competitors, customers clearly operating in business, the idea of milieu puts the emphasis on the environment and on the formal and informal links existing between business and non-business actors (set of implicit rules)” (Cova et al., 1994, p. 36). Taking inspiration from urban territorial development research, the authors highlight that the business no longer focuses just on technical-economic exchanges with classic institutional actors but on exchanges of a social nature, which include other types of actors on a specific territory. They propose milieu as a relevant unit of analysis in project marketing. According to Cova et al. (1996): “the milieu acts as a microcosm in which network forces are at play but are reinforced and empowered by spatial and cultural proximity” (p. 655). Territoriality acts as the receptacle and support of a relational capital, a system of local governance, but also as a mechanism of coordination. The common rules and representations are built through a process of collective learning enriched by each project completed in this territory through interconnections that lead to the development of common visions, norms and values among the involved actors. The milieu, thanks to its socio-spatial configuration, exists as a stable network independent of any project (Cova et al., 2002). A specific project intervenes like an episode, an event. It creates a temporary network that will eventually change or reinforce the current rules of the game among the milieu's actors.

Early on, Cova et al. (1996) indicated that a milieu is composed of the business actors (consultants, partners, financiers, agents, engineering firms, contractors, etc.) and non-business actors (governments, unions, lobbyists, pressure groups, activists, etc.) that form the environment in which a project is constructed. Cova et al. (1996), Cova and Hoskins (1997) and Cova et al. (2002) have researched the peripheral non-business actors and highlighted the investment of local economic players indirectly supporting the development of specific projects by enhancing local impetus. Cova, Salle, and Vincent (2000) mention a tactic used by suppliers to empower future users in the buying center's decision-making process (e.g., assistance in building a pitch). Skaates, Tikkanen, and Lindblom (2002) and Skaates, Tikkanen, and Alajoutsijärvi (2003) highlight the role of regulation actors and their interest in project-related norms. They use the typology developed by Tikkanen and Lindblom (1998, in Skaates et al., 2002), which also uses category schemes, by identifying three types of actor: business actors, community and society actors, and governmental/state actors. Cova et al. (2002) highlight some actors outside the economic sphere. They analyze a supplier's bid including its social dimension resulting from the supplier's collaboration with NGOs, local government and other local opinion leaders. It must be noted, however, that this social dimension remains peripheral vis-à-vis the focal project bid. Pace et al. (2004) address local residents' concerns in the case of a major urban project, coining the term “non-clients”.

The value of the milieu concept in project marketing lies in recognizing the heterogeneity of component actors and their influence in shaping rules of the games for project development, but few works depict actors other than those in the purely economic sphere, thus excluding players who address project externalities (Carroll, 1999), as well as problems related to sustainability. In most project marketing research, even if there is a “request for sustainability” emanating from a milieu, or specific to a project, it seems to be driven by actors, called “societal actors”, who speak in favor of conserving natural areas (Cova et al., 2002) or protecting their livelihoods (Pace et al., 2004). In fact, in response to the loss of legitimacy of political actors in managing the common good, these new societal actors “join” projects (Cova et al., 2002). They are then called the “hidden actors of project networks”, as opposed to the “visible actors of project networks”, who are contractually involved in the project (such as clients, engineering firms, banks or other institutions, actors that marketing is paying attention to). We then understand that marketing activities are differentiated between business (visible) and non-business (invisible) actors and focused on economic actors who are useful for project development.

Project marketing has consequently worked for many years on the emergence of milieus considering a utilitarian perspective (developing relationships with secondary stakeholders to gain access to central business actors, and to understand the tacit rules and representations), without necessarily integrating the question of sustainability, because this issue has always remained peripheral. Milieu also expresses a dynamic approach toward megaprojects, but very few works depict how stakeholders emerge and proceed until being involved for sustainability in milieus and projects.

3. Framework and research questions

3.1. Actor-network theory as method theory to rethink actors of milieus and stakeholders

ANT offers a framework to consider sustainability actors and stakeholders with a more open and dynamic view (Missonier & Loufrani-Fedida, 2014). According to Latour (2007), the network is a concept, not a thing; it is a tool that helps to describe something and is not what is described. Latour (1996) highlights the strength of the network effect. He illustrates this effect by describing a posteriori the failure of Aramis, an innovation in urban public transportation. Indeed, the innovation was so groundbreaking for the sector that it was not sufficiently supported by its network, and in the long term, in its technical, political, social, economic, and even “romantic life”. Latour shows that, in order to apprehend the chances of success of a project, it is more a question of analyzing the collected supports, in all their forms, including hybrid versions (Callon, 1986), than its intrinsic quality. The principle of generalized symmetry (Latour, 2007) recommends analysis of “the nature” (material facts) and “the social” (the social construction of phenomena) using the same tools and methods. It suggests studying success and failure, center and periphery, human and non-human in the same way. Non-human refers to objects, elements of nature, techniques, norms or tools that act on human actants. Objects are socially constructed and transform the social. If they are stressed, they resist (they too!) and impose matters on the actors.

ANT addresses business network emergence by exploring market and network management “in the making” (Andersson, Aspenberg, & Kjellberg, 2008; Chakrabarti, Ramos, & Henneberg, 2013; Kjellberg & Helgesson, 2007). Using this perspective, Callon (2016) sees innovation as a “process-good”, whereby a good comes not from just anywhere but results from the articulation of a series of transformations and adaptations among design, production, circulation and consumption.

The concept of agencing (Araujo & Kjellberg, 2016; Azimont & Araujo, 2007; Callon, 2016; Cochoy et al., 2016) brings a deep understanding of market emergence and development, in which “the agencing neologism, coming from the French verb ‘agencer,’ means both arranging market entities (agencing as producing specific agencements) and putting them in motion (agencing as ‘giving agency,’ that is, converting people, non-human entities or ‘hybrid collectives’) into active agents, or rather actors [Callon and Law 1995, 1997]” (Cochoy et al., 2016, p. 6). An arrangement is a specific situation, which actors transform through specific actions and, in doing so, produce differences (agencements). As with network development, agencements are always heterogeneous, local and temporary, rather than totalizing and administered from a strategic locus. In this context, agencing is a dynamic process that shapes multiple agencements, giving them the capacity to act. As Cochoy et al. (2016) state, the notion of “market agencing” helps to get marketers out of the design of rigid, cold and stable “market devices” in order to focus on the functioning of markets that depend on the continuation of collectives and the distributed and multifaceted process of agencing.

Lukka and Vinnari (2014) distinguish between domain theories and method theories to help researchers articulate their ambitions and contributions more clearly: “A domain theory refers to a particular set of knowledge on a substantive topic area situated in a field or domain

such as management accounting, while a method theory can be defined as a meta-level conceptual system for studying the substantive issue(s) of the domain theory at hand.” (ibid, p. 1309). Consequently, we mobilize ANT as a method theory to study sustainability agencing and to describe how networks and new agencements emerge and manage to stabilize themselves temporarily (Law, 2007); we target our theoretical contributions on our domain theory: project marketing.

3.2. Research questions and framework

The project and marketing literature on stakeholders and milieu shows a dominating “contractualist” rationale, in which business actors are primary stakeholders of the project and have key objectives for its success that are mainly economic in focus. Non-business or secondary actors, such as NGOs, labeling organizations, governments and other actors such as regulators or the media are mostly perceived of as risk or uncertainty carriers (or, in some rare cases, opportunity carriers). Actors on one side of the activity (users, clients not among the decision-makers and actors passively involved) receive less attention, and stakeholders outside of the project team are rarely considered.

In the same way as Callon (2016) studied “marketization” (instead of interfaced markets), ANT enables us to comprehend “sustainability”, a process found in practice in which the constitution of actors calling for support of sustainability issues is always determined “in action” (Latour, 1987). Unlike most cases noted in the project and marketing literature, actors and others stakeholders taking part in these agencing activities cannot be labeled as primary stakeholders or political stakeholders because they define each other at the same time that the network is built. This creates a challenge for marketing, which does not know how to identify the main players in terms of sustainability agencing.

