Review of public–private partnerships across building sectors in nine European countries: Key adaptations for PPP in housing

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Abstract

Purpose – This paper aims to review the existing practices of public–private partnerships (PPPs) in the building sectors in European countries, to be able to assess its suitability for housing provision while focusing on the social impact.

Design/methodology/approach – Based on the sectoral spread of PPP, nine European countries were included in this study. Formative evaluation is used to structure the review based on four key attributes of PPPs to develop a comprehensive understanding of the existing PPP procedures and guidelines amongst these countries. Data were gathered through public and governmental reports, consultant reports, country guidelines, standards and procedures, and cases, in order to identify the prevalent practices and trends in these countries.

Findings – The review identified the need to calibrate the PPP approach towards other stakeholders, particularly the end-users. It further highlighted the need to focus on social integration and social sustainability and establish set procedures for PPPs in housing to create a credible and trustworthy environment for the investors. Joint support from private and public partners and community participation has a diverse impact on the success of PPP in housing.

Practical implications – This review shall enable governments, industry and stakeholders to make provisions and policies for overcoming the challenges identified with regard to PPPs and pave the way for its application in the housing sector ensuring a positive social impact.

Social implications – This review shall facilitate greater involvement of end-users and enhancing social integration in housing through PPP, and pave the way towards creating cohesive communities by focussing on the concept of togetherness and social sustainability.

Originality/value – This study provides a holistic summation of the prevalent PPP practices and broadens the adaptations for the housing sector. The novelty of this paper specifically lies in learning from PPP practices across other building sectors for adapting its utilisation for housing and thereby extending the state of art for PPP housing.

Keywords Public–private partnerships, Housing, PPP in social housing, Social integration, Value for money

Paper type Research paper

1. Introduction: Sectoral spread of PPPs

Public–private partnerships (PPPs) are a form of partnership between public and private sectors to bring technical expertise, managerial efficiency or innovation in projects, in contrast with traditional procurement (Savas, 2000; Grimsey and Lewis, 2005; Kappeler and Nemoz, 2010; EIB, 2019). In other words, a PPP is an agreement between government/public and private partners where the objectives of service delivery for the public sector are aligned with the objectives of the private sector through various possible instruments. Thereby, PPPs strongly differ from traditional procurement when it comes to the...
attributes of institutional arrangements within, the financial structure, procurement procedures adopted or the concept of value for money (Graeme et al., 2007; OECD, 2012; E2BA, 2013). They also have diverse characteristics globally in different countries, with variances in policies, cultures and frameworks (Sillars and Kangari, 2004). However, the above-mentioned attributes are inherent to their nature despite the sector or area of intervention (PPIAF, 2009; Bult-Spiering and Dewilf, 2006). And amidst the global infrastructure challenge with the rising estimate of the new investment requirement from US$ 57 trillion by 2030 (Service Works Global, 2015) to US$ 94 trillion by 2040 (Oxford Economics, 2017), PPPs may be utilised as an opportunity to cater to such investment requirements and invest over the government capital budget limits, also improving the quality of investment decisions and project delivery efficiency (McQuaid and Scherrer, 2010; Greve and Hodge, 2013).

The UK has been an initiator in popularising the concept of PPP (OECD, 2015), as an alternative mechanism to traditional procurement that offered limited execution and financing. PPPs were also adopted as an accounting trick to deal with the government’s constraints with public borrowing [e.g. the European Union (EU) rules began limiting the government borrowing to 3% of the GDP] (Hall, 2014). Other than the UK, PPPs have been widely adopted in countries like Ireland, Germany, Norway, Denmark and the Netherlands.

While the UK has been leading the European PPP market with over two-thirds of PPP projects in Europe across all sectors (Kappeler and Nemoz, 2010; EPEC, 2015, 2016a, 2017, 2018, 2019; EPEC, 2020), the adoption of PPPs spread across other countries in different building sectors (e.g. educational, institutional, healthcare, housing etc.) for varied reasons. Ireland began with schools’ PPPs and expanding into other sectors such as universities, courts, or housing (Sykorová, 2013; O’Shea et al., 2019). Failing of large infrastructure and housing projects regarding cost, time and quality attracted the Dutch (Deeleman, 2013), Norwegian (Solheim-Kile et al., 2014) and French (Sykorová, 2013) governments towards the model of PPP, foreseeing the benefits of better allocation of risks and scope of innovation. Denmark also started using the PPP approach (Petersen, 2011) for bringing in efficiency in the projects and providing innovative solutions in public buildings construction (Bardeleben and Puggaard, 2012) and as an instrument to facilitate interaction amongst design, construction and operation stages.

Often PPPs require defining a minimum value to justify the lengthy nature of the tendering process and cost of procurement which may not provide value for money for adopting PPP in smaller projects (European Court of Auditors, 2018). For example, the average cost of a UK PPP project is £92 million (HM Treasury, 2012) with a minimum contract value of £24 million as the pre-requisite (HM Treasury, 2003). In contrast, however, Norway successfully demonstrates most of its building PPPs below the capex of £24 million (Solheim-Kile et al., 2014). In Switzerland, the projects range from around CHF 40 million to CHF 300 million (PPP Schweiz, 2016). It is evident that even with the disparity in the scale of projects or the investment quantum, PPPs have been executed in different building sectors (EPEC, 2015, 2021) as can be seen in Figure 1, contributing to the sustainable development of communities (EC, 2013).

However, considering its spread in other building sectors with the UK, Germany, France, and Ireland leading the list, PPP has not been widely adopted in the delivery of housing, which forms the basis of this research.

Next section 2 deepens the understanding regarding the housing and PPP scenario in theory and practice to further justify the rationale for this research and enable a constructive review. This is followed by the methodology in Section 3, the in-depth review of PPP practices and trends in Section 4, key adaptations for the housing sector and their implications in Section 5 and concluding remarks in Section 6.
2. Housing and PPP: Theory and Practice

There are many challenges encompassing housing delivery whether originating from the housing strategies adopted, political situation or inadequate investment in housing [1]. Housing is an imminent need of Europe with ever-increasing unaffordability and deteriorating condition of the existing building stock (EC, 2019; EPEC, 2019). Many countries in Europe such as Austria, the UK, Ireland, Denmark, Germany, France or Netherlands showcased a decline in the percentage of social housing over the last years and could not keep pace with the overall demand (IZA, 2013; Scanlon et al., 2014; Eurostat, 2017; PwC and ULI, 2019; Eurostat, 2021). Moreover, utilisation of PPPs as an instrument for sustainable urban projects (UNECE, 2019) substantiates that PPP can be used as an integrated approach for housing to meet the United Nations Sustainable Development Goals (UNSDGs) #11 and #16 for inclusive and affordable housing development and societies (UN, 2020). It may cater to developing affordable housing at a faster pace overcoming the existing gaps in the housing sector of Europe.

