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Special Purpose Entities in Megaprojects: empty boxes or real companies?

Literature Review

ABSTRACT

Megaprojects involve organizations called “Special Purpose Entities” (SPEs) also known as “Special Purpose Vehicles”. Despite their relevance, particularly for governance, SPEs are under-investigated. In the project management literature, there is neither a widely accepted definition of SPE nor a clear understanding of what it does. This paper presents an extensive literature review, which considers three domains: legal, financial and project management. Four outcomes are presented: the definition of SPEs, the typology of existing SPEs, a comparison of existing SPEs and a description of SPE uses in megaprojects.

Key Words: Special Purpose Vehicle (SPV), Public Private Partnership (PPP), Project Finance, Megaprojects, Governance

INTRODUCTION: SPES AND MEGAPROJECTS

Infrastructure megaprojects are large-scale investment projects. They typically cost more than US\$1 billion (Merrow, 2011) and are characterized by:

- Vast impact into economy society and environment (Florice & Miller, 2001);
- Long-term commitment: the lifecycle persists for several decades (Florice & Miller, 2001);
- Involvement of public actors such as governments (Sanderson, 2012);
- Turbulent/dynamic environment (Merrow, 2011);
- Significant risk for the sponsoring (Locatelli & Mancini, 2010; Van de Graaf & Sovacool, 2014);
- Organizational complexity: megaprojects involve hundreds of companies (Aaltonen & Kujala, 2010; Ruuska, Artto, Aaltonen, & Lehtonen, 2009).

Examples of infrastructural megaprojects include long bridges, tunnels, highways, railways, airports, seaports, nuclear plants, and large dams.

Although megaprojects are important for modern economies and societies, they have a history of poor performance (Flyvbjerg, Bruzelius, & Rothengatter, 2003; Locatelli, Mancini, & Romano, 2014; Merrow, 2011). There are explanations for these poor performances; some of these lie on the inherent complexity, difficulty and uncertainty of the megaproject endeavor; e.g. the optimistic bias associated with forecasts (Flyvbjerg, 2006) or the technical uncertainty due to First Of A Kind (FOAK) issues (Locatelli & Mancini, 2012).

Others refer to governance challenges at either a strategic or tactical level; e.g.:

- Strategic misinterpretations of decision-makers (Flyvbjerg, 2006);
- Cultural distance and lack of effective collaboration between project stakeholders (Ruuska, Ahola, Artto, Locatelli, & Mancini, 2011);
- Poor Front End Engineering and Design (FEED) (Samset & Volden, 2015);

Since megaprojects involve several clusters of stakeholders working towards common objectives, the governance problems (e.g. agency problem, high transaction costs, etc.) are magnified (Merrow, 2011). The research focuses on the governance of megaprojects; considering that improvement in governance would lead to better project performance (Miller, Lessard, Michaud, & Floricel, 2001). The governance is a complex multi-level concept that lies on the institutional theory (Ralf, Shao, & Pemsel, 2016). One way of looking at it is through the lenses of contracting. This perspective is grounded on the regulative-governance dealing with formal rules and regulations but also encompassing other aspects of the institutional theory: i.e. normative and socio-cultural (Scott, 2013).

Under the contracting perspective, the different project stakeholders negotiate, agree and perform contracts (or other regulative instruments) in accordance with the existing legal and regulatory context. This perspective focuses primarily on contracts, which are enforceable mechanisms affecting the project governance in different ways:

- set common objectives and rules for the contracting parties, which are a sub-set of project stakeholders (Eskerod, Huemann, & Ringhofer, 2015);
- define their roles and responsibilities;
- allow the sharing or transfer of some project risks;
- settle the decision-making process of the megaprojects.

The contracting perspective also contemplates other types of formal instruments such as: public concessions, licenses, ownership links, financial transactions (e.g. loans), securities, ad hoc companies, etc.

One of the formal governance instruments, widely used in megaprojects, is the Special Purpose Entity or Vehicle (SPE/ SPV). A formal definition of SPE is a key deliverable of this paper. For the time being let's state that when the SPEs are in place the megaprojects are

statistically correlated with better schedule and budget performance. (Brookes & Locatelli, 2015; Brookes, Locatelli, & Mikic, 2015).

SPEs are important for the megaprojects because of three main reasons. Firstly, because they play a relevant role in their governance. Secondly, because SPEs are positively correlated with the megaproject delivery time and cost (Brookes & Locatelli, 2015; Brookes et al., 2015). Thirdly, because SPEs are widely used in megaproject contracting; (Megaproject cost action, 2014) in about 50% of the cases they are used to regroup the critical megaproject stakeholders; i.e. the client, the government, the main contractor, etc.

In the project management literature, it is difficult to get a clear picture of what an SPE is and does. Usually, the term SPE is mentioned in the field of Project Finance (PF) and project partnering or a mixture of these such as: the Public Private Partnership (PPP), Private Finance Initiative (PFI), etc. The project management researchers have never focused expressively on SPEs. Conversely, other knowledge domains have specifically addressed the theme of SPEs. The most important are the Legal and Financial domains.

Looking at the different knowledge domains, there is neither a single or widely accepted definition of SPE's (BCBS, 2009). SPEs can have several purposes ranging from fiscal optimization to construction of infrastructure megaprojects. SPEs can be either mailbox companies (i.e. intangible organizations without people or offices) or large organizations involving hundreds of people. In the past, this ambiguity has caused major problems, e.g.:

- Lack of transparency, e.g. in some countries, SPEs are not reported in the balance sheet or other official corporate documents (Schwarcz, 2006; UNECE, 2011);
- Tax optimization: sometimes SPEs are constituted in low fiscal jurisdictions while their operations (if existing) take place elsewhere (UNECE, 2011). The ambiguity in the definition of SPEs enables companies to take advantage of “gray areas” (BCBS, 2009; Larson, 2008);

- Ineffective policies: SPEs are difficult to regulate and traditionally occupy a de-regulated field. Several scandals and crisis originated from the misuse of SPEs, (e.g. Enron bankrupt, 2008 subprime crisis, etc.) fostering the legislators to issue more appropriate laws (Smith, 2011).

As a result, the SPE is a topic deemed to have the attention of decision-makers, policymakers, and academics. Particularly in the project management where the explicit knowledge on the topic is very limited and where the SPEs can play an important role in determining the governance of megaprojects. This research has laid the foundations for further study on the topic by answering the following Research Questions (RQs):

- RQ1: What is an SPE?
- RQ2: Which types of SPE exist?
- RQ3: Why are SPEs used in megaprojects?

To answer to these RQs the research presents four main outcomes:

1. Definition of SPEs (addressing RQ1);
2. Typology of existing SPEs (addressing RQ2);
3. Comparison of existing SPEs (addressing RQ2);
4. Description of the SPEs uses in megaprojects (addressing RQ3).