It also leads to the following two research questions:

- (1) How are sustainability actors of megaprojects configured?
- (2) What role do they play?

For the first research question, we mobilize Hagberg and Kjellberg's (2010) analytical framework of agential variations. This framework articulates three dimensions in order to capture and register constitutional variations of market actors. The first dimension of variation concerns the “number of elements”. According to the authors, “the number of elements that make up agential configurations varies between agents and over time, ranging from singular to complex collectives” (Hagberg & Kjellberg, 2010, p. 1032). Hagberg and Kjellberg consider elements such as individuals (who act under their personal name, official title, in their own capacity), collectives (which comprise several individuals or groups and their actions intervene through associations that link these elements to each other) and hybrid collectives (constituted from both human and/or non-human components). The number of elements can vary over time, either by adding new capacities through novel elements or by disqualifying elements constituting the configuration. The more elements there are that constitute an agential configuration, the greater the importance of the capacity of the configured actors. The second dimension of variation is the “durability of associations”. This dimension refers to the capacity of associations to hold over time, resisting pressures and controversies. Hagberg and Kjellberg highlight that “the associations that keep elements together in agential configurations vary from highly temporary to highly durable” (ibid). Temporary associations within agential configurations reduce the predictability of the agential configuration's capacity in a given situation. Highly durable associations (e.g. those formalized in contracts) are more likely to act as expected, given the stability of the agential configuration in terms of its capacity to act. The third dimension of variation is the “associative structure”, which “varies in terms of how well the elements are interconnected and whether some elements are more central than others” (ibid). Their interconnection and relative

centrality affect the dependence between the elements constituting the actor and thus the consequences of the action of one element on the configured actor's ability to perform. These three descriptive dimensions of agential variation seem appropriate for marketers seeking to analyze networks as associated materials. In practice, these dimensions are observable “in the making” and can be seen from an external position, from which marketers do not always have the latitude to “follow” their clients and other stakeholders and are also hindered by information asymmetries (Cochoy et al., 2016). These three dimensions constitute our analytical framework mobilized in Section 6.1.

We follow Dreveton (2011) for the second research question about the role played by actors. Dreveton proposes to distinguish actors, not by status, function or group membership, but by the role they adopt in network agencing. According to Dreveton, the first type of actor is a “promoter”. Promoters' actions are intended to raise certain stakes to the highest priority, which has the intention of ensuring that network actors perceive them as a priority for the project. They seek success for the project but, above all, they are seeking the adoption by the network of the stake they are carrying. They push to engage collectives, lobby to convince, communicate at the political level and shape the rules of the game. Promoters create irreversibilities that gradually stabilize the network by making project failure more difficult. According to Dreveton, “irreversibility is obtained by promoters: they organize the translation process leading to the construction of the network” (Dreveton, 2011, p. 22). The second type of actor is a “translator”. Translators make it possible to go through all the steps of sustainability agencing and to raise the issue from an idea to a fact. They have a position as intermediaries, seek consensus and try to mitigate controversies between project members by explaining issues, interpreting the complexity of the processes, and even participating in training the actants. According to Dreveton, “convergence among network members is achieved through the action of translators: they seek the consensus needed to build an innovation in a network of organizations” (ibid). These two roles of actants constitute our analytical framework mobilized in Section 6.2.

Hagberg and Kjellberg (2010) serves to establish the capacity of specific actors to configure themselves. It offers an understanding of an actor's substance: what it is made of and how powerful it is and will become. Dreveton (2011) focuses on the role of these configured actors regarding a specific sustainability issue. The two frameworks also complement each other consecutively.

4. Method

Within abductive reasoning, we adopted a qualitative approach because it is recommended when exploring a little-known phenomenon. Our research is based on case studies, which are used extensively to capture the complexity, richness and dynamics of business relationships (Dubois & Gadde, 2002; Halinen & Törnroos, 2005). We conducted three case studies of urban infrastructure construction projects by French local authorities.

4.1. Case selection

The aim of the research is to understand in depth the involvement of stakeholder agencing sustainability in the context of megaprojects and the new interactions that this implies for project marketing. The three cases correspond to projects in which ITC, a French railway equipment manufacturer¹, has or is going to participate in.

¹ ITC mainly participates as partial rail project supplier (delivering products and systems for the realization of global projects). In addition to railway equipment manufacturers, global rail projects are composed of the track, signaling and electrification companies, engineering services and design professions. Projects are primarily public infrastructures so contracting authorities are

Table 1
Empirical framework of the research.

	Aravis	Turia	Levanna
Project description	Two tramway lines	New tramway Line C	Modernization of the subway system
Temporality of the selling process regarding our interviews	Past call for tenders	Future call for tenders	Future call for tenders
Number of inhabitants	100,000	700,000	Two million
Sustainability issue studied	PRM accessibility (person with reduced mobility)	UNESCO World Heritage Site	Transport system longevity

The research is part of a three-year interaction with ITC. We first built a steering committee (Girin, 1990) to maintain close proximity to the theoretical construction and managerial questions and to stabilize the research over time. In practice, and according to Latour (2007) to “follow the actors”, we asked the steering committee to select cases (because cases correspond to their clients or prospects) and to prepare and validate primary analyses. We held five meetings (each lasting about 2 h) during the case study period with researchers and managers at ITC: the French sales department director, a business developer, a tender leader and the sustainability director.

Given the complexity of our research object (technical complexity, multidimensional character of the cases, variety of stakeholders involved), the steering committee focused on relatively homogeneous rail projects. Case variations was obtained through the criterion of discovering new sustainability issues. To achieve these objectives, the steering committee chose (1) urban projects (relevance of territorial and cultural rules and representations) and (2) current cases (to enable the identification of new issues that the company didn't handle before). Past call for tenders means that the selling process had already been executed and that the project was ongoing when we collected data; future call for tenders means that the selling process has just begun. Table 1 provides an overview of the empirical framework undertaken.

4.2. Data collection

Empirical data come from the analysis of several documents collected over the three years of interaction (see Appendix A) and 36 interviews. For each case study, the aim was to meet actors and other rail project stakeholders who played either a direct role (designing the project, defining requirements, etc.) or were linked to sustainability issues (affecting or being affected by the project). These actors are not representative of so-called milieus but we identified them following ANT (Latour, 2007), because they were present for the sustainability agencing of these projects. An overview of the interviewed actors is presented in Table 2.

4.3. Analysis

Data processing followed a five-step approach: (1) We first developed a coding framework through an analysis of tender documents and other planning documents to identify the sustainability-related themes and sub-themes included in urban rail transport projects. The three cases each involve many subjects related to sustainability issues: energy (power consumption, greenhouse gas emissions), noise pollution, vibrations, accessibility, soil pollution, life-cycle cost approach and so on. (2) We then transcribed the interviews exhaustively (900 pages) and coded them with the coding framework (see Step 1). This was initially done interview by interview and resulted in tables that condensed the breadth of data collected in the field. (3) Then, we realized an intra-case analysis, comparing each code from each of the interviews. We were then able to compile, associate and connect the different allegations of

(footnote continued)

public organizations with strong territorial ties.

the actors on each aspect of sustainability in order to obtain an overall view of the cases for each issue. From this analysis, we selected a surprising sustainability issue that was revealed in each of the three cases (see Table 1). By “surprising issue” (Siggelkow, 2007), we mean that these issues lead to new agential configurations from actors and other stakeholders of the milieu. (4) A thick case description was then performed for the chosen sustainability issue, resulting in collective reports that were sent to all interviewed persons. The objective was to establish the internal validity of the case study research. This field feedback also helped us to complete the collected information and was necessary considering the variety, breadth and complexity of the subjects covered (interviews and documentary analysis can at times be fragmented). (5) The fifth step was a cross-case analysis using the analytical grid presented in Section 3.2. in order to contribute to our domain literature (Lukka & Vinnari, 2014) of project marketing. Given the variety of issues and the complexity of the agencements they support, this analysis was made with the help of the steering committee over the period of three years, providing a forum for validating the empirical interpretations and also a place for exchanging information about ITC's commercial practices to understand how sustainability procurement criteria emerge and who influences them.

