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Review of PPP models in the healthcare and education sectors

STARBEI – Programme for Financing of University Research

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1. Introduction

This conference paper has been written in response to the request by the European Investment Bank (EIB) to review existing PPP models in terms of their appropriateness in infrastructure and service delivery.

Healthcare and education sectors are characterized by the high social relevance and impact of services delivered to the population. In European countries education and health are perceived as citizens' right and provided mostly free at point of delivery by public or private operators under different institutional and organizational arrangements. The complexity and the rapid evolution of needs and approaches to satisfy them, require specific contractual solutions and business models. This paper tries to address this issue by reviewing and explaining the main PPP models and presenting some examples.

At global level PPPs have been mostly used in the energy and transport sector (World Bank, 2018). At European level, according to EPEC PPP projects database, from 1990 to 2017 education and healthcare PPP projects accounted for 9.5% and 13.5 of all projects in terms of value. In terms of project number, the two sectors were responsible for 24.2% and 21.5% of all mapped projects respectively, meaning that these investments relatively small in size. But what is a PPP?

In general terms Public–Private Partnerships (PPPs) are defined as cooperative institutional arrangements between public and private sector actors Hodge & Greve (2007). This definition is pretty loose and provides scope for including a wide range of partnerships. Hodge & Greve (2010) identify at least five different kind of partnerships:

1. Institutional cooperation for joint production and risk sharing;
2. Long term infrastructure contracts (e.g. UK PFI);
3. Public policy network (e.g. Coop21);
4. Civil society and community development;
5. Urban renewal for economic development (such as the case of cooperation between US private foundations and local authorities).

In the considered sectors, partnerships have been implemented across all this spectrum. In education, in particular, there are many cases of institutional cooperation where public authorities finance and define educational outcomes and the private sector is in charge of the delivery of education (through so called "chartered school" model). In the healthcare sector there are many examples of public-private collaborations under the form of public policy networks or coalitions, for example for the

development of new medical treatments (for example for malaria or HIV) or public health campaigns.

In relation to infrastructure, PPPs are long-term con- tracts between the government and a private sector consortium whereby the latter undertakes to provide infrastructure assets and related services (O' Nolan & Reeves, 2018). This paper aims to concentrate on long term contracts for infrastructure and service delivery.

Going a bit more in depth in the healthcare sector there have been several efforts, mostly in grey literature, to identify PPP models. Nikolic & Maikisich (2006) identify two types of public/private partnerships and collaboration in health sector: (i) contracting out, where the investment is publicly financed, the service provision is devolved to varying degrees of responsibility to a private operator[1]; (ii) concession-based models where the private operator, the concessionaire, is responsible for new investments, as well as operating and maintaining the existing assets, and carries most of the project risks.

A similar definition is provided by Forrer, Kee, Newcomer, & Boyer (2010), who distinguish contracting out from PPP on the basis of the degree of participation of the private partner to the selection of the modalities to deliver a public service. Hamilton, Kachkynbaeva, Wachsmuth, & Masaki (2012) classify PPP for health in two broad categories: (i) hospital-based PPPs, with the private sector's role ranging from facility management and non-clinical services delivery to specialized clinical services and full hospital management, including all clinical services; (ii) health programs PPPs, where the private sector works together with Governments within joint programs of research and development, improvement of access to health products, advocacy initiatives, regulation and quality assurance, training and education programs. Barlow, Roehrich, & Wright (2013) in their analysis of the European market identify four models of PPP, spanning from what they call "accommodation only", referring to the contract based on the PFI-like approach, to the full-service provision based on newly developed facilities, which can be based on different contractual agreements, such as the franchising model in Germany or the so-called "Alzira model" in the Valentia Region (Spain).

The World Bank's Independent Evaluation Group (2013), on the basis of a review of the projects supported by the Bank, spots three typologies of PPPs. The majority of

[1] Through service contracts; management contracts; construction, maintenance, and equipment contracts.

health PPPs supported the facility-based health service provision (48 percent). Of this group, the large majority (60 percent) supported the provision of selective services (such as diagnostic, imaging, dialysis or radiotherapy) followed by the provision of general hospital services (30 percent). The second-largest share is health-services-only PPPs (42 percent), which supported the development of a large variety of health services, including packages of essential health services (such as maternal and child health or HIV/AIDS services). Only the 10 percent of PPP projects focused on facility finance, supporting only the construction of new facilities and the operation of non-clinical services.