METHODOLOGY

The research challenge lies on the multidisciplinary nature of the SPE- topic, particularly with respect to the first RQs. For instance, the legal, financial and project management domains conceive the SPEs in different ways and their technical jargon results quite fragmented. To overcome these challenges the research is based on an extensive literature review (Saunders, Lewis, & Thornhill, 2015). Consistently with (Cooper, 1982; Gruber,

1993), the review consists of six main phases: problem formulation, data collection, data evaluation, analysis and interpretation and public presentation, as presented in Figure 1.

Figure 1: Methodology Phases

PLEASE INSERT FIGURE 1 HERE

Phase 1: Problem Formulation

The problem formulation consists of three RQs:

- RQ1: What is an SPE?
- RQ2: Which types of SPE exist?
- RQ3: Why are SPEs used in megaprojects?

Phase 2: Data Collection

The research leverages data from international journals, conference papers, books, reports of national and international organizations (e.g. Basel Council, OECD, national statistic organizations or regulatory authorities). The data collection followed two streams: the first reviews papers (international journals and conferences) and books; the second reviews institutional reports. Journals and books are retrieved from the Scopus and Science Direct databases. The authors selected a set of keywords assembled into search strings as reported in Table 1.

Table 1: Search parameters for literature collection (Scopus and Science Direct)

PLEASE INSERT TABLE 1 HERE

The institutional documents involve: reports from accounting standard regulators, banking institutions, rating agencies and other relevant institutions (e.g. advisory firms like PWC).

Preference is given to documents written by established and trustworthy institutions. In summary, the data collected comprises 2166 Journal Papers, 1094 Conference Papers, 66 Books and 24 Reports; i.e.3350 documents in total.

Phase 3: Data Evaluation

The 3350 documents collected in the second phase were all individually ranked according to four levels of relevance and then coded. Most of the documents collected were out of scope (e.g. special purpose vehicle understood as a means of transportation), and further screening consistently reduced the number of documents analyzed in detail. Subsequently, the authors ranked the relevance of the documents considering the title, the abstract and the keywords. Consistently with (Pittaway, Robertson, Munir, Denyer, & Neely, 2004), the ranking was based on a scale from 0 (not relevant) to 3 (highly relevant) considering: theory robustness, the implications for practice, methodology, data supporting arguments, generalizability, and contribution. 54 documents with a “relevance” of 2 or 3 were scrutinized and then further analyzed (i.e. the whole document) in the following phases; in APPENDIX 1, Table 5 lists all these documents.

Phase 4: Analysis and Interpretation

To harmonize the knowledge concerning the SPEs, across the legal, financial and project management domain the research adopts the review criteria introduced by (Ogawa & Malen, 1991; Randolph, 2009). In particular, a structured coding process is applied to the input documents providing one or more of the following information:

- a. Definition of SPE;
- b. Discussion of specific features attributable to SPEs (e.g. bankruptcy remoteness);
- c. Specific uses of SPEs (e.g. project finance);

- d. Problems related to the use, or misuse, of SPEs (e.g. tax evasion);
- e. Examples of SPEs (used for the testing).

Part of this information (a-d) is classified and systematized with a relational database structure (Ritchie, 2002), initially top-down driven (from the existing definitions in legal and financial domains) and later refined to fit with the variety of input information.

The Analysis and interpretation of the input information are contingent of the four outcomes of the research:

1. **Definition of SPEs:** obtained by scrutinizing the database to identify which characteristics are common across the legal, financial and project management domains. The result of the query was interpreted and generalized to obtain a “universal definition” of a SPE.
2. **Typology of the existing SPEs:** The creation of the database permitted the establishment of ten classifiers, in the form of SPE features. These are the key database attributes of either the SPE or related entities. For each feature, a list of corresponding values is provided. For example, the classifier “legal characterization” can have the following values (i.e. available types for the given feature): Limited Liability Company, Limited Liability Partnership, Mutual Fund, Corporation, and Trust. This structure provides a typology enabling to classify the existing types of SPEs.
3. **Comparison between the existing SPEs:** The comparison distinguishes the understanding and the uses of the SPEs in the three knowledge domains analyzed: legal, financial and project management. The comparison is based on an extensive literature review.
4. **Description of the SPEs uses in megaprojects:** The discussion is based on both the extensive literature review and the analysis of the types of SPEs involved in the megaprojects.

Phase 5: Testing

The testing process involves some representative examples of SPEs, available from the input information. These examples are regrouped around the typical types of SPEs, that are defined for their purposes: Securitization, Project Financing, Public Private Partnerships (PPP), Off-balance sheet - SPEs, Leasing SPE. These types provide an extensive sample of SPEs that are used to test the definition and the typology. The testing permitted to refine the definition, which generalizes all the examples considered. Conversely, the typology is sufficient detailed to differentiate among the examples of SPEs in a meaningful way. Table 7 in APPENDIX 2 shows the comparison between the types of SPEs employed in the testing phase.

Phase 6: Public Presentation

The following paragraphs present the four outcomes of the research in different formats.

DEFINITION OF SPE

Grounded on the body of literature previously presented the definition of SPE is:

“The Special Purpose Entity is a fenced organization having limited pre-defined purposes and a legal personality”. The SPE is an organization having three distinctive features:

1. It is a fenced entity: the SPEs are “Self-Fenced organization” or “Orphan Entity” having their ownership share settled on a trust (BCBS, 2009; UNECE, 2011). There are legal mechanisms to isolate assets, liabilities and risks associated to the SPE; which are essential for most of the SPE activities including: securitization (Fabozzi, Kothari, & others, 2008) and PF. Another key aspect is the “bankruptcy remoteness” principle, isolating the SPE from the risk of Bankruptcy arising from its originators (Sewell, 2006).

2. It has limited and pre-defined purposes: SPEs are instrumental to achieve specific objectives determining their lifetime. Once the SPE performs the predefined purposes, it ceases to exist; e.g. it becomes another type of organization (this sometimes happen in PPP megaprojects). In legal terms, the SPEs have “Scope limitations” in accordance to their statute and contractual provisions (Caselli & Gatti, 2005). Usually, in megaprojects, the “shareholders agreement” set the predefined purposes.

3. It has a legal personality: the SPE is a legally recognized entity (BCBS, 2009). Depending on its jurisdiction, it can assume one of the possible legal forms: e.g, trusts, partnerships, limited liability partnerships, corporations and limited liability companies (BCBS, 2009; Feng, Gramlich, & Gupta, 2009). The legal personality is an essential status to enable the other distinctive features.

TYOLOGY OF THE SPEs: THE THREE KNOWLEDGE DOMAINS

The second main outcome of the research is the typology of the existing SPEs, encompassing the legal, financial and project management domains.

Figure 2 shows the distinctive features characterizing the SPEs, and their typical values (e.g. the feature “legal status” can have the following “values”: Limited Liability Company, Limited Liability Partnership, etc.). Depending on the features, their relative values can be mutually exclusive (i.e. 1- Legal Statues, 2- Lifetime) or not (i.e. all the remaining features).