In theory, limited literature exists in the domain of PPP in housing in Europe (Hakim, 2007; Hearne, 2009; Davidson and Malloy, 2009; Guarini and Battisti, 2017). While Guarini and Battisti (2017) discussed the feasibility of PPP in social housing in Italy and the financial balance for such an initiative, Hakim’s (2007) studied the fundamentals of PPP, its application in the social housing in the UK, and the successes and failures of PPP housing in Ireland. A few theoretical guidelines for utilising PPP in housing have also been proposed by UN-Habitat (2011) for utilising PPP in housing such as project screening instruments, applying lessons learnt, disciplined planning, or having dedicated PPP units. Despite the availability of this brief literature, however, none of these studies have addressed the subject from a holistic perspective, and meet the inadequate investment and rising demand for housing in Europe (Scanlon et al., 2014; Eurostat, 2017; PwC & ULI, 2019). It brings us to question why it is still not widely practiced in housing and is confined only to a limited number of regions in Europe. This is further substantiated by the trends observed in practice.

In practice, there are very few countries, in particular the UK and Ireland that primarily demonstrate a lot of experience and insights with PPP housing. The UK has faced many issues over the years in providing social and affordable housing, and the government has resorted to measures in addressing these issues through a wide variety of provisions for

![Figure 1. Relative spread of PPP across countries and building sectors](image-url)
involving the private sector into the role (IFSL, 2004; Preece et al., 2020). This shifted the provision of housing from housing associations to private bodies, with the PPP model that has been very successful in the UK. The main reasons for adopting PPP in many housing projects such as Decent Homes, Plymouth Grove, or Stanhope Regenerated Housing Estate, have been to focus on the social, environmental and economic objectives through promoting mixed tenure developments, enhancing social integration, construction of environmentally friendly buildings and boost the local economy by creating local employment opportunities (Oxley, 2009; HM Treasury, 2018). The housing association remains the owner of the housing stock in a PPP and the tenure usually lasts from 25 to 30 years (Preece et al., 2020).

Ireland has also been a host to a few PPP housing projects (Sykorová, 2013). The social housing in Ireland mostly caters to the population with low income or the underprivileged (Sykorová, 2013). Therefore, the private developers in Ireland are required to transfer at least 20% of the dwellings constructed on large sites to the city/county for the provision of affordable or social housing (Sykorová, 2013). Many of the PPP housing projects such as Cedar Brook or Hannover Quay PPPs adopted a joint venture structure for their PPPs between the city council and the private firms (John Sisk and Sons, 2013). Some of the major achievements highlighted with the cases like Fatima Mansions PPP (Donohue and Dorman, 2006; Redmond and Hearne, 2011) are; (1) building alliances with key individuals or organisations, (2) focussing on both physical as well as social regeneration requirements, (3) ensuring enough community participation, (4) demanding resources necessary for the community participation, (5) setting up special teams and learning from other best or failed models, (6) scheduling the planning, (7) understanding the partnership approach, (8) having a central regeneration board legally bounded and representing all the stakeholders over the board, ensuring enough decisive power at hand with the board, (9) setting up and involving a team of experts on all aspects of the project, (10) holding high standards and expectations and (11) being strictly fair and transparent amongst the parties. The concept of clear vision, well-defined and robust structure, and having engaging communications and networks; with a positive partnering approach with the statutory bodies made Fatima Mansions PPP a successful housing case. In contrast, another PPP housing project St. Michael’s in Ireland did not succeed due to the lack of involvement of the community representatives in the PPP assessment panel (Bissett, 2008).

Further ahead, the Social Housing Strategy 2020 in Ireland incorporates a formal PPP programme as a significant mechanism to support and capitalise on the potential of PPPs for delivering social housing; with a targeted investment of about €300 million for delivering about 1,500 social housing units (McCarthy, 2014; Clifford, 2015; Housing Europe, 2019). The government has also incorporated new financing mechanisms by keeping the provision of financing to Approved Housing Bodies (AHB’s), open to European Investment Bank (EIB) as well as private investors (EIB, 2015). It becomes essential to have multi-annual funding to provide certainty and assurance to housing cooperatives to undertake planning for increased delivery of housing units (NABCO, 2014). The PPP model was successfully utilised to deliver various school bundles and institutional buildings has been proposed for the planned housing PPPs as well. This PPP model involves the provision of design, build, finance and maintenance services for 25 years and hand over the assets to the state afterwards (Clifford, 2015; O’Shea et al., 2019, 2020). The payment mechanism is the unitary charge payments, which will commence after the completion of the construction phase. Financing is done with private debt and equity. Construction risks (involving late delivery penalty) and availability risks (unitary charge deductions subject to non-availability) are transferred to the private sector. A strategic housing fund is also in the early stages of development to allow aggregation of the private investment as a fund that can be subsequently used as project finance (Clifford, 2015).

In France, the university town of Montpellier has also used public–private SPVs with a consistent public-sector led approach towards social housing developments with having a
fixed percentage for affordable housing like in Ireland, and thereby maximised return both economically and socially (Falk and Rudlin, 2018). The historic town of Amersfoort in the Netherlands has also adopted the public–private co-investment approach for the Vathorst housing development, spreading the risks and allowing for cost-effective delivery and confident innovation (Falk and Rudlin, 2018). They laid the focus on social sustainability by ensuring a balance at the neighbourhood level to create cohesive communities and provided a fixed percentage of different income groups promoting social integration. Also, SLRB (Brussels Region Housing Corporation) in Belgium called for PPP to deliver 500 new housing in Brussels with a budget of €197 million under the Regional Housing Plan and Habitat Alliance (SLRB, 2016).

Despite the observed scenario across these countries demonstrating the trends regarding their institutional arrangements, procurement, financing structure, or value for money, PPP is not practiced widely in housing in other European countries. No other country’s case elaborates on PPP housing or gives a holistic approach towards addressing the housing demand using PPP (Batra, 2018, 2020). This deepens the motivation to investigate further and contribute towards developing PPP as a potential approach for meeting the housing demand. The objective of this paper is, therefore, to review the existing PPP market across other building sectors in nine European countries. This includes reviewing their existing standards, procedures or policy guidelines, market reports and official documents, understand the prevalent performance trends and practices about PPP and propose adaptations for utilising PPP in housing sector focussing on its social impact, while addressing the key SDGs surrounding housing provision, and inclusivity (Housing Europe, 2017; UN, 2020). The novelty of this paper specifically lies in learning from PPP practices across other building sectors for adapting its utilisation for housing and thereby extending the state of art for PPP housing.