5. Findings

After a short presentation of the context of each rail projects, the presentation of our cases follows the two main marketing steps (Cova et al., 2002) focusing on the selected sustainability issue: “independent of any project” and “during the project”.

5.1. Aravis and the issue of PRM accessibility

5.1.1. Context of the project

Aravis is in itself a surprising case: it is the smallest conurbation in Europe (100,000 inhabitants) to build a modern rail transport system, which will also be one of the smallest in Europe. With a final length of 2.8 km, the Aravis tramway project makes sense considering its contribution to the city's social policy. Aravis is an economically depressed area, so there is a need for a large infrastructure to integrate it with the metropolitan area of Mirantin (850,000 inhabitants), located 20 km away, and therefore become a Mirantin neighborhood.

The Aravis tramway project involves the construction of a new two-line tramway network for an overall budget of €120 million. The main markets are prime contracting engineering, rolling stock, electrification, roadway infrastructure and road-rail platform. Here we explore the rolling stock market ITC wishes to address and consequently the milieu and territory in which this market fits.

The case presents new actor and stakeholder configurations because of the issue of PRM (persons with reduced mobility) accessibility.

5.1.2. Independent of any project

The Aravis territory is known to be suitable for people with reduced mobility. As matter of fact, disabled young people born and educated in Mirantin tend to leave and find a more acceptable lifestyle in Aravis. Many suitable amenities exist, such as living centers, professional centers (ESAT), health facilities (Aravis was one of the first

Table 2
List, by function, of the actors interviewed.

Type	Persons interviewed	Aravis	Turia	Levanna
City	Elected officials in charge of transport	x		x
	Elected officials in charge of sustainability	x		x
	Department head of transport and urban development	x	x	
	Cabinet director	x		
Contracting authority	Project managers: general studies, specific employment criteria	x	x	
	Project managers	x	x	x
	Operational engineers		x, x	x
Prime contracting engineering firm	Public procurement managers	x	x	x
	Project managers	x		x
Contracting companies	Engineers specialized in sustainability	x	x	
	Network operators: project managers	x		x
	Network operators: sustainability managers			x, x
	Other companies: regional manager of a contracting company (leveling work)		x	
	State department heads		x, x, x	
	Association presidents representing the environment	x	x	
	Association president representing persons with reduced mobilities	x		
	Association presidents representing public transport users	x	x	x

communities in the region to open a satellite unit of the Departmental House for Disabled Persons – MDPH) and specialized centers. More than 130 PRM associations, for example, Handicap Path 360 (a federation of associations, professional bodies and health organizations), work together, strengthening ties between PRM and various structures.

Meanwhile, Aravis advocates a strong policy on PRM. In fact, sustainability takes on a social dimension within Aravis's public policy. It is reflected in the transport field by the motto: “accessibility for all”. Beyond the issue of free admission (accessibility for all budgets is translated to free public transport), the protection of mobility has been, from a political point of view, clearly identified (physical accessibility for PRM). Mr. Dufraisse, mayor of Aravis, could boast that the downtown area was 100% accessible even before the 2015 deadline imposed by the Disability Act of 2005. Associations stress the important work done by Ms. James, the elected officials in charge of mobility and accessibility and the Inter-Municipal Accessibility Commission, notably including the drafting of the official plan called Accessibility in Public Transport (APT) in 2008. Note that one of elected officials is also a person with restricted mobility. As stated by Ms. Vanier, president of Handicap Path 360, strong links have been developed through time and projects among associations, Inter-municipal Accessibility Commission agents and elected officials (e.g., in the development of APT, in the urban area PRM policy and through focus groups). Moreover, PRM associations are also accustomed to working with Trimerso, the delegated transmission network operator for Aravis, to improve the local bus service.

5.1.3. During the project

During the tramway construction project, these different actors mobilized themselves on the issue of PRM accessibility.

The mayor shown willingness to consult with specialized associations, contrary to other cities, as he said, where the dialogue often turns out to be too complex (e.g., a power struggle among associations). He actively focused on PRM accessibility, because it resonated with his social policy for the conurbation. He also emphasized PRM needs in his political communication about the tramway (press interviews, speeches). After several appointments underlining the specificity of the high level of PRM in the area, Handicap Path 360 asked him more space for wheelchairs in the rolling stocks. Surprisingly, Mr. Dufraisse took the ball and ran with it when he made a public disclosure at the tram house inauguration (information point on public works for citizens) to explain the proactivity of the city in PRM areas. This new demand was the starting point for PRM accessibility of the tramway project in a broader sense, as stated by Mr. Dufraisse:

“Then, we suddenly discovered we had parents with double

strollers, [...] hence the need for a tramway that matches these needs.”

Associations, including Handicap Path 360, actively defended PRM project adaptations by federating the various types of disability, associated structures and consequent needs. Their involvement in the project took the form of support for it in the public inquiry and obtaining a declaration of public utility (a letter to the investigating commissioner). This letter helped the project to see the light of day, and in so doing, Handicap Path 360 won the trust of the mayor of Aravis.

Handicap Path 360 participated with a lot of diligence in the tram workshops, where they had the opportunity to negotiate several project adaptations: infrastructure area (demand for the gap between the platform and the tram to be reduced to 3 cm) and rolling stocks (grip-bars, signals, raising the seats to create space for guide dogs). They also took part in field visits, in various tests and in a tour of a railway constructor's manufacturing facility. Ms. Vanier stated:

“There has never been any obstacle to the PRM stakes in the project—the person who was in charge of accessibility at the inter-communal level is the one who takes care of all that, to avoid blunders, so that nothing was forgotten.”

After months of project management parallel with every aspect of the project, the contracting authority organized the procurement process. The prime contracting engineering firm usually translates customer needs into technical specifications for the project and criteria for tenders. For the first time in this kind of project in France, it mandated one “sustainability expert”, Mr. Jalabert. It was a big innovation. His role was to translate sustainability into different parts of the project. The business developer of ITC heard about the nomination of a specialist and understood that sustainability became an issue for the project. But paradoxically for the Aravis project, Mr. Jalabert has not played a major role in the issue concerning PRM accessibility, either in rolling stock tenders or more generally in the project; his guidance for PRM improvements did not go beyond the basic level. For example, according to Mr. Benard, project manager of the contracting authority:

“The sustainability expert stayed on basic things. Providing a gap between the platform and the rolling stock of 5 cm is standard. You see, we do not have the right to do less!”

But, in fact, PRM associations through Handicap Path 360 negotiated a 3 cm gap, which became, it must be said, a technical challenge. Generally speaking, the translation of the PRM associations' demands was made directly between the mayor and the contracting authority technicians (Mr. Benard and his team) and the technicians of the rolling stock manufacturer (after the consultation process). Mr. Dufraisse was

pleased to say that Handicap Path 360 partnerships led to innovation for rolling stocks:

“Mr. Dufraisse asked for two PRM spaces in the rolling stocks call for tender. [ITC] replied most openly and positively to our demands and it was only then that we discovered that we could require manufacturers to redefine or create different tools to meet our needs ...”

ITC won the rolling stock market, but it is a posteriori surprised by the role played by PRM associations in the procurement process.

5.2. Turia and the issue of UNESCO World Heritage Site

5.2.1. Context of the project

Turia is a conurbation with more than 700,000 inhabitants that has just been granted a metropolitan status. ITC doesn't consider Turia to be a particularly environmentally conscious metropolis because of its traffic jam records. Indeed, motor cars historically carry a certain social weight and have always been politicians' preferred transportation choice over the last decades. The area's transport network has however been augmented by the existence of several subway, tramway, and high-service-level bus lines.

The selected project concerns a future section of about 10 km corresponding to Line C of the tramway. It will follow from the public works project completed on Line B. The objective of Turia-CDR, the contacting authority, is to unblock the subway by creating a ring-shaped tramway network around the city center. This project will cost €160 million. Here we explore the rolling stock and power supply system market for how ITC plans to position itself and the milieu and territory in which it fits.