The possible combinations of values describe and classify, all the types of SPE analyzed. The typology describes a variety of SPEs, ranging from off-balance- sheet vehicles to large construction joint ventures.

Adopting the typology, the research compares the SPEs considered by the legal, financial and project management domains; as shown in detail in the APPENDIX 2.

Figure 2: Typology of the existing SPEs

PLEASE INSERT FIGURE 2 HERE

SPE in the Legal Domain

The legal domain sees the SPE as an intentional off-balance sheet instrument, which is used to hive off specific businesses from the originator. The domain focuses on the technicalities required to make this operation effective.

Legislators continuously try to regulate the evolving applications of SPEs (e.g. securitizations, financial derivate, PF, etc.) to maintain a sufficient transparency and accountability. However, the SPEs evolved in a deregulated context. Their abuse led to major scandals like in the bankrupt of Enron and Lehman Brothers (Smith, 2011).

Following from these scandals, the legislator intensified the effort to keep under control the use of the SPE. Consequently, the regulators introduced specific regulatory frameworks qualifying the SPE directly or indirectly.

Directly, the regulatory frameworks qualify the SPEs according to a list of prescriptive requirements. For example, the SPE can own only a specific class of assets (e.g. real estate), or liabilities (e.g. mortgages), or can perform only specific activities e.g. issue securities and manage the cash flows.

The regulatory frameworks qualify indirectly the SPE looking at the perspective of the originator or sponsoring organizations. In some specific circumstances, the investors can avoid consolidating some participated companies, which become indirectly qualified as SPEs.

SPE in the Financial Domain

In the financial domain, the SPE is a financial vehicle permitting four main types of transactions: securitization, project finance transactions, leasing transactions and leverage buyouts (Caselli & Gatti, 2005).

The SPEs may vary significantly depending on their original purposes; i.e. risk management & sharing, funding and liquidity, accounting, increasing credit risk, regulatory capital, asset transfer, property investing, other regulatory reasons, other motivations (BCBS, 2009). Sometimes, the SPEs are sometimes “auto-managed” (also known as “autopilot entities”), and a set of sophisticated control rules govern their behavior (De Nederlandsche Bank, 2004).

SPE in the Project Management Domain

In project management, the SPEs are legal organizations devoted exclusively to perform their contracts, which pre-define their purposes. The SPEs are used primarily in megaprojects because their set-up and due diligence are particularly expensive; therefore, the SPEs are not

legitimated in small projects. There are two main uses of the SPEs in megaprojects and usually they are overlapped:

Project financing (PF) is: “the raising of funds on a limited-recourse or nonrecourse basis to finance an economically separable capital investment project in which the providers of the funds look primarily to the cash flow from the project as the source of funds to service their loans and provide the return of and a return on their equity invested in the project” (Finnerty, 2013). PF gives financial advantages for the project shareholders increasing their capability to raise more capital at a lower cost; which are fundamental aspects in megaprojects (Finnerty, 2013). PF has a long due diligence and negotiation process at the beginning of the project (i.e. conceptual design, planning). This is necessary because external financiers want sufficient guarantees to legitimate the increase of leverage and decrease of cost of debt. Risks identification and transfer are the most important aspects. These aspects are addressed by specific contracting mechanism (e.g. off-take contracts) supporting the viability of the project. The SPEs is used to isolate the project risks and to create a central point of responsibility.

Project partnering creates synergies among project stakeholders by aligning their interests (Clifton & Duffield, 2006). There are several types of partnerships: PPP, corporate partnership, joint venture, consortium (Grimsey & Lewis, 2007). Table 2 presents the main differences according to two main drivers: duration of the partnership and partnership vehicle. Partnerships in megaprojects often include public and private organizations and are called Public-Private- Partnerships (PPP). SPE are therefore the legal entities enabling joint ventures among project stakeholder.

Table 2: Characterization of different types of partnerships

PLEASE INSERT TABLE 2 HERE

COMPARISON BETWEEN THE EXISTING SPES: THE THREE KNOWLEDGE DOMAINS

Table 3 and Figure 3 summarize the differences and similarities between the three knowledge domains: legal, financial, and project management. In the ANNEX 2, Table 6 provides additional details to enhance the transparency and traceability of the research.

In the Table 3, the diagonal identifies the SPE's specific characteristics; the upper triangular describes the similarities between domains and the lower triangular describes the differences.

The key messages emerging from the analysis presented in Table 3 and Figure 3 are:

- The three knowledge domains focus on different types of SPEs, consistently with their differential purposes (as summarized by Figure 3). The legal domain focuses on intentional off-balance sheet SPEs. The financial domain focuses on SPEs supporting advanced financial products and transactions. The project management domain focuses on concessionaire companies, project financing vehicles and construction Joint Venture, in megaprojects.
- Some SPE's features three domains correspond among the three domains. The most relevant overlap is between the legal and financial domains. Conversely, the SPEs involved in megaproject are a more specific and, with some respects, separate from the other two domains.
- Some types of SPE considered in project management are well documented in the financial domain, as a specific class of financing vehicles, e.g. in PF. Conversely, the overlap between the project management and legal domain is relatively small.

- The managerial and organizational related issue are particularly relevant in the project management whereas they are not in the other two domains; in these latter cases, the types of SPEs considered are often virtual companies (i.e. shell or mailbox companies).

Table 3: Comparison between Legal, Financial and Megaproject Domain

PLEASE INSERT TABLE 3 HERE

Figure 3: Knowledge domain sets associated with the SPE and defining characteristics.

PLEASE INSERT FIGURE 3 HERE

THE USES OF SPES IN MEGAPROJECTS

In megaprojects, the SPEs are used as alternative contracting instruments. The SPEs can substitute multilateral contracts (e.g. consortium) improving the governance of megaprojects.

The three distinctive features of SPEs give some advantages compared to the other contracting instruments.

1 - Likewise companies, the SPEs have legal personality, consequently they can: own assets, hold liabilities, employ peoples, pay taxes, etc. Subsequently, the SPE can also collect, isolate and distribute project risks. This ability is particularly important and permits, in conjunction with other contracting instruments, to assign specific risks and responsibilities to specific project stakeholders. This is the key reason that legitimates, and explains, the central role played by SPEs in the governance of megaprojects.

2- The SPE has predefined purposes, which are typically reported in their statutes and the shareholder agreement.

While other companies are driven by an evolving strategy, the SPEs have fixed purposes and a specific mandate to accomplish. The SPEs are devoted exclusively to perform their predefined purposes. These constraints are justified in project finance because they give confidence to the lenders; i.e. their loan is expressly linked to the megaproject, and it is subjected to their strict control according to the rules stated in the shareholder agreement, loan agreement and the syndicate agreement. This has major implications for the governance of megaprojects. For example, the financial institution appoints a member of the SPE's board of director with the veto rights for specific and critical decisions.