3. Methodology
The above sections, together with a larger investigation conducted previously by the author on PPP in building sectors (Batra, 2018, 2020) and the review of PPP body of literature (Grant and Booth, 2009; UN-Habitat, 2011; Eldrup and Schütze, 2013; World Bank et al., 2014; APMG, 2016; DPER, 2019), emphasise on four key attributes that are further utilised to encapsulate the PPP trends in this review: (1) institutional arrangements, (2) procurement procedures, (3) financial structure and (4) value for money. These attributes were therefore taken as priori constructs for formative evaluation [2] (Huey-Tsyh, 1996; Henry et al., 2013) to conceptualise and structure this review. Figure 2 explains the methodology adopted for this review systematically:
Looking at the varying scale and sectors of PPP practices, guidelines, governance and procedures, and availability of information in the European PPP building sectors, it was identified that no one country provided information across all the four attributes comprehensively, to be able to derive meaningful learnings for housing. To overcome this gap, nine European countries (the UK, Ireland, Denmark, Germany, France, Norway, Netherlands, Switzerland and Austria) were chosen for this study based on their sectoral spread (see Figure 1) and the availability of data (Scanlon et al., 2014; EPEC, 2015, 2018, 2020, 2021) to establish a holistic view. And while there exist sufficient academic literature on infrastructure PPPs, there is scarcity of the same on PPPs in building sectors. Therefore, the nature and type of data collected from varied sources in policy and practice included official and governmental reports, consultants and investors review and market reports, standards and guidelines, national and international institutional reports (e.g. World Bank, EIB) and case studies alongside limited academic literature available.

The collected data were then qualitatively analysed using thematic analysis (Boyatzis, 1998) within the four key attributes through NVivo™ software (QSR International, 2020) that aided in interacting with the data and extracting meaningful conclusions. It began by coding (identifying meanings and patterns) the data in the form of the conceptualised themes (attributes). Thematic analysis provided a theoretically flexible and accessible methodology towards analysing and dealing with the complexity of qualitative data (Holloway and Todres, 2003; Braun and Clarke, 2006). Inductive approach was utilised in this context as it encompasses the identification of themes linked strongly with the data itself, and allows addressing diverse concerns, going beyond the content of the data, examining the ideologies, concepts and their related assumptions and generating profound insights (Braun and Clarke, 2006). The data were coded into segments with similar patterns which was further analysed and organised to present within the four attributes.

Detailed results from the thematic analysis have therefore been discussed and presented in the next section, attempting to consolidate the main characteristics, procedures, and performance reliability of PPPs under the four attributes to further arrive at the possible adaptations for PPP in housing.

4. Review and Discussion: PPP practices and trends across building sectors
The in-depth review is discussed and summarised in the following four attributes as described in the previous section:

(1) Institutional arrangements
(2) Procurement models and procedures
(3) Financial structure
(4) Value for money

4.1 Institutional arrangements
PPPs follow varied institutional arrangements in different countries, which hold the capacity to enforce actions over other actors involved (Hurk et al., 2016). While countries such as the UK or France have set up specialised bodies dedicated to managing all aspects of PPPs, others such as Denmark or Ireland have developed dedicated processes to be adhered to by any PPP in consideration. Likewise, the Department for Communities and Local Government (DECLG), UK has established a special unit known as the Private
Finance Unit in 2005 formalising the processes of risk and stakeholder management (HM Treasury, 2012; EPEC, 2012a). Even at the city level, councils such as Leeds City Council, UK has set up a team of private finance specialists to enable utilising expert guidance and learning from previous experiences (The C&AG, 2010; LCC, 2018). Likewise, a central PPP body MAPPP (Mission d’appui aux Partenariats Public–Privé) was created in France in 2005 as in-charge of all PPP activities. It provides support to PPP contractual matters and promotes the use of standard contractual guidelines known as “contracts-de-partenariat” (EPEC, 2012b; Hurk et al., 2016). Thus, having a central PPP unit may be beneficial by holding control over project scope and cost, and utilise a standard set of documentation and guidelines to reduce risks and costs, while also incorporating the lessons from the previous experiences.

In a PPP project in the UK, other bodies involved in the process along with the department are the Treasury/Finance, Partnerships UK, Home and Communities Agency, local authorities who are responsible for procuring and managing the project, the Special Purpose Vehicle (SPV) [3] and tenants (The C&AG, 2010; LCC, 2018). The same bodies are a part of a PPP housing project along with an addition of a housing association as a key organisation. However, the success of PPP in housing may be affected by what level the housing association is involved in the entire process and decision-making. Switzerland also has a national PPP support units known as Verein PPP Schweiz, although they have little responsibilities and very low activity in terms of implementation of PPP projects (Hurk et al., 2016).

In Ireland, two basic processes are being followed in a PPP. Firstly, the project is assessed for its suitability for PPP at the beginning stage of project identification. Secondly, a comprehensive appraisal involving statutory process assessment [4] and selection of procurement procedure is carried out, to take the project further to stakeholder consultation (DOELG, 2000a; DPER, 2019; O’Shea et al., 2020). These processes are considered essential to any PPP under consideration in Ireland. Overall, only three countries were found to have well-established institutional arrangements as presented in Table 1:

<table>
<thead>
<tr>
<th>Institutional arrangements</th>
<th>Examples</th>
<th>References</th>
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| Dedicated PPP bodies       | • Private Finance unit, UK  
• MAPPP, France  
• regeneration Board (Fatima Mansions PPP), Ireland  
• Verein PPP Schweiz, Switzerland | (The C&AG, 2010; LCC, 2018); (EPEC, 2012a; Hurk et al., 2016); (Donohue and Dorman, 2006; Redmond and Hearne, 2011); Hurk et al. (2016) |
| PPP Process assessment procedure | • Statutory process assessment of PPP suitability, Ireland | (DOELG, 2000a; DPER, 2019; O’Shea et al., 2020) |
| Project pipeline and dedicated funding | • Decent homes project pipeline, UK  
• Social housing strategy 2020, Ireland | The C&AG (2010); NABCO (2014) |
| Key bodies/experts involvement | • Involvement of housing associations, UK  
• Expert panel involvement, Ireland | (The C&AG, 2010; LCC, 2018); (Donohue and Dorman, 2006; Redmond and Hearne, 2011; DPER, 2019) |