The new tramline in Turia was constructed within the specific context of its location being close to a canal listed as a UNESCO World Heritage Site: the Turia Canal. The case presents new actor and stakeholder configurations through the issue of preserving a UNESCO World Heritage Site.

5.2.2. Independent of any project

In rural areas the Turia Canal is a tourist spot that highlights the beauty of the surrounding landscape, but the nearby towns are less attractive due to urbanization and pollution generated by people on the margin of society who have indeed chosen this area for illegal activities and generate pollution, noise and insecurity. It necessitates a reappropriation of public space and a restructuring of the urban space around the canal. Given its UNESCO ranking, the city part of the canal must become a showcase again for the metropolis and its projects.

VNF (the French navigable waterways organization) is the site owner (canal and riverbank) and maintains the canal's frontage and functioning. A major challenge for VNF is to preserve the canal's economic activity (boat rental companies, dockside restaurants, etc.) as principal source of income. Holding the label of an UNESCO World Heritage Site is a priority.

The DREAL is the regional environment directorate in France. Their services, which fall under the jurisdiction of the French Ministry of Ecology, require them to be in charge of the protection and management of UNESCO-classified sites. Ms. Kaïeb is responsible for the UNESCO mission in this territory. Because UNESCO has no direct application under French law, the canal (river only) was registered under the Monuments Act of 1930 to obtain a juridical anchoring. Mr. Jones, site inspector for the DREAL, is responsible for its protection.

The “canal pole” acts as a coordination mechanism among territory actors linked to canal issues. It brings the DREAL Territorial Departmental Division, the national heritage supervisor of Architects of France (ABF) and VNF together.

5.2.3. During the project

The special situation of the Line C project in relation to the site's UNESCO ranking also led Turia-CDR to question the specific

implementation procedures and thus order diagnostics from the DREAL. Indeed, beyond the DREAL producing the standard environmental impact reports/assessments to obtain ministerial approval for the project, Turia-CDR asked the DREAL if a UNESCO-adapted environmental impact diagnosis could help to better size the project. The DREAL services (those of Mr. Jones and Ms. Kaïeb) were identified and may be empowered to act for the project, as well as other actors involved in managing the canal (the canal pole) or its immediate environment (SNCF – the French railway national company, RFF – the French railway infrastructure manager, etc.). Ms. Kaïeb and Mr. Jones have the objective of the project meeting the criteria of the Monuments Act of 1930 and of the UNESCO Convention. On the one hand, they will write a notice with respect to the UNESCO criteria to the Ministry in charge of the authorization of the execution of public works. According to Mr. Jones:

“This notice will focus on the architecture, landscape and insertion of the project in the classified site.”

On the other, they may intervene with the business actors in the project, as stated by Ms. Kaïeb:

“We will explain to the project leaders that the canal has still to be a showcase and therefore that their project must be to the standard of a world heritage site. As a general rule, some listen to it and are very willing to follow this logic precisely.”

Turia-CDR identified these new players, even if they were not yet active. They raised new questions and ideas (such as integrating the landscape of the project), which could lead to particular project features in terms of sustainability, as mentioned by Mr. Hernandez, project manager of Turia-CDR, in charge of procuring rolling stock and electrification systems:

“I think we're going to have to go like every project in town through the ABF on the one hand, but especially the canal is a UNESCO-classified world heritage site. So we're really going to have to do something special about that. It's obvious. [...] The first thing they're going to ask us to do, I imagine, is not to put any overhead contact lines, no poles or clumps, less civil engineering and, on the other hand, provide autonomous power supply.”

Turia-CDR is facing two new players, notably, the presence of VNF, a special economic actor not present in the milieu of public transport in Turia, and non-business actors (site inspectors, manager of the UNESCO mission) who never were integrated with previous tramway projects, either in Turia or in other French territories. ITC was surprised because they might be able to influence the project's design and construction.

5.3. Levanna and the issue of transport system longevity

5.3.1. Context of the project

With a population of close to two million inhabitants over its urban area, at the same time being dense in the center and widespread in the outskirts, the metropolis of Levanna offers a structured transport network, one renowned for its dynamism and quality of its transport choices (subway, tramway, trolleys, buses with a high level of service, suburban trains).

Systema is the contracting authority and is in charge of implementing the conurbation's 2014–2020 plan, which includes an extension of the rail network including the automation of Line B. Indeed, Systema needs to increase transport offer of service, specifically on Line B, the most used line of all. The number of rush-hour travelers, which provides the most-accurate rate of transport use in France, is constantly rising (185 trips per inhabitant per year). Continuous system improvements to increase frequency capacity are no longer enough. It has become necessary to purchase new equipment to meet the transport needs by 2020.

The project refers to the modernization of the subway system and

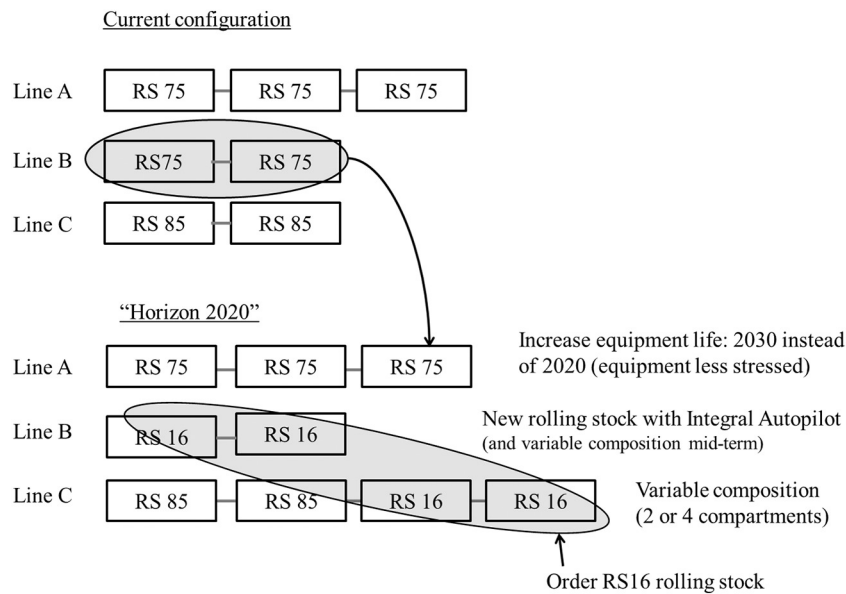


Fig. 1. Strategy behind systema's Horizon 2020 asset management plan.

the procurement of new rolling stock with an automatic pilot for Lines B and C. The total cost of the project is estimated between €200 million and €300 million. This is a “future” call for tender, for which ITC wishes to position itself and sell rolling stock.

The case presents a new actor and stakeholder configurations through the issue of transport system longevity.

5.3.2. Independent of any project

As a large metropolis of European stature, Levanna positions itself as a land of experimentation. Levanna's pioneering spirit can be seen notably through its transport policy: Levanna is the first conurbation in France to have produced an urban transport plan, in 1995. Levanna also built the first subway with a fully autopiloted system in France, called “Mary”. The exemplarity of its transport network is recognized worldwide and consequently regularly visited by international delegations.

Levanna's sustainability approach was introduced more than 20 years ago (the first scoping document dates back to 1992!) and has always been rooted in proactivity (e.g., a prospective strategy since 1997). Mr. Bailly, elected officials in charge of sustainability, developed a dynamic business network that experiments moderation of industrial processes (decreasing consumption of energy and resources). Through a pragmatic perspective of considering future generations' circumstances, Mr. Bailly embeds the sustainability policy within the vision of the city as:

“a world that is shifting from abundance acquired through 200 years of industrialization, to rarity”

Mr. Rivet, elected officials in charge of transport and chairman of Systema, recently drew the transport policy closer to Mr. Bailly's guidelines on “moderation at every level”. It resulted in the following lines of strategy: power moderation (rationalizing travel, densifying the town to avoid commuting, densifying public transport), moderation of raw material use (maximize fleet's use, federate companies) and so on. For these actors, moderation and resilience are the leitmotif of the metropolis that will survive in the future. According to Mr. Rivet:

“The signification behind ‘sustainability’ is the rationalization of urban displacements. And already sustainability goes by the fact that we created densification in the city and avoid commuting. That is a first step of sustainability. The second step is what we put in the materials. The automatic metro is on a 1min40 interval; in contrast, the same metro without automatic, with a driver, is 2min½ or

2min40. So, you save time. And when you save time you gain material too, so that's also the principle of sustainability. After that it's using materials and materials that consume the least ...”