In education provision Robertson, Mundy, & Verger (2012) point out that there is not so clear-cut distinction between public and private sector. In fact, Levin (2003) underlines the peculiar nature of education which addresses both public and private/individual interests at the same time. However, the rise of the term “PPP” started in the 90s together with New Public Management theories (Hood, 1991) and was affirmed by the work of World Bank at the beginning of the new millennium when the International Finance Corporation (IFC) published the Handbook of PPPs in Education (S. L. Robertson & Verger, 2012).

Patrinos, Barrera-Osorio, & Guaqueta (2009) provide the most comprehensive assessment of PPP in education. Their report defines PPPs as a contract that a government makes with a private service provider to acquire a specified service of a defined quantity and quality at an agreed price for a specified period. PPPs are classified according two different frameworks: the first one takes into consideration the financing and service provision dimensions, the second one look at the object of contracts. The problem with this classification is that it does not provide any clear distinction between traditional contracting out and partnerships, treating every public private collaboration in the same way. Moreover, the report seems to contradict itself by including, as form of partnerships, also subsidies and vouchers, which do not necessarily imply a contractual arrangement between the provided and recipient. Among contractual arrangement analysed by this report, UK-style PFI contracts are cited for the provision and maintenance of facilities, which is our focus.

Since the beginning of the nineties, the British Private Finance Initiative (PFI) has provided a reference model for the development of greenfield or brownfield investments in more modern primary or secondary healthcare and educational facilities, where the PPP model has been used as an alternative procurement route to

select a private operator able to finance the upfront capital costs, build or refurbish an hospital and manage many non-core services. The PFI model was rooted in the new public management theory and it was introduced with the aim not only to raise private capitals for implementing a vast and huge modernisation plan but also to generate more efficiency in the management of construction process and non-core services. This model was replicated in other Anglo-Saxon countries (Australia and Canada), in continental Europe (Italy, Spain, France, Portugal), and emerging countries such as Turkey. In recent years, however, also on the basis of the review of the results achieved with the PFI-like model and new emerging needs, other PPP models have been designed and implemented, also involving the delivery of core services.

In the education sector the most notable example of PFI approach is Building Schools for the Future (BSF) programme launched by the UK Government in 2003 with the aim to renew all 3,500 English secondary schools, by rebuilding half of them, structurally remodelling 35%, refurbishing 15% and providing all of them with new information communication technology equipment, at an estimated capital cost of £52–£55 billion (Byles & Wilson, 2008; Public Accounts Committee, 2009). The programme was not limited to education facilities, but eventually lead the development of the so-called Academies Programmes, where BSF model was used to develop new independent schools. Whereas BSF have been much criticized and eventually shut down in 2010, Academies Programme is seen as a success (National Audit Office, 2010) and still functioning, albeit it is unclear how feasible it will be for it to continue to convert large numbers of schools (National Audit Office, 2018).

2. Redefining the PPP framework of contracts

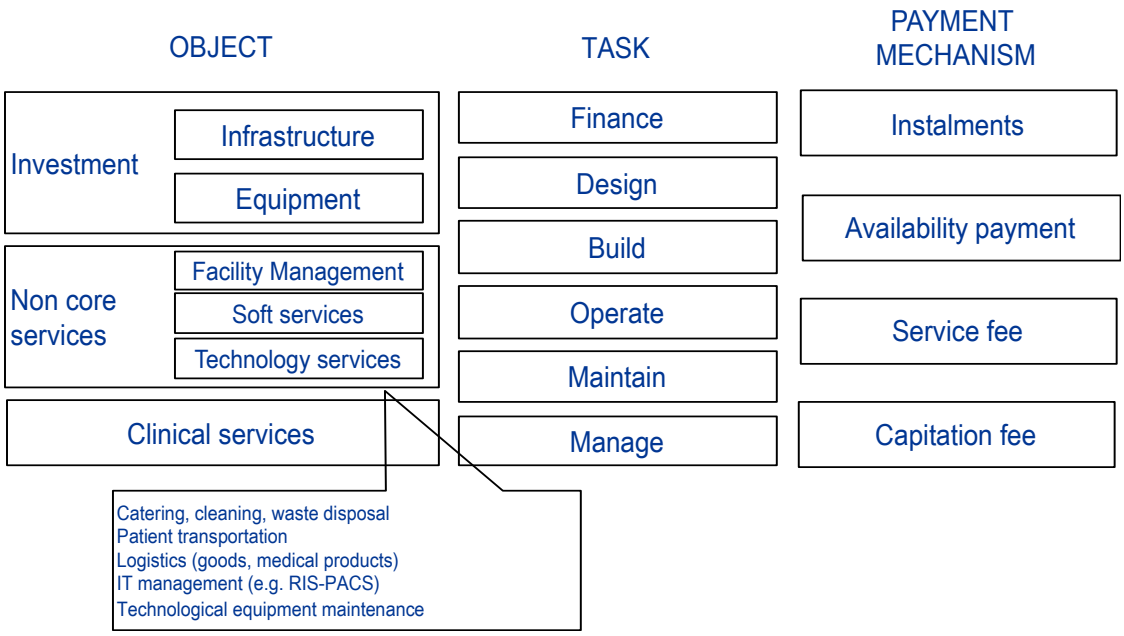
In order to provide a clear framework for the design of the partnership model, it is useful to understand the building blocks at the basis of a public –private partnership. As shown in Figures 1 and 2, PPPs, as mid-term agreements between a procuring authority and an economic operator, can be defined by their object (investment and service), the tasks assigned to the private partner and how he is remunerated.

