

assessed both from the academic and the industrial community. The aim of the research work is to find answers from the practice in order to provide useful insights and future research proposals to the scientific community.

The research questions are the following:

- i. Which stakeholder is the main sponsor in the majority of European megaprojects?
- ii. Which is the stakeholder that results to be the most connected with megaproject power?
- iii. Which is the stakeholder that results to be the one with the highest influence on megaproject performances?
- iv. Which is the least, and which is the most, satisfied stakeholders in regards to megaproject outcomes?

III. METHODOLOGICAL APPROACH

The sources of data for this research are the 20 case studies of the Megaproject Portfolio authored by the Megaproject COST Action group, to whom the authors are part of [22]. The cases selected for the Megaproject Portfolio follow a purposive sampling approach and cover both exemplar and extreme case typologies [26]. The main data for this research work are gathered only for a minimum part (3 out of 20) by at least one of the author of this paper, so on overall, it will be considered a secondary data analysis. Secondary analysis of qualitative data is the use of existing data to find answers to research questions that differ from the questions asked in the original research. Long-Sutehall, et al. identified many reasons why an author could decide to apply secondary analysis to data, among which the one chosen for this paper: performing additional analysis of an original dataset. They also recommend that the research questions for the secondary analysis should be sufficiently close to the ones of the primary research [27]. In this case, the purpose of the primary research was to conduct a ‘meta’ cross-case analysis of groups of megaprojects delivered within Europe and to identify common thematic issues relating to megaproject design and delivery from across the disciplinary spectrum. The purpose of the presented research is to look at the case studies from one single perspective in order to gather all the relevant insights for stakeholder management in megaprojects.

There are two possible ways to generate theory based on case studies: the deductive or inductive approach. The first one refers to the deduction of particular instances from general inferences and it entails the development of a conceptual and theoretical structure that is then tested by observation. The latter approach refers to the induction of general inferences from particular instances or the development of a theory from the observation of empirical reality. Due to the deep gap of specific studies in the literature on stakeholders’ classification and assessment in megaproject, the inductive approach was the most suitable choice. It was not possible to generate any particular instance from the existing literature, to be then tested or validated through the case studies.

The methodology used consists of the generation of specific outputs about Megaproject stakeholder management. This process can be done following two possible dimensions: horizontal, looking at the same kind of information in all the case studies, and vertical, looking deeply into each case study to understand whether all the information required can be found and/or further information are present. Only the horizontal dimension is mainly taken into account for this process due to the high level of standardization on the primary data. Table 1 shows the research questions and the related kind of information looked for, in each case study of the Megaproject Portfolio. Each of the findings is then validated through the search for contradictory data.

TABLE 1 – RESEARCH QUESTIONS AND DATA REQUIRED

RESEARCH QUESTIONS	DATA REQUIRED (stakeholder management attribute)
i. Which stakeholder is the main sponsor in the majority of European Megaprojects?	Attitude towards the project; influence on the project
ii. Which is the stakeholder that results to be the most connected with megaproject power?	Project power
iii. Which is the stakeholder that result to be the one with the highest influence on megaproject performances?	Influence on performance (time); influence on performance (budget); influence on project goals
iv. Which is the least, and which is the most, satisfied stakeholders in regards to megaproject outcomes?	Satisfaction in respect to project outcome and impact

The chosen methodological approach can be seen as a meta-analysis, which is a methodology used by researchers to review, assimilate and compare large amount of existing data for multiple studies. It transforms data from these multiple studies into a common measure and adopts a standard statistical procedure. They are traditionally used for quantitative studies but can be adapted to qualitative ones. The fact that the Megaproject Portfolio case studies are done by people belonging to one specific group – Megaproject COST Action – makes the primary data standardized and so simplifies the meta-analysis [28][29]. To the data in the case studies it is applied a coding strategy, defined as the process of breaking

down, examining, comparing, conceptualize and categorizing data (codes are elements and patterns a researcher looks for across different sources) [28].