5.3.3. During the project

Mr. Rivet and Mr. Pagonis, Systema's project manager, view the procurement of subway trains as a long-term project. Indeed, the scale of the transport network (amount of rolling stock to be managed), the lifespan of equipment (40 years minimum), the economic constraints and Systema's limited investment capacity mean that it is necessary to place procurement within a strategy of supply evolution and asset management. Mr. Pagonis talks about passing on a good quality network to future generations:

“For me, as someone in asset management, continuity is my main concern, and besides continuity, it's a duty for me, a question of personal ethics, the duty to pass on, and pass on to future generations, a system that will be open-ended and will not leave the city in a few years' time stuck with solutions requiring exorbitant costs to meet demands. I could at times just as well do nothing, or very little or virtually nothing, but if it is to leave people at a dead end in 15 or 30 years' time, that's tragic.”

The adopted procurement strategy is as follows. Mr. Pagonis believes that the RS75 (rolling stock ordered in 1975, delivered in 1978) that currently equips Lines A and B has not been too “stressed” and can therefore last 50 years (instead of 40), pushing its end-of-life to 2030. This RS75 will be assigned, as part of the Horizon 2020 plan, only to Line A, which is one of the least busy in the network. Line B, however, requires new rolling stocks with an effective integral autopilot: this will concern the RS16 order (delivery in 2020). Line C also needs to increase capacity. To optimize equipment use and wear, Systema developed a “variable composition” system, which enables adjustment to the variable composition of rolling stocks (two to four elements) according to passenger numbers (peak/off-peak times). On Line C, currently equipped by RS85 (delivered in 1990, end-of-life scheduled for 2030) with the Mary system, there will be a combination of RS85 and RS16. The procurement of RS16, presented in Fig. 1, will therefore correspond to a single project for the constructor with special features for the trains that will go on Line C (e.g., the need to slightly curb the RS16-C's speed, the RS85 not being fast enough).

Although the term “sustainability” is rarely used during the project,

Table 3
Three central sustainability actant configurations.

	Handicap path 360 in aravis	The Canal's UNESCO classification in Turia	Future generations in Levanna
Number of elements	<p>Individuals</p> <ul style="list-style-type: none"> - President of Handicap Path 360 - The disabled colleagues of Handicap Path 360 - Mayor of Aravis - Project manager of the contracting authority - Elected officials in charge of mobility and accessibility - Inter-Municipal Accessibility Commission agents - Contracting authority technicians - Trimereso technicians - Technicians of ITC <p>Collectives</p> <ul style="list-style-type: none"> - PMR: wheelchair-bound, blind, pregnant, old people, and so on - PRM living centers, professional centers, health facilities, other specialized centers - The other 130 associations Handicap Path 360 works with - Disabled young people from Mirantin - Parents with double strollers <p>Hybrid collectives</p> <ul style="list-style-type: none"> - Social policy of Aravis - Disability Act of 2015 - Accessibility in Public Transport Plan of the city - Current facilities not available to PRMs - Letter of support for the public inquiry 	<p>Individuals</p> <ul style="list-style-type: none"> - Site inspector of the DREAL - Manager of the UNESCO mission - Project manager of the contracting authority <p>Collectives</p> <ul style="list-style-type: none"> - Territorial division of department of the DREAL - VNF - ABF - the canal pole - Ministry of Ecology - Boat rental companies - Dockside restaurants - Tourists - Residents <p>Hybrid collectives</p> <ul style="list-style-type: none"> - UNESCO convention - Cultural history of the canal - Monument Act of 1930 - Notice from the DREAL to the French Ministry of Ecology 	<p>Individuals</p> <ul style="list-style-type: none"> - Elected officials in charge of sustainability - Elected officials in charge of transport - Project manager of the contracting authority <p>Collectives</p> <ul style="list-style-type: none"> - Future rush-hour travelers - Business network working on moderation of industrial processes <p>Hybrid collectives</p> <ul style="list-style-type: none"> - Sustainability scoping documents - Urban transport plans developed since 1995 - Horizon 2020 Plan - Rolling stocks fleet
Durability of associations	<ul style="list-style-type: none"> - Declaration of public utility - Participation in every tramway workshop, field visits and tests - The moto “accessibility for all” as priority for the city and the tramway project - Public disclosure on PRM priority in the project from the mayor 	<ul style="list-style-type: none"> - Registration as a UNESCO World Heritage Site since 1992 - Protection of the law (through the Monument Act) 	<ul style="list-style-type: none"> - Planning documents of the city and the contracting authority - Prospective approach launched more than 20 years ago - Public policy turned toward the moto “moderation revolution”
Associative structure	<ul style="list-style-type: none"> - Cornerstone for the 130 PRM associations - Strong relations with the city's administrative staff - Direct link between Ms. Vanier and the mayor - Direct link between Ms. Vanier and the contracting authority technicians 	<ul style="list-style-type: none"> - Canal's UNESCO classification as a showcase for its tourist policy - Order of an UNESCO-adapted environmental impact report diagnosis - Consultation of the pole canal, the DREAL, VNF, and the other actors connected to the issue 	<ul style="list-style-type: none"> - International recognition of the city on innovation and forward thinking - Several large transformations in the metropolis - High lifespan of equipments

equipment assets management and the transport network's long-term endurance and future generation are the keywords of the contracting authority's actors. This project, currently in the preparation phase, run into issues with regard to the specific attention suppliers must pay to increase the equipment's durability, taking the long term into consideration for future generations.

6. Cross-case analysis

6.1. Sustainability actant configurations

“Agencing” means producing specific agencements and “giving agency” means converting actors into “actants” (Cochoy et al., 2016). Appendix B lists every actant in the three cases, including those who had deep to distant connections with the sustainability issue on the projects. In Table 3 we present only one central sustainability actant in each case to detail how he/it was configured using the three dimensions for capturing agential variation proposed by Hagberg and Kjellberg's (2010) framework.

Table 3 lists every element that configures an actant, in the sense that these elements give the actor the capacity to act and thus to be transformed from an actor into an actant. The number of elements, the

durability of the associations and the strength of the associative structures thus constitute the substance of a configured actor.

The Aravis case shows a past call for tenders with a stabilized network. Table 3 highlights a large number of individuals, collectives and hybrids playing a role in terms of disability management. This quantitative effect constitutes here the material of the woven links, and empowers Handicap Path 360 which relies on this strong network to achieve its aims. The strength of the links derives from irreversibilities that Handicap Path 360 built before and during the life of the project: on the one hand the highly durability of its associations (eg. Through official support, public statements, ...) and on the other hand the interconnectivity and centrality in its associative structure (eg. point of reference for other associations, strong and direct links with the main actors of the buying center).

In contrast, Turia and Levanna are future projects and point to ongoing configurations. There are fewer elements than in the Aravis case, but we note the signal of support from different collectives to the two ‘sustainability actants in the making’: the Canal UNESCO Classification and future generations. Although, admittedly, these collectives act in various interests (economic, tourism, aesthetics in the case of Turia; utilitarian and economic in Levanna), ultimately, they act with converging interests (maintaining the Unesco Classification in the case of

Table 4
Promoter and translator roles of sustainability actants.