3- The SPEs are fenced entities, which means that its assets cannot be alienated in the case of bankruptcy of its controlling shareholders. This special status is known as bankruptcy remoteness principle. This feature aims to limit and isolate the risks affecting the SPEs. Therefore, it is a critical feature enhancing the bankability of the SPEs and consequently of the megaprojects.

In summary, these three distinctive SPE's features together, enhance the ability to attract external financial resources, alignment of actor's interests, stakeholder integration during lifecycle, effective risk sharing, lower taxes and easier transfer of assets among companies (Basel Committee on Banking Supervision (BCBS), 2009; De Nederlandsche Bank, 2004; OECD, 2008). These abilities are particularly suitable for project finance and project partnering. Conversely, the SPE's features can lead to certain drawbacks, such as: limit the flexibility, tend to create monopolies, involve a longer due diligence and negotiation process (Finnerty, 2013).

Table 4 summarizes the main abilities and drawbacks associated with the adoption of SPEs in megaprojects.

Table 4: Advantages and disadvantages of SPE in Megaproject

PLEASE INSERT TABLE 4 HERE

CONCLUSIONS

SPEs are often used to design, deliver, finance and operate infrastructural megaprojects. Their relevance lies in the ability to attract finances, manage the risks and shape the governance of the megaproject.

However, despite being extremely relevant to megaprojects SPEs are under-investigated in project management. In particular, it is not clear how to design SPEs to deliver successful megaprojects. This paper sets the background for a new research stream by bringing together the scattered knowledge which exists on SPEs in a “project management friendly paper”. Four main outcomes are presented: definition of SPEs, typology of the existing SPEs, comparison of existing SPEs and a description of SPE usage in megaprojects.

Firstly, SPEs do not have a uniform definition across the legal, financial and project management domains. Behind the acronym “SPE” exists a wide range of companies, ranging from virtual organizations, like mailbox companies, to large construction joint ventures, for infrastructure megaprojects. This research provides a general definition of SPE, which is consistent with all domains considered.

Secondly, ten main features differentiate the existing types of SPEs from one another: legal status, lifetime, purposes, activities, capabilities assets & liabilities, financial structure, risk characterization, ownership and control, reporting and accounting and venue. For each of these, the research identifies a list of possible values; their combination allows the different types to be represented and for SPEs to be classified.

Thirdly, the research presents a comparison of the types of SPEs prevalently described in the legal, financial and project management domains.

The legal domain views SPEs mostly as off-balance sheets instruments enabling tax optimization and balance sheet management. Typically, SPEs are considered as mailbox companies; i.e. an empty box or virtual company without staff and physical venue.

The financial domain focuses on advanced financial products and transactions which involve the SPE (usually a mailbox company) functioning as a financial vehicle able to isolate and channel financial assets and cash flows.

The project management domain focuses on SPEs owning physical assets, employing people and undertaking activities such as: design, construction, financing and operating infrastructure megaprojects.

Fourthly, the research further specifies the uses of the SPEs in megaprojects. The SPEs enables resources and capabilities from different project stakeholders to be assembled. In Project Finance, the SPEs are used for risk management purposes and they are usually associated with vast debt in conjunction with off-take contracts or concessions which are necessary to secure revenue streams.

Often a megaproject involves a wide range of SPEs at the same time: some major staffed SPEs and other mailbox SPEs permit a fiscal and financial optimization. Even in such complex network of SPEs and contracts, there are SPEs that are more critical than others because they retain most of the assets or because they determine the governance of the megaproject. These critical SPEs manage the project resources and risks and their governance becomes the governance of the megaproject itself. This is the reason why SPEs are so important for megaprojects and deserve further investigation to fully clarify their role, in particular:

- The existing mechanisms by which SPEs determine the governance of megaprojects;
- SPE ability to align and coordinate critical project stakeholders;
- The barriers and preconditions limiting the use of SPEs;
- The potential threats associated with the misuses of SPEs in megaprojects;

Appendix 1

Table 5: Key documents

PLEASE INSERT TABLE 5 HERE

Appendix 2

Table 6: Comparison between the SPEs described by the legal, financial and project management domain; A=Always, U=Usually, UN=Usually Not, S= Sometimes, R=Rarely, N=Never

PLEASE INSERT TABLE 6 HERE

Table 7: Comparison among five main types of SPEs. A=Always, U=Usually, S= Sometimes, R=Rarely, N=Never