Each Megaproject Portfolio case study is structured in the following way:

- Basic Project Information: project title, location, purpose, scope, total project value, project status, contractual framework and relevant physical dimensions;
- Megaproject stakeholder: identification of both internal and external stakeholders, as classified in Table 2, stakeholder relationship maps and external stakeholder attitude analysis.
- Megaproject Project Management: project organization, project tools and techniques, project processes;
- Megaproject Project Performance: aspects of performance concerned with doing the project right;
- Megaproject Project Environment: legal and regulatory environment, political environment, economic environment;
- Megaproject Project Key Events and Activities.

As mentioned above, the standardization of this primary data let the meta-analysis simpler due to the higher quality and rigorousness of the possible analysis.

Moreover, for 6 of the Megaproject Portfolio case studies a further data gathering activity has been developed specifically on stakeholders, both internal and external, and it is structured in the following way:

- General stakeholder management: information about the project;
- Stakeholder analysis: attributes and variables for each stakeholder.

TABLE 2 – MEGAPROJECT STAKEHOLDER IDENTIFICATION [22]

Internal	Supply Side	Client
		Financiers
		Sponsors
		Client's Customers
		Client's Owners
		Other Internal Supply-Side Categories
	Demand Side	Principal Contractor
		First Tier Contractor
		Second Tier Consultants
		Professional Services Providers
Other Internal Demand-Side Categories		
External	Public	Regulatory Agencies
		Local Government
		National Government
		Other External Public Categories
	Private	Local Residents
		Local Landowners
		Conservationists
		Archaeologists
		Other External Private Categories

Even though the quality of the data is high, there are enormous differences in the quantity of information among the different case studies. Not all the wished analyses can be made on all the Megaproject Portfolio case studies. This is the reason why it is necessary to cluster the case studies according to the kind of information available in order to have comparable data. The possible analyses for all the 20 case studies regards mainly the typology of stakeholders (e.g. internal/external, private/public), the ones suitable only to 14 of them regards some stakeholders' attributes (i.e. interest, attitude, influence, impact), and the ones suitable only for 6 of the cases regards other stakeholders' attributes (i.e. power, urgency, risk, influence and satisfaction).

Fig. 1 shows the classification of the cases based on the information available, instead Table 3 the list of the case studies belonging to the Megaproject Portfolio [22].

The data analysed in the cluster with all the 20 cases are characterized by a decimal representation and they let to understand the distribution and the presences of the stakeholders in megaprojects. Instead, the data analysed in the clusters with 14 and in the one with 6 cases, consider the variables as binomial ones (0 or 1).

Even though the analysis of the 20 cases do not provide research answers to the four mentioned propositions, it helps understanding the megaproject context from a stakeholder management perspective and it increases and supports the reliability of the validation process.