	PRM accessibility (Aravis)	Preservation of the UNESCO world heritage site (Turia)	Transport system longevity (Levanna)
Promoters	<ul style="list-style-type: none"> - The president of Handicap Path 360 (convinced decision-maker, federation among 130 associations) - The mayor (political vehicle: external communication, PRM linked to the moto “accessibility for all”, public disclosure of a double PRM space, demand of explicit PRM specifications in the tender documents) 	<ul style="list-style-type: none"> - The canal’s UNESCO classification (rules of the game) - Site inspector of the DREAL (monitoring the Monuments law criteria) - Manager of the UNESCO mission (monitoring the UNESCO criteria) - VNF as site owner (objective of maintaining the classification for tourist influence) 	<ul style="list-style-type: none"> - Elected officials in charge of transport (political vehicle) - Elected officials in charge of sustainability (political vehicle) - Project manager of the contracting authority (strategical construction of the issue)
Translators	<ul style="list-style-type: none"> - Project manager of the contracting authority (technical supervision of the translation of the PRM issue) - Technicians from the contracting authority (draft the invitations to tender) - Handicap Path 360 (as collective, through the president and members: support for project management, co-designing the project, co-writing tender documents, expertise in rolling stock and infrastructure adaptation) - Regulation (juridical baseline) - City’s administrative agents (e.g., production of APT document) - APT document (accessibility baseline in transport area) - Technicians of ITC (technical translation) 	<ul style="list-style-type: none"> - Project manager of the contracting authority (translates objectives into requirements) - Site inspector of the DREAL (advisor for translation into the project) - Manager of the UNESCO mission (advisor for translation into the project) 	<ul style="list-style-type: none"> - Project manager of the contracting authority (built a sophisticated strategy of fleet management) - Technical teams (operationalization of the enduring fleet) - Scoping documents (prospective baseline) - Horizon 2020 plan (planning baseline)

Turia; longevity of the system for Levanna). These ongoing configurations are solidified through a relatively strong predictability in the capacity of these configurations to act as expected (e.g. the action of the law in Turia, integration in the city’s planning documents from a long time ago in Levanna) and a high degree of interdependence between associations (e.g. the impact of the classification on the attractiveness of Turia for tourism, the necessity of a long lifespan of materials for Levanna).

6.2. Roles of sustainability actants

Our second analysis shows what role configured actors (sustainability actants) play through the lens of [Drevetton’s \(2011\)](#) framework. [Table 4](#) provides an overview of promoters and translators as applied to our three cases and describes what their role is.

Each actant (see Appendix B) plays a more or less important role in the achievement of sustainability issues and the promoters and translators are major actors. Promoters and translators are themselves de facto configured actors. These two roles are relative to specific issues, which are, in our cases: PRM in Aravis, preservation of the UNESCO World Heritage Site in Turia, and transport system longevity in Levanna.

We can see from [Table 4](#) that promoters intervene at a ‘supra-issues level’ of projects and in different stages of the translation process: political (e.g. the mayor of Aravis creating a special motto for accessibility leading the project, elected officials in Levanna stating the future as a strategic development axis for the city), lobbying (e.g. the president of Handicap Path 360 federating associations to gain power) and institutional (e.g. the canal’s UNESCO classification binding the canal of Turia to the UNESCO Convention and its famous rules of the game regarding classified sites). In addition to defining the core objectives of projects (e.g. the mayor of Aravis imposing the presence of the issue as part of the purchase process, VNF in Turia linking the impact of the project and its own interest in maintaining the classification, and the project manager for the contracting authority of Levanna positioning the longevity of the transport system as a strategic axis of the project).

Translators intervene at an ‘intra-issues level’ of projects: consulting (the site inspector for the DREAL and the manager of the UNESCO mission in Turia positioning themselves as advisors), project management (e.g. the project manager for the contracting authority in Aravis monitoring the issue through the project), providing definitions of

technical characteristics (e.g. the project manager for the contracting authority of Levanna integrating the issue of longevity at the heart of the rolling stock assessment strategy and its technical teams who operationalized it), operationalization of the buying process (the project manager for the contracting authority and HP 360 in Aravis translating objectives into requirements and technicians from the contracting authority writing the draft tenders), and juridical and administrative guidelines (e.g. the APT document in Aravis, Horizon Plan 2020 in Levanna, etc.).

[Table 4](#) shows two of the configured sustainability actants selected in [Table 3](#): Handicap Path 360 as a translator for the PRM issue and the canal’s UNESCO classification as a promoter of the preservation of the UNESCO site. We note the absence of future generations, either as a promoter or as a translator.

7. Discussion

By means of the concept of market agencing ([Callon, 2016](#); [Cochoy et al., 2016](#)), sustainability agencing gives insights to enrich the concept of milieu and to conceptualize how stakeholders get involved in sustainability issues in megaprojects.

7.1. The configuration of sustainability actants in megaprojects

Megaprojects count de facto a high number and variety of actors and other stakeholders ([Flyvbjerg et al., 2003](#)). The agential variations observed in our cases are in line with the conclusions of [Missonier and Loufrani-Fedida \(2014\)](#), who state that “categorisation (such as stakeholders and nonstakeholders) risks have excessively strict boundaries between a subject and an object, and do not adequately describe various networks” (p. 1118). Our cases show that actors and other stakeholders manage to become actants through multiple agential variations of an individual, collective and even hybrid nature. These configurations of sustainability actants in megaprojects can be captured through three variables: the number of elements (quantity of elements, variety and convergence of interests, centrality of these elements in the network), durability of associations (documents and events, that actors often and from a long time ago refer to), associative structure (direct and intense relationships, centrality of the actant ‘in the making’).

Table 5
A renewed approach of sustainability actor roles.

Roles of sustainability actants	Description
Promoters	Irreversibility is obtained by promoters: they organize the translation process leading to the construction of the network (Dreveton, 2011).
Translators	Convergence among network members is achieved through the action of translators: they seek the consensus needed to build innovation in a network of organizations (Dreveton, 2011).
Target	The public is targeted through actions carried out to achieve sustainability, and more broadly speaking, include human or non-human actors (Callon, 1986) who endure a project's negative externalities or enjoy its positive ones (Freeman, 1984).

7.2. Actants' roles in identifying the main players in the sustainability of a project

Appendix B depicts the sustainability actants in our cases. Table 4 highlights those who played promoter and translators roles mobilizing Dreveton's (2011) framework.

7.2.1. Promoters

Promoters organize the translation process leading to the creation of an innovation (Dreveton, 2011). Their actions are intended to raise issues of high priority and they intervene in this way at a 'supra-issues level' of projects. Our cases complement the literature on project marketing, which devote attention to the promoter role for sustainability issues to "societal actors" (Cova et al., 2002; Pace et al., 2004). Of course, we saw requests for sustainability emanating from societal actors (see 7.2. "Central non-business actors in the project network"). However, these requests were also promoted by business actors, particularly actors from the buying centers (e.g., contracting authority, mayor of the city, site owner). We thus observe that promoters can be non-business, business, or even hybrid actors (e.g., the canal's UNESCO classification). In each case, we observe a minimum of two promoters who complemented each other. And, in each case, if there is a non-business or societal promoter, there is also always a promoter from the buying center or project network who encourages sustainability agency.

7.2.2. Translators

Convergence among network members is achieved through the actions of translators (Dreveton, 2011), who perform a number of interpretations, reformulations and adaptations that transform an issue into specific actions in the project. Translators thus intervene at an 'intra-issues level' of projects. We observed a large number of translators, especially in the past case of Aravis (see Table 4), who built a solid network to perform the translation of PRM issue into requirements found in the tender documents. If the literature considers non-business/societal/community actors primarily as conflict-driven entities, we note that translators act under the supervision of promoters in a positive way (through alignment of objectives).

We thus observe that sustainability actants can fulfill multiple roles (promoter and translator - see Table 4, Aravis: the president of Handicap Path 360 and the association as a collective; Turia: the site inspector for the DREAL and the manager of the UNESCO mission; Levanna: the project manager for the contracting authority) and consequently configure themselves as major sustainability actants.