Table 1. Key institutional arrangements in PPP projects across building sectors from three countries
4.1.1 Success stories demonstrating institutional efforts. One of the few examples demonstrating these institutional efforts that helped in the PPP process in housing was the setting up of a regeneration board, in Fatima Mansions PPP in Ireland (Donohue and Dorman, 2006; Redmond and Hearne, 2011), for having a mechanism of regular checks and creating balance in the PPP process, with equal representation of all stakeholders was beneficial in the regeneration process of Fatima, that was also acknowledged by Dublin City Council and Garda. Facing powerful bodies such as Council, Garda or Health Boards, on the other side of the table that was driven with resourced and developed agenda (Donohue and Dorman, 2006; Redmond and Hearne, 2011), the community also set up a team of experts to deal with the difficult financial, technical, political or social areas to ensure that they can represent the skills and knowledge required to be part of the process. Another PPP project of a science park in Utrecht, Netherlands combined the regional and neighbourhood planning with the development of a science park, with the concept of togetherness and aiming at improving the quality of life (Gelder, 2016). The idea behind this was to combine a university, business, and politicians for a common goal and hence improve society, from a deeply rooted social and community perspective. These examples help drive the motive of this research even more strongly by giving some directional strategies to refer to, for housing PPPs.

4.2 Procurement model and procedures

Many types of procurement models are adopted in PPPs with varying levels of involvement of the public sector (see Figure 3). The basic spectrum of PPP contracts ranges from outsourcing or service contracts which are more input-based models and involve less risk transfer to more output-based models like concessions or Design-Build-Operate-Finance (DBOF) involving more risk transfer (World Bank et al., 2014; DOELG, 2000b; APMG, 2016).

The most commonly adopted models in the UK, Denmark (Eldrup and Schütze, 2013; LCC, 2018), Switzerland (PPP Schweiz, 2016), the Netherlands (Deeleman, 2013; Heijmans, 2014), Norway (Statens vegvesen, 2018), or Ireland (Sykorová, 2013) are the Design-Build-Finance-Maintain-Operate (DBFMO) or Design-Build-Finance-Operate (DBFO) models with contracts for over 25 years. The majority (73%) of the PPPs practiced in Germany are based on the owner model [5] (similar to DBFO), and the rest encompasses rent model [6], licence [7] (similar to concessions), leasing [8], or company [9] model (Müller, 2014). French PPPs are mostly of two types: concessions or partnership contracts (CP). Concession contracts are governed by the user-pay system [10] and are very commonly adopted in France across all different sectors (Brahier, 2017). The private partner provides the services at their own risk in concession PPPs, and their revenue is dependent on the commercial exploitation of the service provision.

CP incorporate a global approach in a long-term payment plan, integrating the financing and risk transfer into one approach (EPEC, 2012b; BBG, 2018). The Dutch government has observed positive results with these models, within budget and schedule, and having some projects exceeding expectations regarding quality of delivery (Deeleman, 2013). Some of the significant project examples are The Ministry of Finance or The Dutch Supreme Court in...
The Hague. DIF Capital Partners (Vieillescazes, 2008; EPEC, 2012b) also demonstrates an alternative PPP model for smaller-scale projects to efficiently deal with the aspects of timing and tender costs while achieving full benefits of Design-Build-Finance-Maintain (DBFM) (Klijn, 2009). This model is known as the Design-Build-Maintain + Finance (DBM+F) model in which two separate tenders for technical (DBM) and finance (F) are processed. The SPV is responsible for paying the DBM tender and F including both equity and debt are bidding based on a risk allocation matrix, on the credit of the DBM consortium. Post selection of each, they are combined into one DBFM contract. Overall, the selection of the procurement model is the key to allocating risks appropriately.

The reviewed literature (EPEC, 2010; Solheim-Kile et al., 2014; Engel et al., 2014; EPEC, 2016b) also suggests that the commonly adopted bidding process for PPPs in most of the countries is the competitive dialogue that adheres to the EU procurement rules ensuring transparency in its processes (EPEC, 2012b; Eldrup and Schütze, 2013; Bardeleben, 2013).

The prime objective to adopt competitive dialogue is to deal with the complex nature of PPPs. It permits the procurement procedure to be flexible and allows discussions amongst the public partner and the bidders before the submission of tenders. However, Norwegian PPPs showcase a contrasting scenario with “Negotiated Procedure” as the most adopted bidding process (Solheim-Kile et al., 2014). Similarly, in the elderly care PPPs, as inspired by Sweden, Danish PPPs have also evolved from just being a DBFO model to where the private partner also takes charge of managing the facilities (Bardeleben and Puggaard, 2012). Also, these care services costs are not covered by EU procurement rules in Denmark (Bardeleben, 2013). Being much higher costs, they are procured more flexibly and mostly with the negotiated procedure and one example of such a PPP is a care home project in Kolding (Bardeleben, 2013). The negotiated procedure is also used in France for projects under a certain size (EPEC, 2012b). While the bidding approaches vary in different countries, Table 2 below summarises the key models and procedures adopted across the nine countries.

One of the nine countries, Denmark has also developed standard PPP documents with a set of procurement processes such as competitive dialogue, and considering the experiences with PPP partners, the financiers’ interests to keep the terms balanced with a fair risk-sharing and bankability (Bardeleben and Puggaard, 2012). These documents form the general guidelines and recommendations for a PPP with elements of contract and change management, and the partners or investors hold the flexibility to adjust the contract terms according to the procurement process. The Danish PPP model focuses on four aspects of output-based specifications, a single contract between public and private partners, risk optimisation and life-cycle economics under the realm of competitive dialogue (Eldrup and Schütze, 2013). It also includes general guidelines to ascertain when it would be appropriate to use this PPP model based on project types, payment systems, or the type of service delivery and hence also aid in governing the commercial aspects of the project (Koch and Buser, 2006; Eldrup and Schütze, 2013).