PLEASE INSERT TABLE 7 HERE

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FIGURES

Figure 1: Methodology Phases

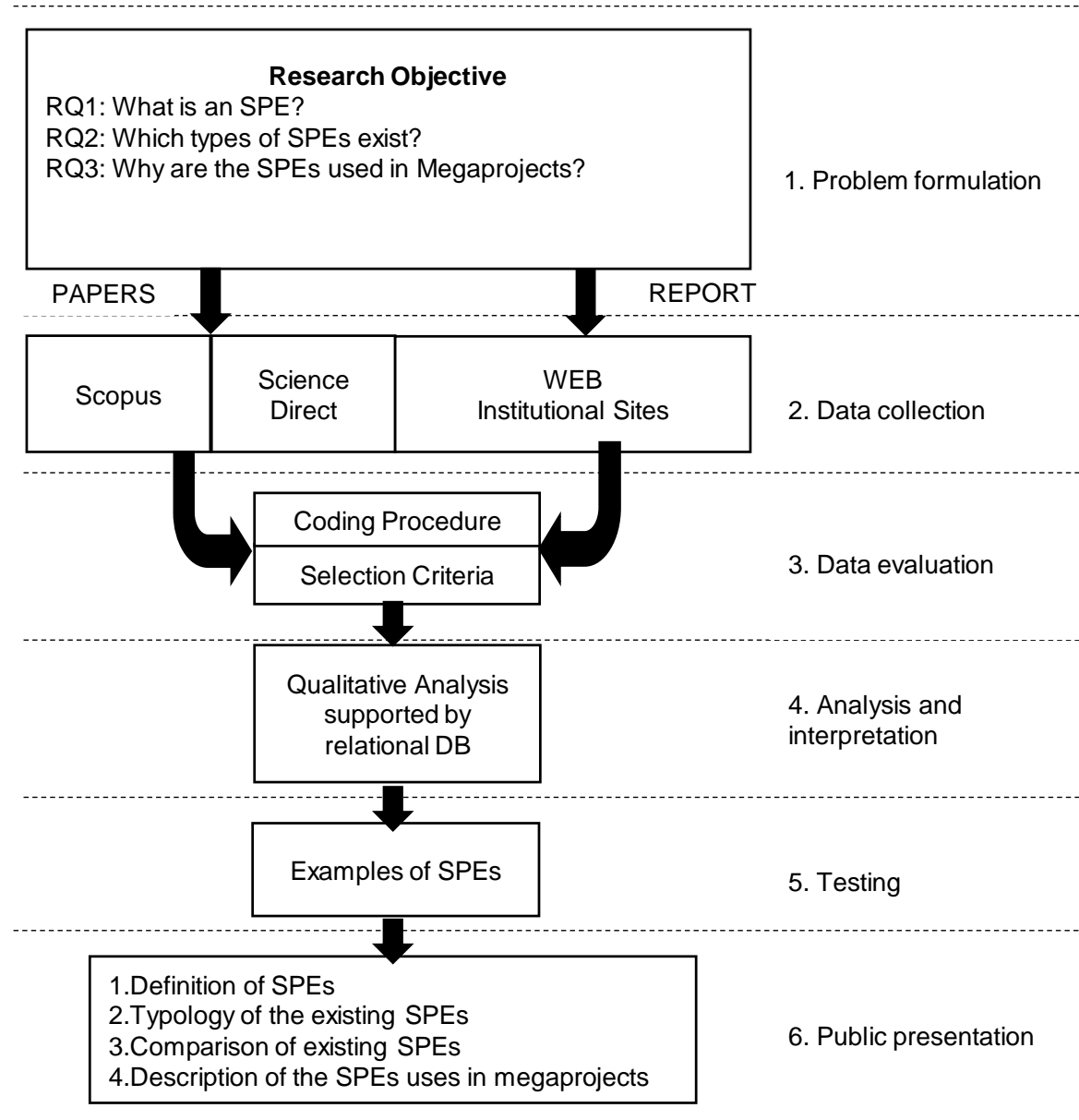


Figure 2: Typology of the existing SPE

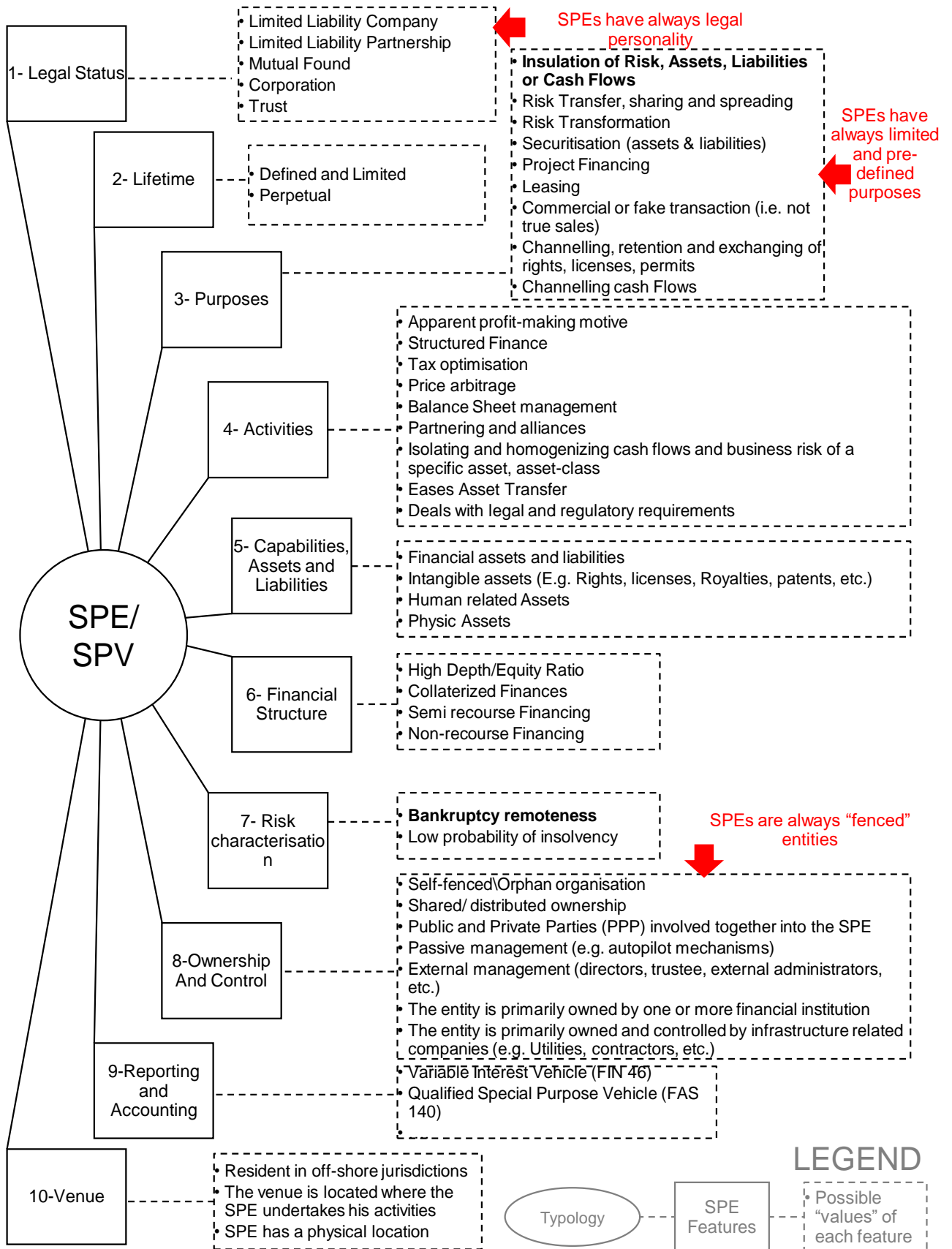
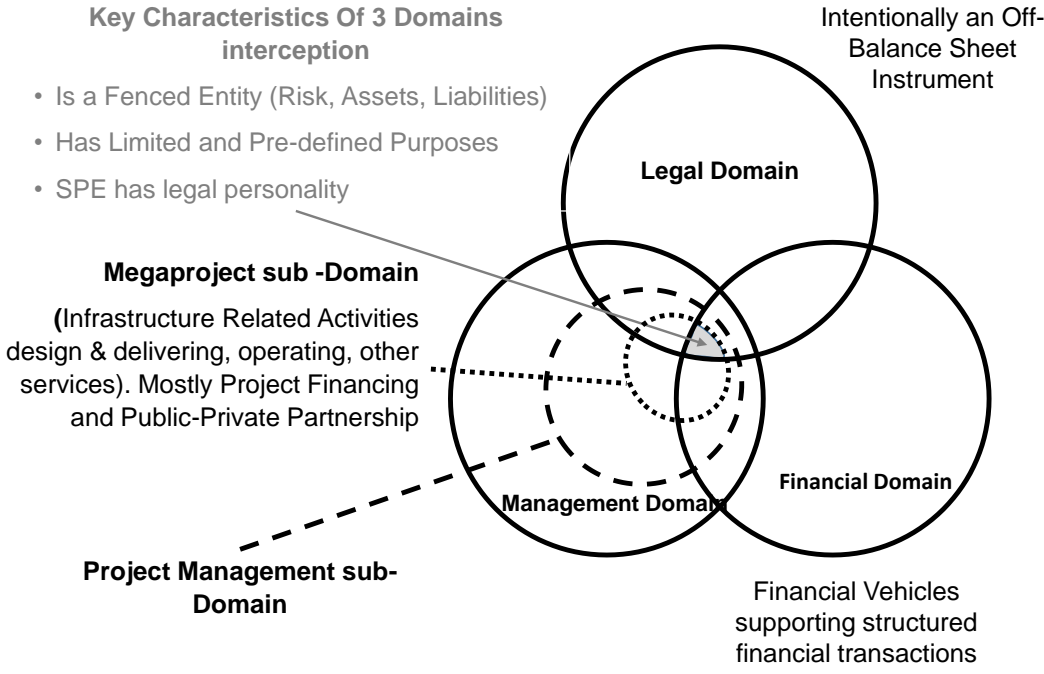