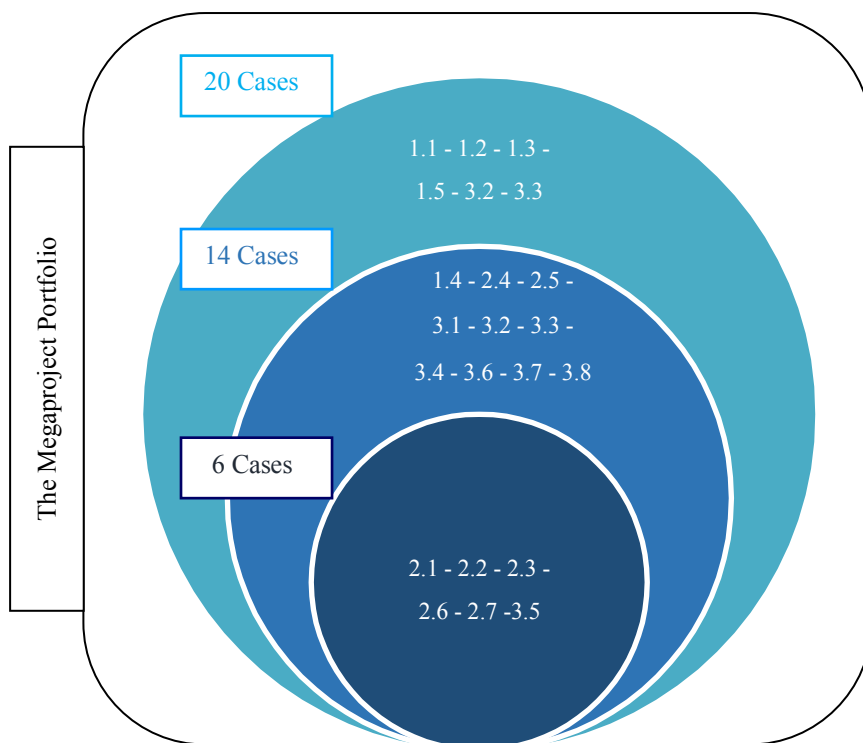


FIGURE 1 – CASE STUDIES CLASSIFICATION

TABLE 3 CASE STUDES LIST [22]

#	Project
Cross Sector	
1.1	High tech park
1.2	Industrial Zone development
1.3	Mose Venice
1.4	Raciborz Reservoir
1.5	Vienna Hospital North
Energy Sector	
2.1	Andalusia Solar Power Station
2.2	Anholt Offshore Wind Farm
2.3	Flamville 3 Nuclear Power Plant
2.4	Greater Gabbard Wind Farm
2.5	Hinkley Point Nuclear Power Point
2.6	Rovigo LNG Terminal
2.7	Mochovce Nuclear Power Plant
Transport Sector	
3.1	Motorway A2
3.2	Athens Ring Road
3.3	Edinburgh Tram Network
3.4	HSR Madrid - Barcelona - Figueres
3.5	HSR Vigo - Oporto - Lisbon - Madrid
3.6	HSR Seville - Madrid
3.7	Norra Lanken
3.8	VMO Ring Road

IV. RESULTS

Once the data are identified and classified, qualitative analyses are carried out. They are mainly descriptive statistics analyses, whose results describe the main features of the collected information. As mentioned, the results are classified according to availability of information. In this section, relevant findings for each of the clusters are presented. They are the basis for the propositions' validating process.

A. 20 case studies

In the Megaproject Portfolio 742 stakeholders are identified. The only data that are a common background to each of the 20 cases of the Megaproject Portfolio are about the typologies and the lists of internal and external stakeholders, plus their having been cited as either groups or individuals. What first need to be highlighted is that the 67% (out of 400 potential data) of the information regarding the cited dimensions exists.

Out of 742 stakeholders identified, their highest presence in megaprojects regards are: Local Government (10%), Financier and First Tier contactor (9%), and Principal contractor and Second Tier consultant (8%). All the other typologies are present for less than 6%, going down to presences of 1%. Of course, the relative number of stakeholders belonging to a certain category is not related to a specific stakeholder typology weight in a project, but it is still an indicator of a general dimension of presences regarding the overall picture of stakeholders in a megaproject.

One further important consideration regards the identification of a particular stakeholder as a group (e.g. Municipalities) or as a single (e.g. Municipalities of Seville): the majority of the stakeholders (84%) are listed as single.

The consideration of a stakeholder as a single or as a group can of course slightly bias the previous analysis, but being the stakeholder analysis itself subjective, this distinction is a perceived consideration about an attribute (e.g. influence, power) of an external entity.

The distribution of the stakeholders classified as internal and external, respectively subdivided into demand and supply side, and private and public, is relatively homogenous. The majority of the stakeholders (29%) belongs to the internal demand-side category, a quarter each (26%) to the internal supply-side category and the external public one, and a minor part (19%) belongs to the external private one.