Since we don't focus on partnerships for the design and implementation of programs and policies, based on the literature review summarized in the previous section, a PPP can be used to make an investment, provide a service, or a mix of them.

2.1 PPP components in the healthcare sector

In the healthcare sector the investment can relate to: the construction of a new hospital/healthcare facility; the refurbishment and modernization of an old one or parts of it; the provision of the medical equipment, such as RMI, laboratory equipment, operating theatres. Services included in a partnership can be either non-clinical / non-core services and clinical / core services. Non-clinical services relate to facility management and they can be distinguished in "hard services", i.e. those services related to the operation and maintenance of the building and its equipment, and "soft services," referred to all those functions not directly linked to the physical building, such as cleaning, catering, waste collection, security and logistics. Among non-clinical services, there are also the technological ones, related to the operation and maintenance of medical equipment and IT systems (such as Radiology Information Systems, RIS, or Picture Archiving and Communication System, PACS). Core services include all those activities directly related to patients; they can imply the provision of nurses and specialized technicians or also doctors. When core services are included in a partnership, an authority can decide whether or not to transfer to the private partner also the clinical governance, in other words the responsibility on the clinical decisions and outcomes. Generally, the clinical governance is included in the partnership in cases in which it is referred to the management of a hospital or new/additional services.

Figure 1: PPP in healthcare building blocks



The private partner can be entrusted with several tasks: provide financial resources to cover investment costs; design a facility or a service; perform building works; control the functioning of a building and equipment; maintain facilities and equipment; operate equipment and non-core services; manage clinical services.

The remuneration mechanism is the key element of risks transfer in a PPP contract, especially in healthcare where an economic operator may be entrusted to provide also core services (Cashin, Chi, Smith, Borowitz, & Thomson, 2014). A contract can be seen, in fact, as a set of incentives that positively or negatively impact the economic equilibrium of the economic operator. The way an economic operator is compensated shall, therefore, be put in relation with the objectives that the public authority wishes to achieve through the contractual arrangements like: timeliness, availability, quality, expenditure predictability, transferability of risks, minimization of effort, impact. Whereas a standard contracting out usually remunerates inputs, a partnership should focus on outputs and, possibly, outcomes.

In the health sector the following are the most widespread payment methods (OECD, 2016):

- **Instalments**: payment corresponded to the private partner at the achievement of defined delivery milestone.
- **Availability payment**: the payment is linked to the availability of an asset (facility or equipment). Availability is defined as the request that the asset (or a section of the asset) is open, functioning, meets the performance, safety, quality criteria specified by the contract and permitting full use by the public authority.
- **Service fee**: payment for service performed.

- **Capitation fee**: With capitation scheme providers are paid a fixed amount of money on the basis of number of patients for delivering a range of services.

Instalments and availability payment are related to investment dimension, whereas service and capitation fees to the service dimension. Payment methods are gradually evolving into fee for value / pay for performance systems, bundled payments which, instead of paying per service rendered, rewards the provider for meeting defined clinical outcome.