Figure 3: Knowledge domain sets associated with the SPE and defining characteristics.



TABLES

Table 1: Search parameters for literature collection (Scopus and Science Direct)

	WEB Database	
	Scopus	Science Direct
Keywords Rots	Special Purpose Entit*, Special Purpose Vehicle*, Project Financ*, Structured Financ*, Off Sheet Fianc*, Securitization*, Shell compan*	
Subjects considered	Engineering, Business, Management and Accounting, Decision Sciences, Economics, Econometrics and Finance	Bank, Cash flow, Decision support, Developing country, Energy policy, Firm, Interest rate, Project management, Renewable energy, Renewable management, Risk management, Stock market, Supply chain, Supply chain, Sustainable development and World bank
Year of publication	1960 – 2014	

Table 2: Characterization of different types of partnerships

	Duration of the partnership	Partnership vehicle
Partnership (general meaning)	Either Short-medium-long horizons	Can be based on a variety of options: contracts, SPEs, shareholder agreement, other types of agreement, etc.
Corporate Partnership/ Joint Venture	Medium- Long-term horizon	Usually Based on shareholder agreement and/or dedicated companies (i.e. SPE)
Project Joint Venture	Short-term horizon (e.g. design of a new product, construction of an infrastructure, etc.)	Usually based on SPEs
Public Private Partnership	Short- medium term horizon (e.g. the infrastructure lifetime, the concession period, etc.)	Usually based on SPEs
Consortium	Usually short term horizon (e.g. delivery of a project)	Based on two layers of agreements: internal agreement (between the parties involved in the consortium) and external (between the consortium and the external stakeholders, e.g. Client). The consortium doesn't involve dedicated companies (e.g. SPEs), rather on the joint liability that consortium members have in the eyes of the external stakeholders. The extent by which the parties are jointly liable may change depending on the type of consortium and on the legal and contractual framework applied.

Table 3: Comparison between Legal, Financial and Megaproject Domain

	Legal Domain	Financial	Megaproject
Legal	<p>Legal - The SPE is considered as an Intentional Off- Balance Sheet Instrument. The domain focuses on the legal provisions addressing the accounting recognition of SPEs. Similarly, to the financial domain, the SPE is usually an empty box registered in fiscal paradises for fiscal optimizations, arbitrages, structured finance and balance sheet management operations.</p>	<p>SIMILARITIES - The SPE is an off-balance sheet instrument used for insolate (and sometimes hide) risks, assets and liabilities. The SPE is an empty box, usually in off-shore jurisdictions, with passive or external management. Its lifetime can be either limited or perpetual. Its typical activities encompass: Insulation of Risk, Assets, Liabilities or Cash Flows, Risk Transfer, sharing and spreading, Securitization (assets & liabilities), PF, Leasing, Factoring, Commercial or fake transaction, Channeling, retention and exchanging of rights, licenses, permits, Channeling cash Flows.</p>	<p>SIMILARITIES - The SPEs can be employed as off-balance sheet vehicle for the megaproject investors. For example, the Private Finance Initiative (PF) involves the SPEs as off-balance sheet vehicles for the public administrations. Sometimes, the SPE is also used to manage concessions and licenses associated to the infrastructure megaprojects.</p>
Financial	<p>DIFFERENCES - There are deregulated financial instruments that are legally recognized and not considered by the legal domain. Furthermore, there are classes of financial SPEs that are not off balance sheet instruments. This is in contrast to the understanding of the legal domain that focuses on accounting recognition of SPE and associated information disclosure.</p>	<p>Financing – The SPE is considered as a financial vehicle permitting the structured finance transactions (i.e. securitization, PF transactions, leasing transactions, leveraged buyouts) SPE is a Bankruptcy remote entity with low probability of insolvency.</p>	<p>SIMILARITIES - SPEs are designed for PF. They involve a complex contracting network to secure, to the possible extent the project risk; e.g. off-take agreements, supply agreement, etc. The SPEs are designed to give confidence to the financial institution to make bankable the investment. This require a long due-diligence and typically permit to increase the financial leverage (e.g. 80-90%) of the SPEs.</p>
Megaproject	<p>Megaproject SPEs don't focus primarily or on off-balance sheet related issues; which is the central topic in the legal domain. megaproject SPEs have a public and clear venue, typically the same jurisdiction where the infrastructure is developed. Sometimes, the jurisdictions are selected because they have "friendly", and enforceable banking law (usually common law). Conversely, the legal domain focuses on the SPEs that are intentionally settled-up in jurisdictions having favorable legislation regarding taxes and information disclosure.</p>	<p>DIFFERENCES – The financial domain considers a wider range of uses for the SPEs. Usually the financing domain focuses on 'mail-box' companies that are virtual companies. In such cases, the SPE is auto managed and does not involve physical assets or people (i.e. it is just financing vehicles). By contrast, the megaproject's SPEs enable to partnering the key SPE's stakeholder by pooling their assets and workers into a joint company.</p>	<p>The megaproject-SPE are physical organizations (with staff, facilities, etc.) having defined and limited lifetime. Usually, the shareholders are industrial organizations (contractor, utilities) and sometimes public institutions (e.g. PPP). These SPEs design, deliver, operate large/megaprojects. The SPEs are used for PF and project partnering.</p>