B. 14 case studies

If in every case there are data regarding the categories and the amount of stakeholders, it is not the same for most of the stakeholders attributes. Only 14 cases out of 20 have information regarding the following external stakeholders' variables: interest, attitude, influence, impact on project, project impact on stakeholders and achieved perceived performance (see Section II for further explanations).

Regarding the attitude, and so the positive or negative interest in a project, only the 43% of the information are available. Fig. 2 shows external stakeholders positive attitude (for each stakeholder a value equal to 0 means a negative attitude towards the project and 1 a positive one).

What results from the analysis is that the highest positive attitude is the one of the Local Government, followed by the other positive one: National Government, other external public categories (mainly identified with the EU), regulatory agencies and local resident. What need to be pointed out is that this positive group coincides with the public external stakeholders. Among the stakeholders with the highest negative attitude, mainly two categories need to be highlighted: Local Landowners and Environmentalist. In addition, Conservationist and Archaeologists have an attitude value (close) to 0, but the number of information for these two is considered not significant.

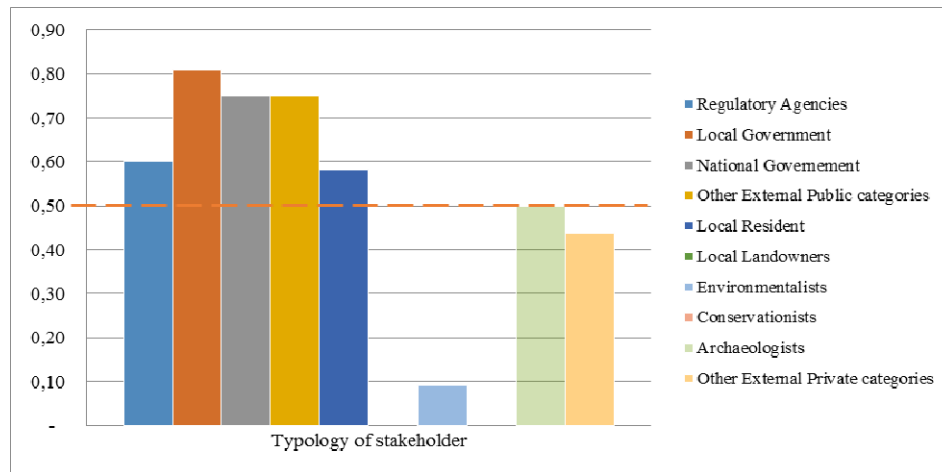


FIGURE 2 – EXTERNAL STAKEHOLDERS' POSITIVE ATTITUDE

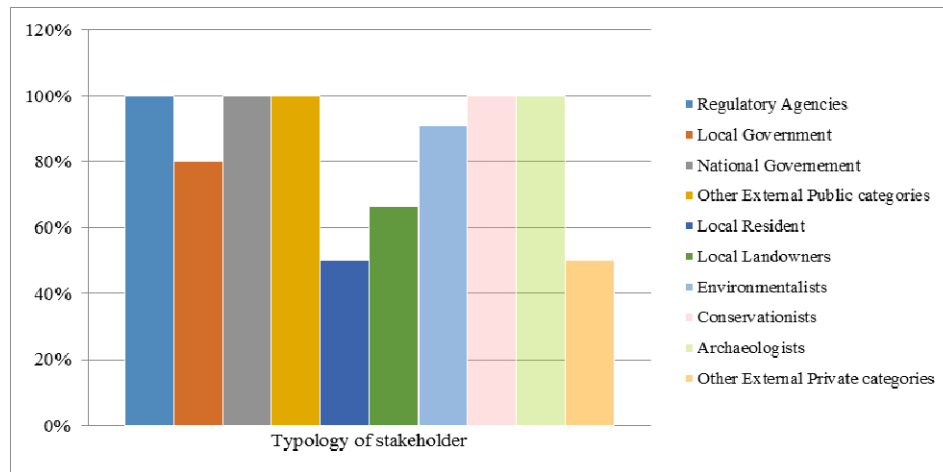


FIGURE 3 – EXTERNAL STAKEHOLDERS' HIGH INFLUENCE