2.2 PPP elements in the education sector

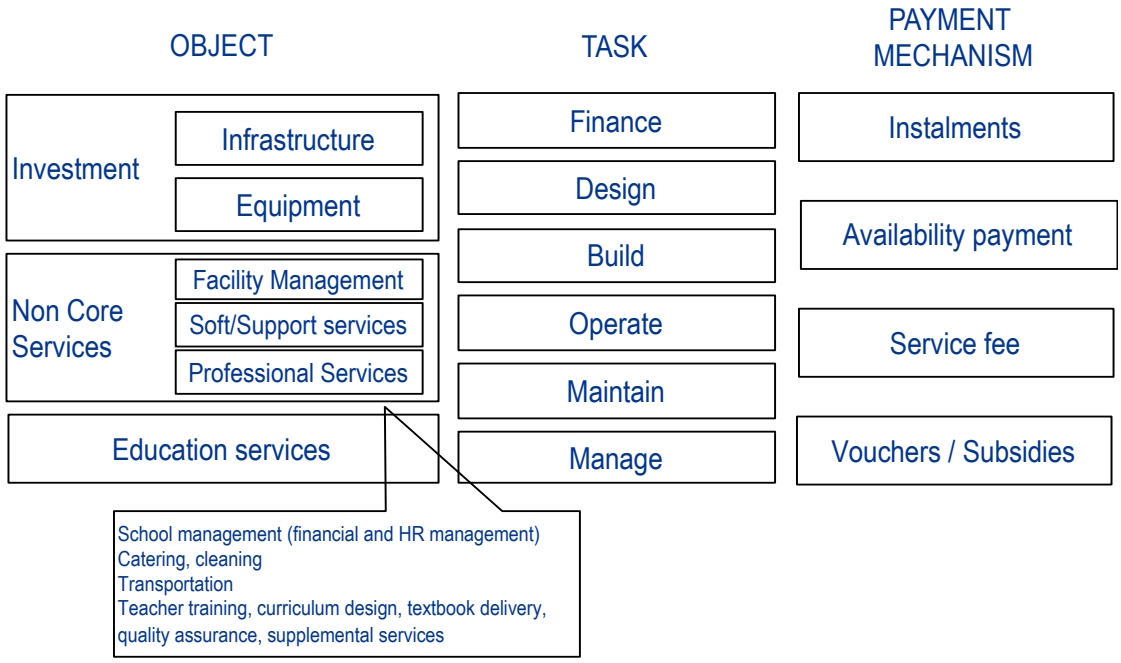
In the education sector the investment may involve the construction or redevelopment of a school/university/education facility, the provision of facility equipment, furniture and education technology. In education service dimension is far more important than the capital component. Like in the healthcare we shall distinguish between core and non-core services. Non-core services may relate to facility management, the provision of soft services (like cleaning, catering, transportation), or other professional services (Patrinos et al., 2009) such as teacher training, textbook delivery, external quality assurance . Quite obviously, the provision of education is the core service. Like in the healthcare sector a private operator can be entrusted with different tasks which have already been described.

Looking at remuneration mechanisms when we consider the provision, operation and maintenance of physical facilities similar logics discussed previously may apply. The same comes true for non-core services. Core services can be remunerated through a voucher system, with the aim in this case to create some sort of quasi-market competition, or subsidies/transfers to the education provider in order to keep the service free for users. It is important to note that, contrary to healthcare where co-morbidities and individual clinical conditions may represent a major risk because they can lead to high variance in the cost of individual treatments, in education, even at individual level, costs are more predictable[2]. The education provision per se is “simpler” compared to healthcare, where several clinical services are required when treating a patient. However, it is less mechanistic, and it is fairly difficult to establish a clear and link between inputs and outcomes.

These few considerations are made because it is important to keep in mind that risk profile is different in each sector and project and also a similar payment mechanism may have different consequences on risk allocation and the system of incentives.