7.2.3. A missing role: targets of sustainability issues

In the Aravis case, Handicap Path 360 expresses itself as a configured actor (Table 3) and acts via explicit voices; that is to say, the president of the association and its members. Handicap Path 360 also plays the role of translator in collectives. In the Turia case, the UNESCO classification was identified as a promoter (see Table 4) because it speaks through the "voice" of an explicit and recognized document: the UNESCO Convention and its selection criteria. The Levanna case differs from the other selected configured actors. It highlights future generations configuring themselves as central sustainability actants (see Table 3). However, as a sustainability actant, they might not play any

promoter or translator roles, in light of not actually having a way of expressing themselves or any means of acting (not shown in Table 4). Future generations have many "representatives", but they speak only through indirect intermediaries (project managers, elected officials, etc.). Future generations are, of course, understood to be stakeholders but, more precisely, they act as the main target of the sustainability issue: "Transport system longevity". We also propose a third category for Dreveton's (2011) framework: the target of sustainability issues. In Aravis, this is shown in the different types of PRM: wheelchair-bound, blind, pregnant, older people, and so on. In Turia, targets include for example residents, nature, tourists. In Levanna, targets include the future generations as well as future rush-hour travelers.

"Targets of sustainability issues" refers in a restricted way to the public concerned by the actions carried out for the sustainability issue and more broadly to the human or hybrid actors (Callon, 1986) who endure a project's negative externalities or enjoy its positive ones (Freeman, 1984).

This role of target implies that project marketing should think about the value creation of its products, services and systems in a meaning open to sustainable value creation in line with the triple bottom line (Elkington, 1998).

Table 5 completes Dreveton's (2011) framework by adding a new role describing the activity of sustainability actors.

7.3. Central non-business actants in the project network

From a project marketing perspective, the project network is usually fragmented into multiple organizations from the economic sphere (e.g., customer, consultant, development bank, other financial partners, etc.) (Cova et al., 2002). These actors are absolutely central because they take part in or influence the procurement process (buying network when inside the project).

In the Aravis case, a so-called non-business actor, namely the association Handicap Path 360, managed to bypass a traditional business-actor through its high networking capacity. This actor did not exist a priori (Callon, 1986). The configuration of Handicap Path 360 as sustainability actant resulted from years of collaboration in the territory and the milieu (see Associative structure, Table 3). The solidification of the Handicap Path 360 network upstream of the project formed a collective of indispensable actors for the project. It created irreversibilities (e.g., public announcements) that made it impossible to return to a former state and predetermined actions to come (Latour, 2005). Thanks to its proactivity, credibility and capacity to contribute to projects, the contracting authority was able to onboard the association into the project with a high degree of fluidity. Handicap Path 360 managed to define project characteristics and tender requirements. It discredited the expert of the prime contracting engineering firm, which was explicitly mandated for sustainability issues and which should, therefore, have taken on a role of sustainability actant as a translator. The prime contracting firm is actually a typical actor in the buying network but the sustainability expert is not identified in Table 4 since he was neither a promoter nor a translator.

Turia and Levanna also present original non-business actors as sustainability actants, namely, a hybrid collective and a future collective. The canal's UNESCO classification configured itself especially through the opportunity for the surrounding area to become a showcase

for Turia's tourism once again. It provoked the project authority to anticipate new elements when entering the project (e.g., local government actors). Future generations in Levanna configure themselves already in the present time through a deep prospective approach to the city in particular (guidelines on “moderation at every level”) that recently has been included in the transport policy. We also consider hybrid and future collectives as concrete actors insofar as they act as binders of future requirements and prompt action from other actors who also emerge in the project (e.g., site inspector of the DREAL).

Consequently, our results differ from the project marketing literature, where so-called non-business actors remain peripheral. Our three cases highlight special alignments in milieus and project networks which have opened through sustainability: they illustrate non-business actants who also became central in the projects through their investment in sustainability issues. Some non-business actors are able to directly define the requirements and specifications of tender documents and the project's sustainability. As central actants we mean that these non-business actors intervene as well to shape project characteristics and the rules of the milieu. For project marketing, it implies considering a priori non-business actors from diverse backgrounds as potential project contributors. The consequence is that these hidden project network actors, unlike the visual project network actors contractually involved in the project (Cova et al., 2002), become visible actors due to the questioning of sustainability issues and actant configurations.

7.4. Territory, milieu and project network

The construction of the milieu comes from a process of collective learning enriched by projects completed in the territory where common rules and representations are built between actors over time (Cova et al., 1996). From this point of view, milieus are stable networks with established orders of actors in a territory.

The milieus of our cases involve recurring project networks and organizational configurations structured for public transport (e.g., contracting authority, bus operators, the DREAL, prime contracting engineering firm, etc.). Through new agencing activities, other territorial actors outside the milieu were integrated into the projects. Although Handicap Path 360 (actors from the territory) was the cornerstone among PRM associations in Aravis and had only a weak connection for example with bus operators (actors of the milieu), they indeed took a central position in the project. In Turia, the DREAL usually intervenes in environmental diagnoses. But the site inspectors of the DREAL and the manager of the UNESCO mission at the DREAL, although they belong to the territory (the canal was classified in 1992), are previously unseen actors in Turia's milieu of public transport. A new challenge (maintaining UNESCO classification) brought these new actors into the project and enabled them to influence the demand for sustainability. In Levanna, although the elected officials in charge of sustainability and other actors who offered prospective approaches have strong positions in the territory, future generation interests emerged just for the first time in a rolling stock procurement strategy.

Hence, our study clarifies project marketing literature when pointing out that actants who belong to the territory don't necessarily belong to the milieu. The cases present special alignments in well pre-constructed milieus, where sustainability intensifies the presence of territorial actants in project networks. Through sustainability issues, our cases enable distinguishing actors from the territory (territorial perimeter), from actors from the milieu (territorial and functional perimeter), from those of the project network (project perimeter). And actants move among these three levels: actors from the territory can influence projects, and if they shape new rules and representations, they integrate into the milieu.

8. Implications

Previous research in industrial and project marketing aimed at categorizing stakeholders of companies, projects or milieus by providing typologies. These typologies help identify a priori actors who could be integrated into projects (Carù et al., 2004; Cova et al., 1996; Pace et al., 2004; Tikkanen & Lindblom, in Skaates et al., 2002), but they do not enable the analysis of the emergence of sustainability actors during a given project. As part of a three-year interaction with a rail supplier company, we analyze three case studies of urban rail projects in France through the actor-network theory as method theory (Lukka & Vinnari, 2014).

8.1. Theoretical contributions

The paper makes three theoretical contributions for industrial and project marketing. First, our study shows that sustainability opens to new interactions and agencements of actors in megaprojects, where some non-business actants become central in the project network, as well as hybrid collectives or even future collectives. It provides a renewed perspective for project marketing (Cova et al., 2002) since non-business actors expand the project network beyond the economic sphere, hybrid collectives open to non-human actors and future collectives modify the time perspective regarding who is currently considered as an actor. We distinguish these actants from the role they play in sustainability agencing: promoters, translators and targets of sustainability issues. This perspective changes the dominating “contractualist” rationale in project marketing literature when highlighting that non-business and hybrid collectives also act and create project opportunities and can also collaborate with other actors from the ‘restricted’ project network.

Second, we clarify the work of Cova et al. (1996) when providing a distinction between actors from project networks, from the milieu and from the territory. Actants move among these three levels over time: actors from the territory can influence projects, and if they shape new rules and representations, they integrate into the milieu.