Table 4: Advantages and disadvantages of SPE in Megaproject

Advantages	Ability to attract external financial resources	SPE groups and shares stakeholders' capabilities and risks. Since SPE is an external and self-fenced entity, all risks exogenous to the project are reduced (e.g. bankruptcy of a project stakeholder). This enable SPEs to raise more depth at lower cost (Finnerty, 2013).
	Alignment of actor's interests	SPEs are designed in order to provide a comprehensive scheme of incentives affecting relevant project stakeholders (i.e. shareholders, critical contractors, etc.). The contracting schemes involving the SPEs enable to better align stakeholder interests (Clifton & Duffield, 2006), (Nisar, 2013).
	Stakeholder integration during lifecycle	SPEs are coupled with the infrastructure that design, deliver and operate. SPE extend the stakeholders commitment in the project to more phases. (Clifton & Duffield, 2006), (Nisar, 2013).
	Effective Risk Sharing	Using SPEs, the project risks are shared depending on the stakeholders' ability to influence its. This principle enable a better performance in terms of risk sharing (Grimsey & Lewis, 2002).
	Lower Taxes	SPE corporate structure enable fiscal advantages in several countries (BCBS, 2009).
	Easier Transfer of assets among companies	SPE enables higher flexibility in the transfer of assets between companies. All assets available by the SPE can be transferred by relocating the control of SPE, i.e. by transferring SPE shares among companies (OECD, 2008)
Disadvantages	Limit Flexibility	Longer stakeholders' commitment to the infrastructure has the downside of lower flexibility. Generally, lower flexibility take the forms of: longer amortization time, rigid off-take contract conditions, etc. (Viegas, 2010), (Medda, Carbonaro, & Davis, 2013)
	Creation of Monopoly	PPP Projects exploit the SPEs approach. The public issues special provisions in favor to the private partners (e.g. off-take contracts, special regulations, etc.). This framework increases the barrier to enter into the private business; in most of cases this lead to monopolies (Demirag, Khadaroo, Stapleton, & Stevenson, 2011).
	Longer Negotiation Process	SPEs require longer time for due diligence and negotiation process at the project beginning. These activities are time and cost consuming (Finnerty, 2013).
Uncertain (depends of the case)	Lower/Higher Transaction Cost	The treatment of transaction costs in SPEs is controversial. In some scenarios SPEs enable lower transaction costs (e.g. because of the better cooperation among project stakeholders) in others the opposite (e.g. because of the longer due diligence and negotiation process) (Finnerty, 2013), (Nisar, 2013).

Table 5: Key documents

Source	Knowledge Domain, specific topic
(Dominion Bond Rating Service, 2014)	Legal, SF
(International Accounting Standards Board (IASB)-Standard Interpretations Committee (SIC), 2009)	Legal, accounting
(Ketzi, 2003)	Legal-Finance, risk and accounting
(Kollruss, 2012)	Legal, tax structuring
(Lander & Auger, 2008).	Legal-Finance, accounting
(Larson, 2008)	Legal, accounting
(Larson, 2002)	Legal, accounting
(Larson & Herz, 2013)	Legal, accounting
(Pricewaterhouse Coopers, 2011)	Legal-Finance, SF and accounting
(Schipper & Yohn, 2007)	Legal-Finance, asset transfer
(Schwarcz, 2012)	Legal-Finance, accounting
(G. Scott, 2003)	Legal-Finance, SF and accounting
(Standard & Poor's, 2003)	Legal, SF
(UNECE, 2011)	Legal-Finance, accounting
(Vinter & Price, 2006)	Legal-Finance-Management, PF
(BCBS, 2009)	Finance, types of SPE
(Baudistel, 2013).	Finance, Bankruptcy remoteness principle
(Bluhm & Overbeck, 2006)	Finance, SF
(Bruyere, Copinot, Fery, Jaeck, & Spitz, 2006)	Finance, SF & derivate
(Caselli & Gatti, 2005)	Finance, SF
(Fabozzi et al., 2008)	Finance, securitization
(Feng et al., 2009)	Finance
(Finnerty, 2013)	Finance, securitization
(Gorton & Souleles, 2007)	Finance, securitization
(Kobayashi & Osano, 2012)	Finance, SF
(Krebsz, 2011)	Finance, securitization
(Lakicevic, Shachmurove, & Vulcanovic, 2014)	Finance, Leverage Buyouts
(Leland, 2007)	Finance, SF
(Lemmon, Liu, Mao, & Nini, 2014)	Finance, securitization
(Sewell, 2006)	Finance
(Yescombe, 2013)	Finance, PF
(Akbiyikli, 2013)	Megaproject, PF
(Akintoye & Beck, 2009)	Megaproject, PPP
(Akintoye, Beck, & Hardcastle, 2008)	Megaproject, PPP
(Brealey, Cooper, & Habib, 1996)	Megaproject-Finance, PF
(Cartlidge, 2006)	Megaproject, PPP
(Chowdhury, Chen, & Tiong, 2012)	Megaproject-Finance, PF
(Corielli, Gatti, & Steffanoni, 2010)	Megaproject-Finance, PPP & PF
(Demirag, Khadaroo, Stapleton, & Stevenson, 2011)	Megaproject-Finance, PF
(Farrell, 2012)	Megaproject, PPP
(Gemson, Gautami, & Thillai Rajan, 2012)	Megaproject-Finance, PF
(Grimsey & Lewis, 2007)	Megaproject, PPP & PF
(Grimsey & Lewis, 2005)	Megaproject, PPP
(Grimsey & Lewis, 2002).	Megaproject, PPP
(Hodge & Greve, 2005)	Megaproject, PPP
(Ismail & Hassan, 2011)	Megaproject, PF
(Li, Akintoye, Edwards, & Hardcastle, 2005)	Megaproject, PPP & PF
(Meunier & Quinet, 2010)	Megaproject, PPP
(Nevitt & Fabozzi, 2000)	Megaproject-Finance, PF
(Nisar, 2013)	Megaproject, PPP
(Shi, Onishi, & Kobayashi, 2007)	Megaproject-Finance, PPP
(Smyth & Edkins, 2007)	Megaproject, PPP
(Tang, Shen, & Cheng, 2010)	Megaproject, PPP
(van Marrewijk, Clegg, Pitsis, & Veenswijk, 2008)	Megaproject, PPP

Table 6: Comparison between the SPEs described by the legal, financial and project management domain; A=Always, U=Usually, UN=Usually Not, S= Sometimes, R=Rarely, N=Never