When it comes to cost, the cost of bidding can affect the motivation for the private sector to participate in PPPs and hence the level of competition generated in the project. It is interesting to note that significant bidding costs for the private sector for PPPs in the UK range from £1 to £3 million (The C&AG, 2010; Service Works Global, 2015). In general, about 70% of the bidding cost for the winning partner is refunded as part of their contract with the public partner. The National Audit Office (NAO), UK also highlights that the advisory, as well as internal costs in a PPP housing project, are on the same lines as in other building sectors (The C&AG, 2010). Often unrealistic cost estimates, over-optimistic schedule planning in the initial rounds, have led to significant cost increases during procurement and longer procurement times in PPP projects in the UK (The C&AG, 2010). The primary reason for underestimated capital costs was a lack of experience and specific
### Table 2.
Key PPP models adopted across different countries

<table>
<thead>
<tr>
<th>PPP contract models (mostly used)</th>
<th>Countries</th>
<th>Standard procurement procedures used</th>
<th>Impact</th>
<th>References</th>
</tr>
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| DBFMO/DBFO                        | The UK    | Competitive dialogue                 | • Longer procurement times  
• Budget savings  
• Value for money  
• Delivered on time | EPEC (2012b) |
|                                   |           |                                       | • Allows prior communication with expert bodies  
• Early engagement  
• Reduce procurement timescales and minimising dialogue  
• Drive a more responsive market | DPER (2019) |
| Ireland                           |           | Competitive dialogue  
Negotiated procedure  
Innovation partnership procedure | • Long term payment plan  
• Integrating financing and risks into one approach | (PPP Schweiz, 2016; Brahier, 2017) |
| Switzerland                       |           | Competitive dialogue                 | • Delivery within budget and schedule, and exceeding quality  
• Efficiently dealing with aspects of timing and tendering costs | (Klijn, 2009; Deeleman, 2013; Heijmans, 2014) |
| DBFMO/DBFO/DBM+F                  | The Netherlands | Competitive dialogue                 | • Lower interest rates  
• Bringing down the total life-cycle costs with thorough risk-sharing and management, and using output-based specifications | Eldrup and Schütze (2013) |
| Denmark                           |           | Competitive dialogue  
Negotiated procedure | • Faster procurement duration  
• Suitable in smaller-scale projects | (Solheim-Kile et al., 2014; Statens vegvesen, 2018) |
| DBFO                              | Norway    | Negotiated procedure                 | • User pay system  
• Risks stay with the private partner, optimising the performance of both public and private partners | EPEC (2012a) |
| CP/DBFO/BOT/Joint venture         | France    | Competitive dialogue/Negotiated procedure | • Provide more value for complex projects involving design or innovative solutions  
• Provide additional flexibility with negotiations | (EPEC, 2010; Müller, 2014; EU, 2014) |
| Owner model (similar to DBFO)/DBFO/DBOT | Germany | Competitive dialogue  
Competitive negotiation | • Having a solid equity basis  
• Low vacancy rates  
• Public support, and strict auditing procedures | (Amann, 2009; Deutsch and Lawson, 2013; BBG, 2018) |
| LPHA                              | Austria   | Open procedure  
Restricted procedure  
Competitive dialogue | • | |
guidance in the early rounds of projects. Therefore, the complexity of PPP for local bodies, the market, or the advisors often costs a lot.

The procurement duration of PPPs ranges from about 7–23 months (Solheim-Kile et al., 2014) in Norway, to about 9–12 months (EPEC, 2012b) in France, and about 34 months in the UK (Service Works Global, 2015). Competitive dialogue often takes longer procurement time than Negotiated Procedure (EPEC, 2016b). However, evidence from French PPPs showcases similar and lesser procurement times in comparison with Norwegian PPPs. Detailed specifications can help in reducing the procurement time as much attention is given during the pre-announcement stage. While most of the procedures are based on output-based specifications, it holds possibilities for innovation by the contractors. However, detailed specifications might also reduce the scope for innovation and vice-versa. On the other hand, competitive dialogue might encourage innovation in solutions such as managerial, constructional, or technical.

In 2004, the PPP procurement pack was developed in the UK followed by the setting up of a Central Private Finance Unit, developing new financial models, and recruiting individuals with specific expertise on board (NAO, 2007; HM Treasury, 2018). This led to potential savings being achieved since then with the majority of the PPP projects being delivered on time, and within budget conforming to the set performance standards (EIB, 2004; UNECE, 2012). It further aided in developing more robust cost estimates in the projects and local bodies ensure to spend substantial time on developing the business case before the beginning of the tendering process.

A survey conducted by Price Water Coopers and Ecorys for Europe also highlights the corruption in procurement processes as a significant problem (PwC & Ecorys, 2013). It further stated that the overall corruption costs for public procurement in 2010 ranged between €1.5 to 2.3 billion, which was about 19% of the value of tenders estimated, of public expenditures in works, services and goods that was published in the EU electronic tendering structure in eight countries (Estache and Saussier, 2014). The European Concession Directive (2014/23/EU) also stresses the fact that the problem of corrupt procurement processes is significantly present in PPPs, therefore, quality and transparency of procurement processes are also extremely essential for efficient delivery of PPPs (EU, 2014).

4.2.1 The case of Cedarbrook and Hannover Quay PPPs, Ireland. In Ireland, two successful PPP housing projects such as Cedarbrook & Hannover Quay (John Sisk and Sons, 2013) have been delivered within budget, on time, and up to the set quality standards with a transparent procurement process. High quality legal and financial teams were employed by the private partner to ensure expedited proceedings of the financial and legal issues (Redmond and Hearne, 2011; John Sisk and Sons, 2013) and the risks for sale of the houses were borne entirely by the private partner. These projects also successfully exhibit an integrated approach to procurement. Therefore, for housing PPPs, a collaborative and cooperative practice must be taken for identifying the most suitable procurement model or bidding process keeping in mind the interests of end-users.

4.3 Financial structure
A variety of aspects form a part of financing structure in PPPs such as the source of financing, capital structure, payment streams, or performance-linked payments (Regan et al., 2011; Engel et al., 2014). Reviewing these across countries helped in understanding the prevalent trends and measures adopted. PPPs are usually carried forward with private financing across countries such as the UK, Norway, Denmark, Ireland and France (Solheim-Kile et al., 2014; EPEC, 2012a, b). This is in line with the idea of utilising private finance in the event of a public budget deficit or transferring financing risks to the private sector. However,
Danish PPPs show trends of both public and private financing (Bardeleben and Puggaard, 2012) that brings to question, which is better: public or private financing, as interest rates for public borrowing, are usually much lower than for private (Bardeleben and Puggaard, 2012). For example, the Danish state can borrow at an interest rate of even less than 1% per annum as compared to private borrowing rate of 5–15% (Bardeleben, 2013). Most of the Danish PPPs involve a preliminary analysis of a model of financing suited best for the project before the beginning of the procurement process (Bardeleben and Puggaard, 2012). A major example of a PPP with public financing in Denmark is the Danish State Archives PPP (Project Rigsarkiv) (Bardeleben, 2013). Few schools (Frederikshavn school, Ørsted school Langeland, and Vildbjerg school) have also been built with the PPP model of public financing and ownership, having the operation, maintenance and owner’s risks placed with a private partner for the duration of the contract. Denmark has also demonstrated about 10–30% cost savings in PPPs achieved through a combination of debt and equity funding (Eldrup and Schütze, 2013).