Third, by means of the concept of market agencing (Callon, 2016; Cochoy et al., 2016), we propose the concept of sustainability agencing to offer a dynamic view of stakeholders in milieus and projects. Project marketing understands stakeholder characteristics and activities as coming from the milieu in a social structural environment (Cova et al., 1996; Cova et al., 2002). Conversely, sustainability agencing suggests moving to a dynamic perspective taking into account that configurations form the sustainability actants within project networks and milieus. Number of elements, durability of associations and associative structure empower actors and stakeholders to become actants for sustainability issues. These variables emphasize milieus and project networks in the making. Furthermore, we know that megaprojects require suppliers to address sustainability issues beyond their own impacts as companies, with the specific articulation of sustainability issues for each individual project in which they participate. Sustainability agencing is thus a powerful concept for suppliers' understanding of milieus and markets, since the configurations and roles of actants are ‘issue-driven’ (unlike being defined by an actor status or function): actors configure themselves in relation to a specific issue located in a particular project and the role played by the actant is also relative to this issue in the project. Sustainability agencing thereby offers a project-centered perspective of sustainability in business and industrial markets. Finally, the concept of sustainability agencing emphasizes project actors' and stakeholders' interactions beyond their link with the functional perimeter of the seller's products/services/systems but according to the interactions mobilized for a specific sustainability issue located in a project. Sustainability agencing also transcends focal company boundaries when stressing the necessity for a supplier to integrate into

and collaborate with the multiple and collective agencements that build a network.

8.2. Managerial implications

Our three cases cover different aspects of the triple bottom line (Elkington, 1998) through a people, planet and time dimension within the context of urban transport infrastructure projects. We note the singularity of sustainability issues from one project to another and, consequently, how difficult it is for a supplier to devise and implement marketing actions. Our observations also have several implications for business developers seeking to know how best to intervene in order to assess sustainability agencing and better seize business opportunities upstream of a project (Cova & Hoskins, 1997). This research also contributes to a better understanding of the sustainable procurement behavior of clients and their networks implementing megaprojects.

First, our results provide a method to detect sustainability actors in the making (number of elements, durability of association, associative structure). It helps in targeting marketing actions toward central sustainability actants, paying attention to the relevance of territorial actors who could join the project and eventually the milieu.

Second, it helps project marketing by defining what to do. Our results show that identifying promoters, translators and targets of sustainability issues facilitate its operational work. Project marketing should either seek to convince promoters of the sustainable value of their products and systems or co-create new solutions that match targets of sustainability issues. In doing so, project marketing positions itself as a solutions provider (Brady, Davies, & Gann, 2005; Cova & Salle, 2007) open to co-development approaches (Crespin-Mazet & Ghauri, 2007). Project marketing should also assist translators in agencing sustainability, notably by disseminating the necessary

technical information of sustainable characteristics of their products and systems, but also by offering the possibly relevant tools and methods they may have developed. These elements lead to undertaking consultative selling approaches (Dunn, Thomas, & Lubowski, 1981).

Finally, we suggest that awareness about sustainability agencing in megaprojects, especially in terms of targets for sustainability issues, provokes in suppliers a broader awareness of challenges and solutions related to project externalities. Therefore, we also suggest that our research constitutes a humble step toward sustainable project marketing.

8.3. Limitations and further research

One limitation of this research is its embedment in specific contexts: rail, urban planning in France and public procurement in Europe. To reinforce our results, our observations should be extended to other megaproject contexts, such as regional or national rail projects, construction projects, aerospace or telecommunications, and other types of products and services involving key sustainability issues.

We chose to show sustainability issues that emerged and bypassed sticking points arising through the creation of relatively well-maintained time networks. A future study could analyze sustainability issues that have not emerged or are just surfacing, and in doing so question the key success factors behind the actions of project sustainability promoters, translators and targets.

Our results show that suppliers can play a role in the emergence and monitoring of sustainability issues. The scale of projects and their different components may raise questions about the interactions generated by sustainability agencing between projects, and thus on the role of one supplier in the construction of networks who mobilizes other business and non-business actors in other projects. Further research is also needed on the interactions among sustainability actants.

Appendix A: Types of documents collected to conduct the embedded case studies.

Category	Type and examples
Press	Local and national press articles:
External documents	<ul style="list-style-type: none"> - The project, the actors (including interviews), local sustainability issues, transport policy and so on Sustainability and transport documents, for example: <ul style="list-style-type: none"> - Urban travel plans, sustainability plans, environmental charter, responsible procurement charter, miscellaneous diagnostics and so on Local community communication documents: <ul style="list-style-type: none"> - Communications about the project (presentation brochures, press releases, project magazine, etc.) Project files: <ul style="list-style-type: none"> - Preliminary files before the declaration of public utility, public consultation reports and so on Positions taken: <ul style="list-style-type: none"> - By the project actors and stakeholders or their organization
Websites	Search for information on the websites of cities, transport organizing authorities, projects studied, organizations representing stakeholders and so on
Tender documents	Documents sent by ITC: <ul style="list-style-type: none"> - Technical specifications, including sustainability specifications - Other material in the company consultation files (e.g., consultation rules)
Internal documents	Documents sent by the interviewees, for example: <ul style="list-style-type: none"> - Socioeconomic assessment of the project - Diagnostics (e.g., calculation of greenhouse gas emissions, issues related to the waterway in Turia) - Inquiry report on territorial mobility - Internal public procurement procedural documents (Levanna case) - Other tender documents (e.g., sustainability specifications of Turia Line B, response to a company participating in the Turia Line B project, prime contracting reports for Turia Line B, working documents on monitoring environmental commitments during the Line B project, etc.)

Appendix B: List of actants for the three sustainability issues selected.

	PRM accessibility (Aravis)	Preservation of the UNESCO world heritage site (Turia)	Transport system longevity (Levanna)
Sustainability actants	<p>Individuals</p> <ul style="list-style-type: none"> - ^aPresident of Handicap Path 360 - ^aDisabled colleagues of Handicap Path 360 - ^aMayor of Aravis - ^aProject manager of the contracting authority - ^aElected officials in charge of mobility and accessibility - ^aInter-Municipal Accessibility Commission agents - ^aContracting authority technicians - ^aTrimerso technicians - ^aTechnicians of ITC - Disabled elected official - Sustainability expert of the prime contracting engineering firm <p>Collectives</p> <ul style="list-style-type: none"> - ^aHandicap Path 360 (selected for the cross-case analysis) - ^aPMR: wheelchair-bound, blind, pregnant, old people, and so on - ^aDisabled young people from Mirantin - ^aPRM living centers - ^aProfessional centers - ^aHealth facilities - ^aOther specialized centers - ^aThe other 130 associations Handicap Path 360 works with - ITC <p>Hybrid collectives</p> <ul style="list-style-type: none"> - ^aLetter of support for the public inquiry - ^aDisability Act of 2015 - ^aSocial policy of Aravis - ^aCurrent facilities not available to PRMs - Accessibility in Public Transport (APT) plan of the city 	<p>Individuals</p> <ul style="list-style-type: none"> - ^aSite inspector of the DREAL - ^aManager of the UNESCO mission - ^aProject manager of the contracting authority <p>Collectives</p> <ul style="list-style-type: none"> - ^aDREAL, Territorial Division of Department - ^aVNF - ^aABF - ^aCanal pole - ^aMinistry of Ecology - ^aBoat Rental companies - ^aDockside restaurants - ^aTourists - ^aResidents - Future tramway users - People on the margin of society (–) <p>Hybrid collectives</p> <ul style="list-style-type: none"> - ^aCanal's UNESCO classification (selected for the cross-case analysis) - ^aCultural history of the canal - ^aMonument Act of 1930 - Nature - Traffic jam records including near the Canal (–) 	<p>Individuals</p> <ul style="list-style-type: none"> - ^aElected officials in charge of sustainability - ^aElected officials in charge of transport - ^aProject manager of Systema - Technical teams of the contracting authority <p>Collectives</p> <ul style="list-style-type: none"> - ^aFuture generations (selected for the cross-case analysis) - ^aFuture rush-hour travelers - ^aBusiness network working on moderation of industrial processes - Systema as a contracting authority (investment capacity) - Current rush-hour travelers <p>Hybrid collectives</p> <ul style="list-style-type: none"> - ^aSustainability scoping documents - ^aUrban transport plans developed since 1995 - ^aHorizon 2020 Plan - ^aRolling stocks fleet - Mary and variable composition systems - Rolling stock procurement strategy

^a Actant that configured Handicap Path 360, the Canal's UNESCO Classification and Future Generations.

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