			Legal	Financial	PM
1- Legal Status	1.1	SPE has legal personality	A	A	A
	1.2	Limited Liability Company	S	S	U
	1.3	Limited Liability Partnership	S	S	U
	1.4	Mutual Found	S	S	S
	1.5	Corporation	S	S	S
	1.6	Trust	S	S	S
2- Lifetime	2.1	Defined and Limited	S	S	U
	2.2	Perpetual	S	S	R
3-Purposes	3.1	Pre-defined Purposes	A	A	A
	3.2	Apparent profit-making motive	S	UN	U
	3.3	Structured Finance	U	U	U
	3.4	Tax optimisation	U	S	S
	3.5	Price arbitrage	S	S	UN
	3.6	Balance Sheet management	U	U	S
	3.7	Partnering and alliances	UN	S	U
	3.8	Isolating and homogenizing cash flows and business risk of a specific asset, asset-class	U	U	U
	3.9	Eases Asset Transfer	U	S	U
	3.10	Deals with legal and regulatory requirements	S	S	S
4- Activities	4.1	Insulation of Risk, Assets, Liabilities or Cash Flows	A	A	A
	4.2	Risk Transfer, sharing and spreading	U	U	U
	4.3	Risk Transformation	S	U	S
	4.4	Securitisation (assets & liabilities)	S	U	R
	4.5	Project Financing	R	S	U
	4.6	Leasing	S	S	R
	4.7	Commercial or fake transaction (i.e. not true sales)	U	S	R
	4.8	Channeling, retention and exchanging of rights, licenses, permits	S	S	U
	4.9	Channeling cash Flows	S	A	P
	4.10	Infrastructure Related Activities (design, deliver, finance, operate, etc.)	R	P	A
5- Capabilities, Assets, and Liabilities	5.1	Absence of Physical Assets	U	U	R
	5.2	Financial assets and liabilities	U	A	U
	5.3	Intangible assets (E.g. Rights, licenses, Royalties, patents, etc.)	U	S	S
	5.4	Human-related Assets	R	R	U
	5.5	Physic Assets	R	P	U
6- Financial Structure	6.1	High Depth/Equity Ratio	S	S	U
	6.2	Collateralized Finances	S	S	R
	6.3	Semi recourse Financing	S	S	U
	6.4	Non-recourse Financing	S	S	S
7- Risk characterisation	7.1	Bankruptcy remoteness	U	A/U	U
	7.2	Low probability of insolvency	S	U	S
	7.3	Repackaging of the risk profile	S	U	S
8-Ownership And Control	8.1	Fenced organisation	A	A	A
	8.2	Self-fenced/Orphan organisation	A/U	A/U	S
	8.3	Shared/ distributed ownership	R	S	U
	8.4	Public and Private Parties (PPP) involved together into the SPE	R/N	S/R	U
	8.5	Passive management (e.g. autopilot mechanisms)	S	U/S	N
	8.6	External management (directors, trustee, external administrators, etc.)	U	U	N
	8.7	The entity is primarily owned by one or more financial institution	U	U/A	R
	8.8	The entity is primarily owned and controlled by infrastructure-related companies (e.g. Utilities, contractors, etc.)	R/N	S/R	A
9- Accounting	9.1	Intentionally an Off-Sheet Instrument (with respect parent organizations)	A	U	S
	9.2	Variable Interest Vehicle (FIN 46)	U	U	U
	9.3	Qualified Special Purpose Vehicle (FAS 140)	S	U	R
10-Venue	10.1	Resident in off-shore jurisdictions	U	U	R
	10.2	The venue is located where the SPE undertakes his activities	R	UN	A/U
	10.3	SPE has a physical location	R	UN	A/U

Table 7: Comparison among five main types of SPEs. A=Always, U=Usually, S= Sometimes, R=Rarely, N=Never

	Securitization	Project financing	Public Private Partnerships (PPP)	Off balance sheet - SPEs	Leasing SPE
1.1 SPE has legal personality	A	A	A	A	A
1.2 Limited Liability Company	S	U/S	S	S	S
1.3 Limited Liability Partnership	S	U/S	S	S	S
1.4 Mutual Found	S	S	S	S	S
1.5 Corporation	S	U/S	U/S	S	S
1.6 Trust	S	S/R	R/N	S	S
2.1 Defined and Limited	U	A	U	U	U
2.2 Perpetual	S	N	R	S	S
3.1 Pre-defined Purposes	A	A	A	A	A
3.2 Apparent profit-making motive	N	S	S	R	R
3.3 Finance & Structured Finance	A	A	S	U	U
3.4 Tax optimisation	S	S	S	U	U
3.5 Arbitrages	R/N	R/N	R/N	U	R/N
3.6 Balance Sheet management	U	U	S	A/U	U
3.7 Partnering and alliances	N	U	A	S	N
3.8 Isolating and homogenizing cash flows and business risk of a specific asset, asset-class	A	A	S	U	A
3.9 Eases Asset Transfer	U	S	U	S	U
3.10 Deals with legal and regulatory requirements	U	U	S	U	U
4.1 Insulation of Risk, Assets, Liabilities or Cash Flows	A	A	A	A	A
4.2 Risk Transfer, sharing and spreading	A	A	U	S	U/S
4.3 Risk Transformation	A	U	S	S	U/S
4.4 Securitisation (assets & liabilities)	A	R/N	R	S	N
4.5 Project Financing	R/N	A	S	S	S
4.6 Leasing	N	S	S	S	A
4.7 Commercial or fake transaction (i.e. not true sales)	A	A	S	A	S
4.8 Channelling, retention and exchanging of rights, licenses, permits	R/N	U	A/U	S	R/N
4.9 Channelling cash Flows	A	A	U	U	A
4.10 Infrastructure Related Activities (design & delivering, operating, other services)	N	A/U	A/U	S	S
5.1 Absence of Physical Assets	S	R	R	U/S	R
5.2 Financial assets and liabilities	A	U	S	U	R
5.3 Intangible assets (E.g. Rights, licenses, Royalties, patents, etc.)	R	U/S	S	S	R
5.4 Human related Assets	R/N	S	A/U	R/N	R/N
5.5 Physic Assets	S	U	U	S/R	U
6.1 High Depth/Equity Ratio	N	U	S	S	N
6.2 Collateralized Finances	A/U	R	S	S	A/U
6.3 Semi recourse Financing	R/N	U	S	S	R/N
6.4 Non-recourse Financing	R/N	U	S	S	R/N
7.1 Bankruptcy remoteness	A	A	U/S	A/U	A
7.2 Low probability of insolvency	A/U	U	S	U	A
7.3 Repackaging of the risk profile	A	A/U	A/U	S	U
8.1 Fenced organisation	A	A	A	A	A
8.2 Self-fenced/Orphan organisation	A	S	S	U	A/U
8.3 Shared/ distributed ownership	N	U	A/U	S	N
8.4 Public and Private Parties (PPP) involved together into the SPE	N	S	A	S	N
8.5 Passive management (e.g. autopilot mechanisms)	U/S	N	N	S	R/N
8.6 External management (directors, trustee, external administrators, etc.)	U/S	R	R/N	U	A/U
8.7 The entity is primarily owned by one or more financial institution	A/U	R/N	R/N	U	A/U
8.8 The entity is primarily owned and controlled by infrastructure related companies (e.g. Utilities, contractors, etc.)	N	A/U	U	S	N
9.1 Intentionally an Off-Sheet Instrument (with respect parent organisations)	A	A/U	S	A	A
9.2 Variable Interest Vehicle (FIN 46)	U	U	U	S	U
9.3 Qualified Special Purpose Vehicle (FAS 140)	U	R	R	S	U
10.1 Resident in off-shore jurisdictions	S	S	S	S	S
10.2 The venue is located where the SPE undertakes his activities	R	U	U	R	R
10.3 SPE has a physical location	R	U/S	A	S/R	R