Fig. 3 instead shows the distribution of the attribute regarding the influence on a project by external stakeholders. The result of the analysis is that the highest influence is the one of Regulatory Agencies, National Governments and Other External Public categories (mainly EU). Despite the representation in the graph, information regarding Conservationists and Archaeologists are too poor and so are not significant for the analysis. Still, unfortunately, only the 38% of the overall information regarding external stakeholders influence is available.

C. 6 case studies

For 6 of the case studies of the Megaproject Portfolio it has been developed a further deeper stakeholder analysis, which considers both internal and external stakeholders. The level of information of this data gathering is relatively high, in fact, taking into account the overall possible information, the 72% of the data are available.

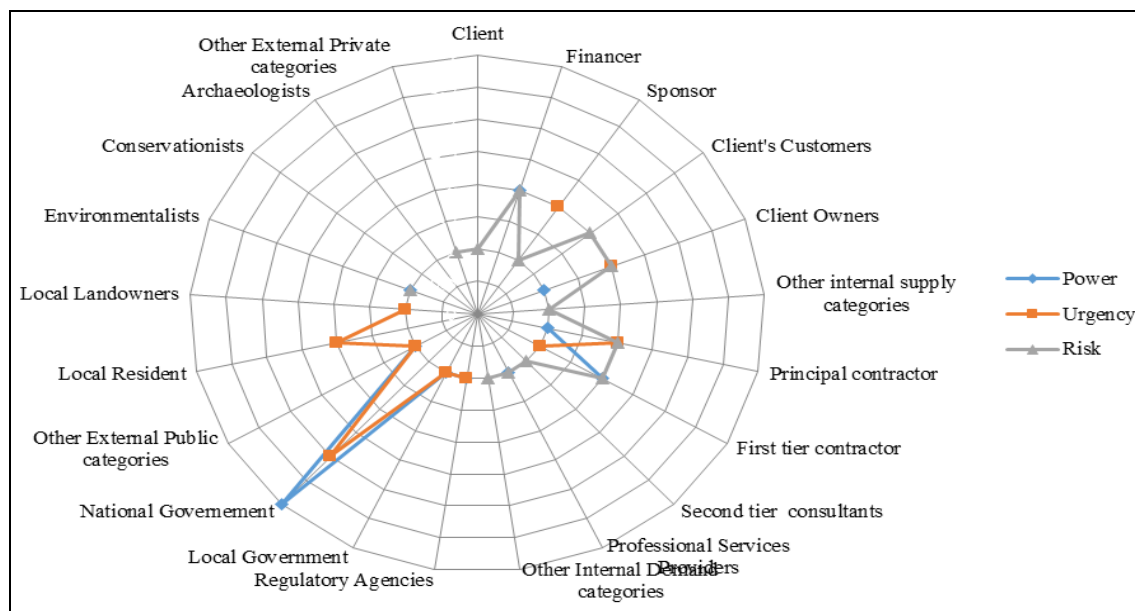


FIGURE 4 STAKEHOLDERS' POWER/URGENCY/RISK

The radar chart above (Fig. 4) takes into account three specific stakeholders' attributes: power, urgency and risk (see Section II for further explanations). It highlights that in four cases out of 6 (67%) the National Government has a high power and in the half of the cases his urgency is also high. Urgency has been also high in the 33% of the cases for the following stakeholder categories: sponsor, client's owner, principal contractor and local resident. Regarding instead the project risks,

they have been high in few cases (33%) for financiers, client’s customers, client’s owners, principal contractors and first tiers contractors.