Figure 2: PPP in education building blocks

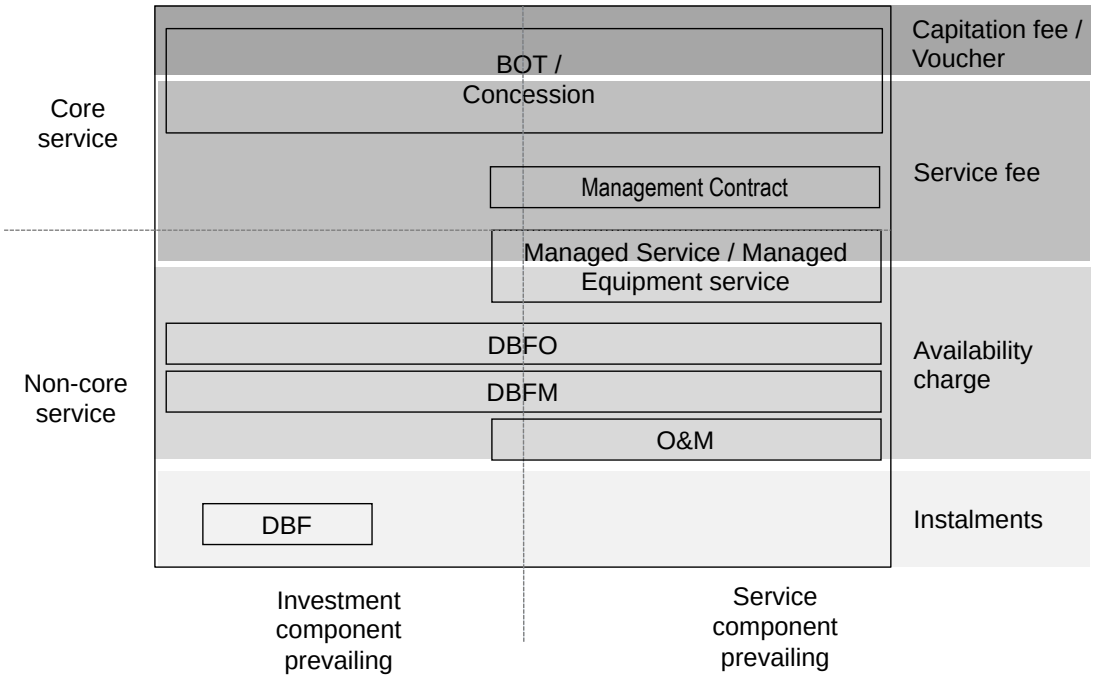
[2] Albeit when we look at bigger numbers, epidemiology may offer pretty clear predictions of costs and risk of treatments



2.3 A PPP framework of contracts

The combination of all these elements defines the partnership models represented in Figure 3. The framework distinguishes PPP contracts on the basis of two dimensions: investment and service component, assigned to the responsibility of the private operator. Further, for each type of contract, it shows the most appropriate payment mechanism. It is worth noting that the PPP contracts shown in Figure 3 are the most common, however, as written, it is fundamental that the contract is shaped accordingly to the institutional, market, organizational conditions and the goals to be reached. The “me too” approach is never appropriate.

Figure 3: PPP contracts framework



In turnkey contracts (design & build and finance, DBF or build & finance BF) the private partner, usually an EPC (engineer procure and construction) contractor, is in in charge of financing, (designing) and building a new facility or the redevelopment of an existing one in order to meet on time, on budget and on quality goals. The EPC Company is usually paid once the works are completed, through a lump sum payment. Therefore, the capital cost also includes the cost of funding (rolled up interests) raised by the EPC to fund the investment. A similar model is the BLT (build lease and transfer, BLT), where the authority pays the investment through leasing instalments over a 10-20 years period. In the BLT contract the counterpart is generally a consortium formed by an EPC company and a financial institution.

In O&M contracts the private partner is in charge of managing and providing preventive, predictive and corrective maintenance of facilities and equipment. In these contracts, the service component is predominant. The investment component is residual or limited to the installation of new facility equipment, upgrades and extraordinary repairs. These contracts are usually remunerated through a fee for service. However, since they focus on services that make the facilities available and/or more performing, the payment mechanism can be structured as an availability charge. O&M contracts usually last from three to seven years.

Heating and cooling are an area where O&M contracts are usually applied also in order to improve efficiency and sustainability of equipment. The payment is based on the availability measured in heating degrees days to be maintained throughout the year. Heating degree days are defined relative to a base temperature—the outside temperature above which a building needs no

heating/cooling - and quantify the demand for energy needed to heat/cool a building. This payment method provides an incentive to the O&M contractor to keep equipment in perfect working conditions in order to meet agreed standards. These contracts can also be linked towards energy efficiency goals to reduce energy consumption. Generally, the risk of fuel price changes is born by the authority, whereas the operator bears a performance risk.