Private financing depends on the capital structure made up of debt and equity in most of the European countries such as Denmark (Eldrup and Schütze, 2013), France (EPEC, 2012b), Norway (Solheim-Kile et al., 2014), the UK (HM Treasury, 2018), or the Netherlands (Heijmans, 2014). While equity forms the primary carrier for risks involved in the project; the debt financier holds limited risk exposure. The debt financier is responsible for undertaking the due diligence for the project and assessing the risks involved. This due diligence also contributes significantly to considering the timeliness for the PPP procurement as against traditional procurement. Other than considering the risk-free rate of interest, the equity considers the risks faced by the consortium/SPV during the design, construction, or operation of the project, and the debt financing assumes the risk for if the SPV/private consortium goes bankrupt (Eldrup and Schütze, 2013). Other prevalent funding instruments in France include bank financing with public partner guarantees, corporate financing and funding through Fonds Commun de Titisation PPP[11] (EPEC, 2012b). One of the projects in Norway, known as Aquarama, also demonstrates a financing scheme that utilised commercial businesses, such as hotels, to make the public services more affordable by subsidising them (Solheim-Kile et al., 2014). Here, the public sector owns the public areas and the private partner is responsible for maintaining the whole service and owns the commercial areas. The Dutch PPPs also showcase another financing instrument as crowdfunding[12] (Gelder, 2016).

4.3.1 The LPHA model, Austria. In Austria, the Limited Profit Housing Association (LPHA) model is a popular PPP model for housing (Falk and Rudlin, 2018). Under this model, the housing project is financed with about 30–50% by capital market mortgage loans, 30–40% by low-interest public loans, 10–20% through LPHA equity, mostly for land purchase, and up to 10% through equity of future tenants (Amann, 2009; Deutsch and Lawson, 2013). This PPP housing model provides a good equity position with most of LPHA’s, allowing them to purchase lands or afford bridging finance for construction. Public loans are treated as equity capital while adhering to LPHA’s strict supervision and audit, and thereby posing very few risks overall. Furthermore, all major banks in Austria hold their own special housing bank as a subsidiary that can issue tax-privileged housing construction convertible bonds (Amann, 2009). Together, capital funding and these convertible bonds allow for interest rates equivalent to the Euribor (Euribor EBF, 2017) flat rate for best housing developers (Amann and Mundt, 2005; Deutsch and Lawson, 2013). It may be wise to have a combination of public and private financing, in order to have access to cheaper borrowing rates or interests, given their utilisation, success trends and possibilities. Concerning payment mechanisms, most of the PPPs have an annuity-based payment model. The payments are linked to performance measures such as service access, quality delivered and availability (Solheim-Kile et al., 2014; Bardeleben and Puggaard, 2012; EPEC, 2012b) that drives the private partner to efficiently deliver as per scheduled targets and standards. Table 3 below provides some of the different types of financing in Austria which could be utilised for PPP housing.
Therefore, when it comes to PPP in housing, an optimal financial constitution should involve various financial aspects of low-interest rate, sound financial planning, credible investors, minimal financial risks to the public sector/government and minimum burden on the debt-servicing capacity of the project revenue. Many financial mechanisms, such as tax credits or housing trust funds, are adopted in the UK as tools for social and affordable housing projects. These are some examples of tools that rest on some form of subsidy and help keep rents affordable (The C&AG, 2010). Financing schemes allowing affordable rents are necessary for establishing PPP housing as a new sector. Developing PPP-housing legislation incorporating financing schemes is also an upcoming strategy towards establishing PPP housing as a new business sector, with the target on affordable and rental housing (UNECE, 2006; Hegedüs et al., 2017). The intent is to cultivate public/social/affordable/community housing as a bankable [13] product.

### 4.4 Value for money

Value for money [14] can be defined as a multi-conceptual term involving aspects of sound allocation of capital, timeliness, cost, quality, risk transfer and innovation (Eldrup and Schütze, 2013). It is also defined as an optimum combination of quality for good service and whole life-cycle costs to fulfil the user requirements (US DOT, 2012), whereas historically it was defined in terms of three Es: economy, efficiency and effectiveness (Glynn, 1985). The concept of value for money depends on many factors, which can be both qualitative and quantitative such as construction duration, life-cycle cost, operational performance, financing costs and risk-sharing. Concepts like standardisation, knowledge exchange between teams, revenue sharing, innovation, and most importantly innovative incentives in PPPs help in improving project performance and ensuring value for money (Eldrup and Schütze, 2013). Innovation is not only confined to the individual project phase’s level, but also at the industry level, and investments level. A strong legal and policy framework, involving reviews, audits and strict enforcement is also essential for the success of PPPs.

The concept of value for money is, therefore, intrinsic to the whole of the PPP approach encompassing the procurement model, bidding process and contract structure. Countries such as Germany, Denmark, the UK, or the Netherlands have an explicit emphasis on this
concept. The German PPPs take care of the concept of value for money through utilising price variation clauses as protection against deteriorations in the calculations post-contract signing (Müller, 2014). The use of these clauses is governed by a price clause act under cases where adjustments are not automatic and are related to prices of elementary prices. Having renegotiations and attempting to protect the residual value of the project are also considered essential aspects of maintaining value for money. Residual value protection can be entailed by the private sector by carrying out renovation strategies within the scope of the PPP that can aid in preserving life cycle maintenance costs (Müller, 2014). The German PPP contracts also incorporate provisions for termination of the contract from the perspective of both partners.

The PPP model adopted in Denmark also strongly emphasises bringing down the total life-cycle costs with thorough risk-sharing and management (Petersen, 2010; Eldrup and Schütze, 2013). It targets to achieve this with a single contract between the public and private partner, output-based specifications and using life-cycle economics as the main bidding criteria. Appropriate risk distribution between public and private partners is established through a competitive dialogue. This is achieved at a certain cost due to the higher cost of private financing and potential changes occurring after signing the contract. The statistics from the NAO Audit Office, UK also demonstrate the majority of the PPP projects achieving better value for money (HM Treasury, 2018; NAO, 2019). The Dutch Government Building Agency also proclaims that greater quality, risk distribution, efficient management and innovation can be achieved with a meticulously prepared PPP model which inevitably means achieving greater value for money (Deeleman, 2013). Furthermore, Deeleman (2013) also highlights that an improper request for proposal (RFP), lack of trust between the partners and inefficient contract management and delays occurring due to reporting problems, and late provision of funds for the project (Liu et al., 2017); often act as showstoppers for PPP and affecting their value for money.