The next radar graph (Fig. 5) shows the influences of stakeholders on time, cost and project goals (see Section II for further explanation). Regarding time performances, the highest influence (in 50% of the cases) is the one of the financiers, the client owners, the first tier contractors and the National Governments. Instead, regarding the performances of cost, the highest value is the one of the financiers, followed by the clients, their customers and owners, the first tier contractors, the national government and the EU (other external public categories). Finally, the highest influences on the overall project goals are the ones of the National Governments first, followed by the environmentalists, the financiers, the client’s customers and the regulatory agencies.

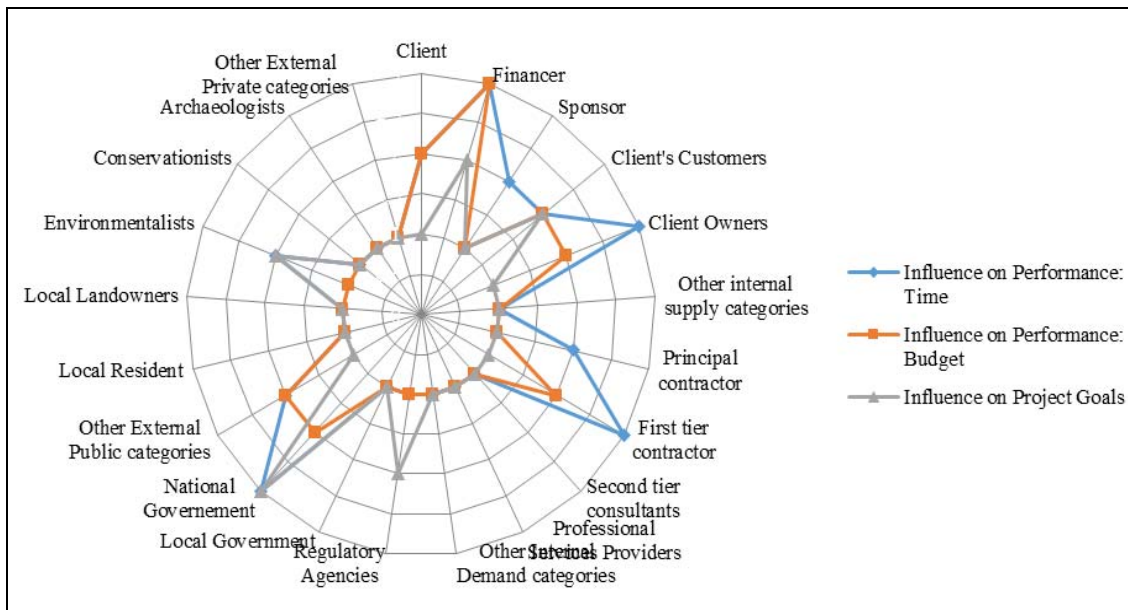


FIGURE 5 – STAKEHOLDERS' INFLUENCE ON TIME, BUDGET AND PROJECT GOALS

Another analysis on the cluster of 6 case studies regards stakeholders’ satisfactions according their ideas, visions and expectations. The bar chart below (Fig. 6) shows their positive and negative satisfaction about a project performances. The most satisfied stakeholders are the client’s customers and the Local Governments. financiers, client’s owners, principal contractors, first tiers contractors, National Governments and local residents resulted to be in some cases satisfied and in others not. The category which resulted to be often (50% of the cases) unsatisfied is the one of the environmentalists; in one case study also the client resulted to be the same. If the least satisfied stakeholder can be clearly identified, this is not the same for the most satisfied one.