Managed services (MS) / or managed equipment services (MES) are contracts signed between a healthcare provider and a private operator (service provider, medical equipment producer or an independent vendor) for the provision of full end-to-end service, comprising the procurement, supply, installation, management, maintenance, updating (upgrade) of medical equipment and consumables in the case of MES. When necessary, the contract may also include the execution of the work strictly necessary for the installation of the medical equipment. In a managed service or a management contract the service dimension is prevailing over technological considerations.

Design, finance, build and maintain (DBFM) contracts where the economic operator is in charge of the delivery and maintenance of an infrastructure, and DBFMO contracts where the operator also operates non-core services, can be classified as availability-based contracts. In this case the public authority keeps the responsibility on the core service, generally funded through a mix of taxes and tariffs, and pays the private partner with availability-based payments and with no-core service charges. The availability payment remunerates the investment, net of any public grant, and capital cost (debt and equity), plus maintenance and lifecycle costs, functional to ensure its availability.

In concession contracts (also known as build operate & transfer, or BOT, contract) the private partner has the full responsibility for the design, finance, build the infrastructure and the operation core and non-core services, and generally retains (partially or fully) the demand risk, even though in emerging countries, in the health sector, the actual demand may be higher than initially forecasted. This model has been seldom used in the healthcare sector for the realization of new hospitals, far less in education also due to the investment dimension, which is far limited.

3. Issues in PPP in the education and healthcare sectors

Montagu, Harding, & Montagu (2012) point out, there are at least six big differences in the application of PPP models to the healthcare sector which can be applied to the education sector as well:

1. Government, not individuals, is the primary purchaser of outputs;
2. Market risks are generally not transferable to the private partner;
3. It is difficult to measure performance and outcomes;
4. Demographic and epidemiologic conditions evolution require changes to the contract during its life;
5. Technology and organizational configurations change frequently over time;
6. There is a different ratio of capital and operating costs compared to other sectors: operating costs represent the bulk of expenses since they are labour-intensive services.

These issues have not only contractual implications, such as ensuring that the private partner bears a fair share of risks but make difficult to measure and demonstrate that PPPs are value for money. Existing academic literature offers no definite answers to these challenges and there is not general agreement on risk management, on the drivers beyond the adoption of PPPs, and performance evaluation (Wang, Xiong, Wu, & Zhu, 2017). Important gaps still remain in scholarly and practitioner understanding of how the concept has been applied (Roehrich, Lewis, & George, 2014) and only a limited number of articles are grounded in empirical research (Torchia, Calabrò, & Morner, 2015). Even more relevant is the fact that academic literature almost ignores “downstream service implementation”, i.e. the actual working mechanism of partnerships, focusing, instead, in issues of interorganizational cooperation, contract design, outcome evaluation and concerns about public accountability (Waring & Currie, 2013).

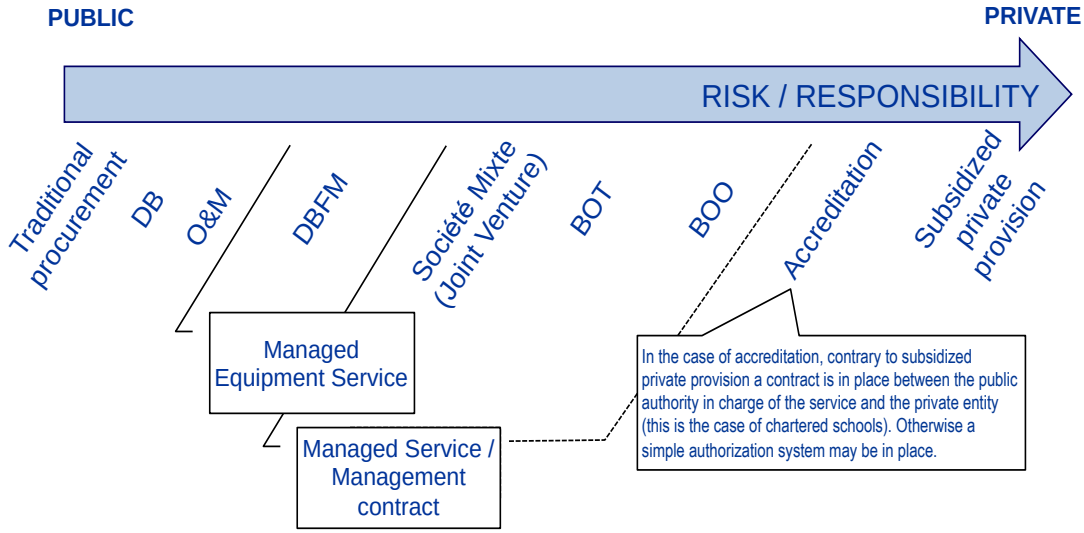
The European Investment Bank and its European PPP Expertise Centre pointed out (EPEC, 2015, 2016; Thomson, Goodwin, & Yescombe, 2005) several issues affecting PPP projects according to their own experience. These challenges refer to four categories: 1) political commitment 2) institutional and legal framework 3) public and private sector capacities 4) procurement and financing. PPPs are complex contracts requiring specific regulatory framework, specialized skills (both in the public and private sector), organizational arrangements (such as the creation of dedicated government units). In order to make such an effort sustainable, it is therefore necessary to define a long-term policy and investment programme. The stability of political commitment is a key to ensure public acceptance of PPPs and stimulate market interest and enhance competition.