Three major aspects can be summed up for assessing the value for money assessment: (1) Viability (the ability to develop a sound contract), (2) Capability (of public and private partners to deliver the project) and (3) Performance (opportunity to encourage innovation and risk-sharing) (World Bank et al., 2014). Some of the key drivers for value for money while considering a PPP approach for housing may be: long-term nature of the project and the scale to justify the costs involved, fair risk profile, multiple responsibilities managed by a single entity demonstrating improved efficiency, the innovation potential, the involvement of users, measurable outputs, competitive/negotiated bidding process to ensure the market price, and private sector expertise and skills.

5. Summary, Adaptations and Implications

While the PPP trends across nine European countries have been studied, a comprehensive outlook has been gained from the building sectors in these countries. The growth of PPPs and their scales and practices demonstrate a wide number of possibilities of adaptations for housing PPPs. Although there has been some evidence about the limited spread of PPP in housing across some of the countries such as the UK, Ireland, or France, there is a need to adapt from PPPs across other building sectors for their better utilisation in sustainable housing provision and ensuring an effective practical and social impact. These adaptations have been further discussed below and summarised in Table 4.

Many countries such as the UK, France, or Denmark showcased that having centralised dedicated bodies and standard documents help promote the use of PPPs, reduce risks and
incorporate the lessons learnt from previous experiences. Furthermore, dedicated housing specific units can be formed within the centralised bodies to ensure focus on addressing the national housing demand systematically through the PPP approach. Also, having set guidelines and documents in place demonstrate the robustness and thoroughness of the government’s involvement in the field of PPP, such as with Denmark, it presents a safer and trustworthy environment for the investors to take part in, especially when it comes to housing PPPs. Moreover, having a central board for housing PPPs within independent projects, such as in the case of Fatima Mansions housing PPP (Ireland), would prove useful ensuring the involvement of users as well. Together, this would also aid in enhancing social integration in case of housing PPPs.

Regarding the procurement process, while competitive dialogue encourages the private partner to innovate and exercise their choices and flexibility to reduce the probability of risk occurrence and optimise the performance to achieve greater value for money, direct negotiations ensure a faster procurement time. Depending on the bidding process, the range of procurement time in these countries varies from 7 to 34 months. In the case of housing PPPs, reduced procurement time is essential to ensure the fast delivery of housing and keep pace with demand. Therefore, a balance of the level of details in specifications and the type of bidding process would help in reduced procurement time, and thereby a combination of competitive dialogue and direct negotiation would be most suitable for housing PPPs. Due diligence undertaken by financial investors would also help to increase the quality of housing PPPs as well as mitigating the risks involved. These processes are often missing from traditional procurements that lead to cost and time over-runs in the projects. It is, therefore, also imperative to incorporate staff with varying expertise to be able to deal with the complexity of housing PPPs effectively. Adequate contingency arrangements should also be ensured in place by the relevant public/local authorities while following a lean resourcing model in these projects. Furthermore, the assessment of the expected value for money should be undertaken during the contract term at various stages to enable a strong and healthy relationship amongst the partners and a comprehensive approach with transparent, clear and objective information exchanges. These are essential to the success of housing PPPs just like other building sectors PPPs.

It is worthwhile to note, depending on the national regulations, that public financing can be cheaper than private borrowing such as in Denmark. This makes it considerable to explore the possibility of joint financing for housing PPPs (public and private), consider their expected benefits, and adjust the procurement procedures accordingly. However, often the public authorities find it convenient to leave the management of financing with the private sector giving them the necessary control needed for the project. In this case, the higher cost of private financing can also be considered balanced against the risks borne by them and the responsibility taken by them over the life-cycle of the project. For instance, French PPPs often utilise user charges as a mode of financing, which may not be a suitable option for housing. However, certain requisites learnt especially from the LPHA model, Austria can be adopted, basing the prices and rents for housing on sound financial schemes instead of political decisions, and developing solid equity sources on the ends of the SPV to enable consecutive investment in affordable housing PPPs. As observed in the Netherlands, a public–private co-investment approach could also be suitable for housing PPPs enabling appropriate risk distribution, and having a focus on social sustainability by providing fixed percentage of different income groups and thereby creating cohesive communities. In summary, the key adaptations for PPP in housing from each of the nine European countries and their practical and social implications are presented in Table 4.
6. Concluding remarks
The review ascertains that PPPs in housing should be carried out for justified reasons such as for increasing efficiency, keeping up with the demand, social sustainability and cohesive development of communities. The governments are required to focus on strengthening their capacity for identifying and selecting suitable opportunities for PPPs in housing.

Table 4. Key adaptations and implications for PPP in housing from nine EU countries

<table>
<thead>
<tr>
<th>Countries</th>
<th>Key adaptations for PPP in housing</th>
<th>Practical and Social implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>Clear grasp of timescales and processes by the local authorities</td>
<td>Efficient management and delivery of the projects</td>
</tr>
<tr>
<td></td>
<td>Working with the not-for-profit model</td>
<td>Reinvesting the profits made for housing developments ensuring sustained housing provision</td>
</tr>
<tr>
<td></td>
<td>Promoting mixed-tenure developments</td>
<td>Enhancing social integration</td>
</tr>
<tr>
<td>Ireland</td>
<td>Having a central board of regeneration</td>
<td>Ensuring the involvement of end-users</td>
</tr>
<tr>
<td></td>
<td>Involvement of expertise</td>
<td>Enhancing social integration</td>
</tr>
<tr>
<td></td>
<td>Mixed-tenure developments and fixing the percentage of social/affordable housing</td>
<td>Collaborative and cooperative practice</td>
</tr>
<tr>
<td></td>
<td>Integrated and transparent approach to procurement</td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>Set guidelines and documents for PPPs</td>
<td>Presents a credible and trustworthy environment for the investors</td>
</tr>
<tr>
<td></td>
<td>Public financing</td>
<td>Cheaper than private financing</td>
</tr>
<tr>
<td>Germany</td>
<td>Combination of two bidding processes: competitive dialogue and negotiated procedure</td>
<td>Provide additional flexibility with negotiations</td>
</tr>
<tr>
<td></td>
<td>Price variation clauses</td>
<td>Ensuring value for money and protection against deterioration in calculations post-contract signing</td>
</tr>
<tr>
<td></td>
<td>Scope of renegotiations</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>Detailed specifications in the procurement stage</td>
<td>Allow for reducing the procurement duration</td>
</tr>
<tr>
<td></td>
<td>Combination of two bidding processes: competitive dialogue and negotiated procedure</td>
<td>Maximising return both economically and socially</td>
</tr>
<tr>
<td></td>
<td>Fixing the percentage of social/affordable housing</td>
<td></td>
</tr>
<tr>
<td>Norway</td>
<td>Smaller scale of PPPs</td>
<td>Plausibility for smaller investments</td>
</tr>
<tr>
<td></td>
<td>Using crowdfunding as a financing instrument</td>
<td>Ensuring local stakeholders support and transparency</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Public-private co-investment approach</td>
<td>Spreading the risks</td>
</tr>
<tr>
<td></td>
<td>Combining institutional and neighbourhood development</td>
<td>Focusing on social sustainability and creating cohesive communities</td>
</tr>
<tr>
<td></td>
<td>Fixing the percentage of social/affordable housing</td>
<td>Focus on the concept of togetherness from a social and community perspective</td>
</tr>
<tr>
<td>Switzerland</td>
<td>Integrating financing and risks into one approach</td>
<td>Efficient risk mitigation and ensuring quality output</td>
</tr>
<tr>
<td>Austria</td>
<td>Limited Profit Housing Association (LPHA) model</td>
<td>Having a solid equity basis ensuring consecutive re-investment possibility</td>
</tr>
<tr>
<td></td>
<td>Strict auditing procedures</td>
<td>Increasing the quality and mitigating risks</td>
</tr>
</tbody>
</table>
Through the PPP approach with the highlighted learnings, the issues of under-investment in housing and the delivery of affordable housing can be tackled efficiently that must be explored across the European countries. The existing PPP housing cases also showcase a significant step in implementation that requires organising the public support and community involvement in the whole process. For the greater public acceptance of PPPs amidst the society, it is important to keep the public up-to-date and aware of the plausible benefits with PPP in housing, both regarding enhancement in the quality-of-service provision, as well as in their capability to drive social and economic growth.