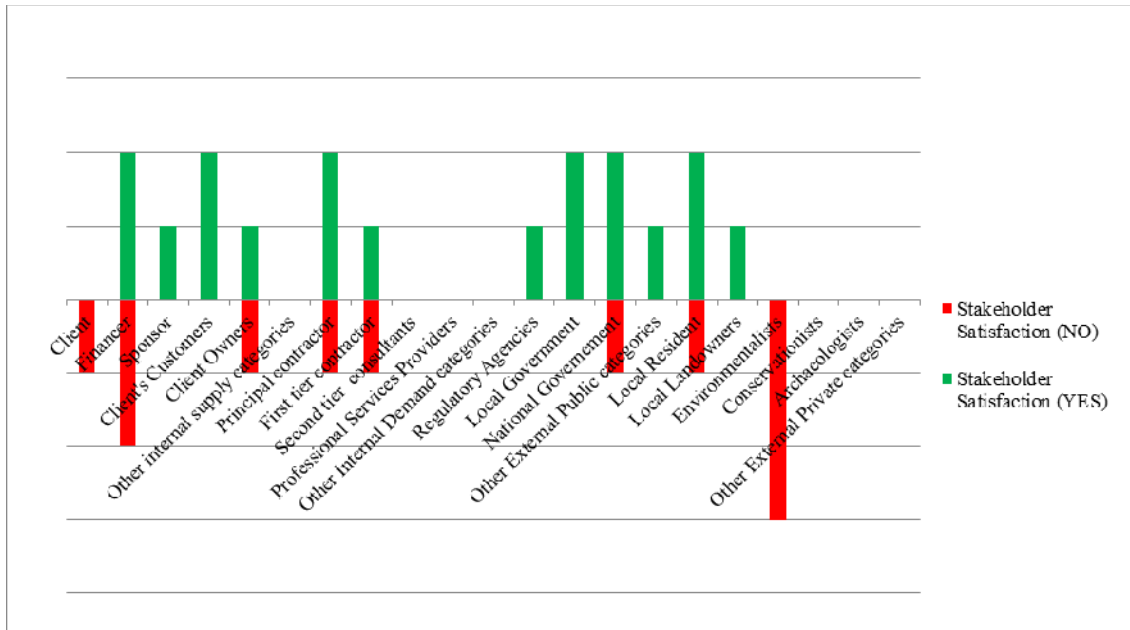


FIGURE 6 – STAKEHOLDERS' SATISFACTION

The 14 and the 6 case studies clusters' results answer to the four research questions. For each of the question, the same code was looking in each case study in order to see what was the result from the practice. Once a research answer was identified, contradictory information was looking for in order to validate or not each results. In the analysis done, no contradictory information proved any of the research questions wrong. Research answers and referred supporting cases studies are clearly shown in Table 4 (see Table 1 for the explanation of information gathered for each research question and Table 3 for megaproject referred numbers).

TABLE 4 – RESEARCH QUESTIONS AND ANSWERS

RESEARCH QUESTIONS	RESEARCH ANSWERS	SUPPORTING CASE STUDIES
i. Which stakeholder is the main sponsor in the majority of European megaprojects?	European Union	2.1 – 3.1 – 3.4 – 3.6 – 3.7
ii. Which is the stakeholder that results to be the most connected with megaproject power?	National Government	2.1 – 2.3 – 2.6 – 2.7
iii. Which is the stakeholder that result to be the one with the highest influence on megaproject performances?	National Government	2.1 – 2.3 – 2.7 – 3.5
iv. Which is the least, and which is the most, satisfied stakeholder in regards to megaproject outcomes?	Environmentalists (least), no single one (most)	2.3 – 2.6 – 2.7

V. CONCLUSIONS

This paper provides useful insights from the practitioner world to the scientific one. However, the authors believe that the results can be interesting for both practitioners and academics. The Megaproject Portfolio developed by the Megaproject COST Action group was the main source of the analyses done. The findings highlight the following:

- i) the European Union is the main sponsors and supporter of megaproject within the European territory;
- ii) each National Government of a megaproject is the most powerful and the highest influencer on project performances;
- iii) the least satisfied stakeholder is the Environmentalist, there is not the same evidence for the most satisfied one.

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