4. Choosing the PPP model

When choosing how to frame a PPP project a public authority can opt, on one side, to bundle together many elements, mixing investments and services, or, at the opposite side, to design more focused contracts.

PPP contracts can be placed across a spectrum ranging from a pure public provision of service/infrastructure, to a full privatization. On the public end of the spectrum we can find traditional public procurement as a first attempt to outsource some tasks to the private sector. In this case public authorities not only play a steering role, but define in detail the terms of reverence of the contract. The private sector has the responsibility to carefully fulfil its duties. At the opposite end public sector decided to "exit" from the provision of a service and play "only" the role of regulator. Off course the definition of the rules of the game influence the behaviour of market players, however it is only an indirect relation. PPPs lie between these two extremes. In these institutional/contractual arrangements public and private enter in formal relationship and the responsibility of the service provision and the ownership of the assets are kept in public sphere.

Figure 4: The PPP spectrum



Therefore the choice of the PPP model depends also on the following elements.

Institutional setting: it relates to the institutional environment in which a PPP takes place. This context is shaped by the existence (or non-existence) of specific PPP policies and programs; the legal framework regulating health services and PPP contracts; how the health system is organised, financed and the role played by the public sector; the presence of fiscal constraints; trust and perceptions about the private sectors involvement in the provision of health services; the horizontal and vertical power allocation between institutional levels and authorities. The institutional setting is

relevant in the decision of the most appropriate payment mechanism; it may also generate institutional risks that the procuring authority should bear, because, as discussed in chapter 3, they are generally not transferable to the private counterparts.

Market environment: the health market is particularly concentrated, only a handful companies may have adequate skills and competence, economic strength and a track record to be awarded and manage complex projects like PPPs. Oligopolies may limit the value for money and the affordability PPPs. Furthermore, companies have different business models, internal policies, strategies that influence their approach to PPP and the way they react to projects crafted by the public sector, which may limit the actual possibilities to develop more advanced forms of partnership.

Organizational setting: this dimension relates to the way a healthcare authority, representing the contractual counterpart of the private partner, is organised for the delivery of the health service and for the design and award of the PPP contract. If, for example, a public authority already delivers a service with its own personnel, there could be likely resistances from employees to be under the supervision of a private operator in charge of the delivery of the service. On the other hand, a public authority may opt for including clinical services in a PPP contract because there is no internal capacity to provide highly specialized and innovative treatments. Another important driver is the background and competence of the team involved in the design and award of the PPP contract. The lack of competence may lead to imitation, to misinterpret the institutional setting and the market environment and take suboptimal decisions.

Transaction costs: here we refer to the costs related to the design of a PPP project, award and management of the contract. These costs, born both by the public and private sector, can be very high due to the complexity of these projects, information asymmetries, administrative costs related to public procurement procedures and contract monitoring. Most of the costs are inelastic in respect to the value of the contract. This may lead to increase the scope and length of the partnership with the aim to reduce the incidence of these costs. This somewhat opportunistic approach, as the experience has demonstrated, may be at the basis of the decision to bundle within a unique contract many activities and tasks with the consequence to generate very complex contracts, difficult to monitor and manage, for which the market may not have the adequate skills to meet the expectations,

Concluding it is important, even before looking at technical, financial and contractual solutions, to assess these dimensions and determine the possible implication of the PPP contract.

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