In summary, the adaptations discussed and presented above attempt to close the gap for PPP in housing within the four attributes reviewed in this study and extend the state of the art for PPP in housing. While they suggest a direction to improve PPPs as a delivery mechanism for housing, they also ensure a significant practical and societal impact (see the implications highlighted in Table 4). It is also worthwhile to add that by addressing PPP in housing at a strategic level, the adaptations presented are not confined to a particular geographical area and could be applied in both developing and developed countries, tailored to their specific national requirements.

This study further establishes a foundation for undertaking future work in this direction and aid in developing a new model for PPP in housing. These learnings can be leveraged in policy and practice for the delivery of housing ensuring sustainable development of communities, advancing the capacity of the sector, increasing affordability and adopting a more inclusive decision-making approach.

7. Limitations
High regional domination was observed from the UK in the utilisation of the PPP approach, and few exceptional examples from Ireland and the Austrian system specifically for housing projects are discussed within some attributes. Limited or no insights in the housing sector were found in other countries. Moreover, due to strict confidentiality and difficulty in gaining access to quantitative data, little empirical evidence about PPP projects in building sectors was available, leading to a qualitative in-depth review.

List of Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>AHB</td>
<td>Approved Housing Bodies</td>
</tr>
<tr>
<td>CP</td>
<td>Contract de partenariat, France</td>
</tr>
<tr>
<td>DBFO</td>
<td>Design-Build-Finance-Operate</td>
</tr>
<tr>
<td>DBOF</td>
<td>Design-Build-Operate-Finance</td>
</tr>
<tr>
<td>DBFMO</td>
<td>Design-Build-Finance-Maintain-Operate</td>
</tr>
<tr>
<td>DBM+F</td>
<td>Design-Build-Maintain + Finance</td>
</tr>
<tr>
<td>DECLG</td>
<td>Department for Communities and Local Government</td>
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<tr>
<td>EC</td>
<td>European Commission</td>
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<tr>
<td>EIB</td>
<td>European Investment Bank</td>
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<tr>
<td>EPEC</td>
<td>European PPP Expertise Center</td>
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<td>EU</td>
<td>The European Union</td>
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<tr>
<td>LPHA</td>
<td>Limited-Profit Housing Associations</td>
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<tr>
<td>MAPPP</td>
<td>Mission d’appui aux partenariats publics–privé</td>
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<tr>
<td>NAO</td>
<td>National Audit Office, UK</td>
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<tr>
<td>PFI</td>
<td>Private Finance Initiative</td>
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<tr>
<td>PF2</td>
<td>Private Finance 2</td>
</tr>
</tbody>
</table>
Notes

1. In line with the varied terminologies and definitions for housing (Adejumo, 2008; The C&AG, 2010; ACT Government, 2014), this research focuses on all types of public, affordable, social, cooperative or rental housing, that are owned or managed by the government authorities, non-profit organisations or housing associations (European Parliament, 1996; URBACT, 2017).

2. Formative evaluation is utilised in qualitative studies as it helps to evaluate the trends of development, quality of implementation, and the assessment of organisational context, procedures, and inputs of a process/project across priori constructs (Huey-Tsyh, 1996; Henry et al., 2013).

3. A SPV refers to a Special Purpose Vehicle that is a legal entity undertaking the PPP project, and committed to raising funds, bringing together the various parties, ensuring the supply and execution of the PPP.

4. Statutory process assessment refers to assessing the potential for transferring statutory process risks to the private partner in a PPP; depending on the type of procurement model, project characteristics. And the resulting value for money (DPER, 2019).

5. Owner model refers to a type of PPP contract with regard to German law covering Planning, Construction, financing and operation under the ownership of a principal (Partnerschaften Deutschland, 2020).

6. Rent model refers to a contract to rent that extends beyond ten years (Partnerschaften Deutschland, 2020).

7. Licence model refers to a contract with the operation of the facility with privately collected user charges (Partnerschaften Deutschland, 2020).

8. Leasing model refers to a rent contract with an option of buying (Partnerschaften Deutschland, 2020).

9. Company model refers to operation through a project group (Partnerschaften Deutschland, 2020).

10. PPPs with user-pay system are arrangements under which the project users pay the private partner for the provision of the service (EPEC, 2012b).

11. Fonds Commun de Titisation PPP refers to a fund set up by the French authorities to issue long-term bonds for financing French PPPs (EPEC, 2012b).

12. Crowdfunding refers to raising low-cost capital with higher competition through supporters of the PPP project, providing opportunity to individual investors. It focuses on enhanced local stakeholders support and transparency, and giving equal opportunities to local investors, and extend the PPP towards the users of the project (Levine and Feigin, 2014).

13. Bankable product here refers to cultivating a successful housing delivery and profitable in social and economic terms.

14. Value for money refers to achieving a net positive gain to the society as compared to any alternative procurement route covering all the different dimensions of finance, procurement, and risk management (NAO, 2019).
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