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Unpacking the context of Value for Money assessment in global markets: a procurement option framework for Public Private Partnerships

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Unpacking the context of Value for Money assessment in global markets: a procurement option framework for Public Private Partnerships

Abstract

Purpose – The unprecedented COVID-19 pandemic has further constrained the budgets of governments worldwide for delivering their much-needed infrastructure. Consequently, Public-Private Partnerships (PPPs), with the private sector's investment and ingenuity, would appear to be an increasingly popular alternative. Value for money (VfM) has become the major criterion for evaluating PPPs against the traditional public sector procurement, and however is plagued with controversy. Hence, it is important that governments compare and contrast their practice with similar and disparate bodies to engender best practice. This paper, therefore, aims to understand governments' evaluation context and provide a cross-continental comparison on their VfM assessment.

Design/ methodology/ approach – Faced with different domestic contexts (e.g., aging infrastructure, population growth, and competing demands on finance), various governments tend to adopt different emphases when undertaking the VfM assessment. In line with the theory of boundary spanning, a cross-continental comparison is conducted between three of the most noticeable PPP markets (i.e., the United Kingdom - UK, Australia and China) about their VfM assessment. The institutional level is interpreted by a social, economic and political framework, and the methodological level is elucidated through a qualitative and quantitative VfM assessment.

Findings – There are individual institutional characteristics that have shaped the way each country assesses VfM. For the methodological level, we identify that: (1) these global markets use a public sector comparator as the benchmark in VfM assessment; (2)

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3 26 ambiguous qualitative assessment is conducted only against PPPs to strengthen their
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5 27 policy development; (3) Australia's priority is in service provision whereas that of the
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7 28 UK and China is project finance and production; and (4) all markets are seeking an
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10 29 amelioration of existing controversial VfM assessments so that purported VfM relates
11
12 30 to project lifecycles. Therefore, an option framework is proposed to make headway
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14 31 towards a sensible selection of infrastructure procurement approaches in the post
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16 32 COVID-19 era.

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19 33 **Originality/ value** – This study addresses a current void of enhancing the decision-
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21 34 making process for using PPPs within today's changing environment and then opens up
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23 35 an avenue for future empirical research to examine the option framework and ensuing
24
25 36 VfM decisions. Practically, it presents a holistic VfM landscape for public sector
26
27 37 procurers that aim to engage with PPPs for their infrastructure interventions.

28
29 38 **Keywords:** Boundary spanning; Comparative study; Option framework; Public-
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31 39 Private Partnerships; Value for money assessment.
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38 41 **1. Introduction**

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41 42 The global economy has been encountering severe turmoil since the spread of SARS-
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43 43 CoV-2 (COVID-19) in 2020. A baseline forecast by the World Bank (2020) estimated
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45 44 a 5.2% contraction in global GDP in 2020. Faced with a recession, the United Kingdom
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47 45 (UK) government, in common with others, aimed to invest £100 billion in 2021-22 to
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49 46 resuscitate the country's economy (HM Treasury, 2020). Of this stimulus package, £27
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51 47 billion was earmarked for economic infrastructure (HM Treasury, 2020), highlighting
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53 48 the role of infrastructure development in the recovery. Nevertheless, as illustrated by
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55 49 UK Parliament (2021), the UK has under-invested in infrastructure for decades.
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57 50 According to the financial services company - Legal and General (2020), the
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3 51 infrastructure investment gap between 2020 and 2030 is circa £1 trillion. One possible
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5 52 solution to balance this funding shortage against incremental demands appears to lie in
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7
8 53 Public Private Partnerships (PPPs) (Chowdhury *et al.*, 2011; Ma *et al.*, 2020). During
9
10 54 COVID-19, Casady and Baxter (2021) postulate that delivering healthcare
11
12 55 infrastructure through unsolicited PPPs would not only foster rapid response but also
13
14 56 mitigate its aftermath. In this stance, the pandemic can be treated as an ‘opportunity’
15
16 57 rather than a ‘threat’ to unleash PPPs’ potential to address the above dilemma. However,
17
18 58 PPPs certainly are not a ‘panacea’, which was reflected in the exposed failures reported
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20 59 by Zhang and Tariq (2020). In addition, the debt of the UK, according to the Office for
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22 60 National Statistics (2021), has risen above the European Union (EU) average (i.e., 12.3%
23
24 61 higher) during the pandemic, which means the public budget has to be carefully
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26 62 allocated after COVID-19. Therefore, we need to understand the macro and micro
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28 63 contexts that can accommodate PPPs.
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35 65 The debate on the utility of PPPs is enduring (see, for example, Shaoul, 2005; Hodge *et*
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37 66 *al.*, 2018; and Verweij and van Meerkerk, 2021). Proponents cite their abilities in easing
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39 67 governments’ budget constraints (Chan *et al.*, 2009), transferring risks to the private
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41 68 sector (Jin and Zhang, 2011), and curbing delays and cost overruns (Raisbeck *et al.*,
42
43 69 2010). As a consequence, more than 700 projects of this nature (tallying around £56
44
45 70 billion capital investment) have been enacted in the UK (HM Treasury, 2021). However,
46
47 71 according to Hodge and Greve (2017), solid evidence to support the rhetoric is
48
49 72 extremely rare. If anything, most commentators are critical and argue to the contrary.
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51 73 Subsequently, the UK announced in 2018 that no new Private Finance 2 (PF2) projects
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53 74 would emerge due to their less-than-satisfactory performance (e.g., significant fiscal
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55 75 risk) (HM Treasury, 2021). Another example arose in China where Xiong *et al.* (2021)
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3 76 contend that political opportunism has partially contributed to the failures of PPPs.
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5 77 Although this does not mean the end of PPP types of contracts, the value for money
6
7 78 (VfM) assessment that justified their use has been undoubtably questioned. As a
8
9
10 79 relatively simple way of comparing costs and benefits, VfM assessment has become an
11
12 80 indispensable component in the public procurement process. Nevertheless, the
13
14 81 methodology enshrined in VfM assessment has been criticised as being deeply flawed
15
16 82 and un-rigorous (Shaoul, 2005; Zhao *et al.*, 2022). In order to improve delivery of
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18 83 infrastructure in the post COVID-19 epoch, governments, especially those experiencing
19
20 84 ‘failures’ with PPPs, therefore need to learn from each other and be equipped with a
21
22 85 robust instrument that can evaluate their VfM. This is supported by the theory of
23
24 86 ‘boundary spanning’, where Marrone (2010) argues that organisations must
25
26 87 increasingly coordinate across their boundaries and actively manage external
27
28 88 relationships to achieve success. To this end, this article aims to address the following
29
30 89 research questions: (1) *How has VfM been assessed in global PPP markets? and (2)*
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32 90 *how can governments (specifically the UK government) capitalise on best practice in*
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34 91 *the post COVID-19 epoch?*
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42 93 In the existing literature, studies on VfM in a single country are not scarce. For instance,
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44 94 Ismail (2013) used survey results to propose a VfM assessment framework that
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46 95 integrates financial and non-financial aspects in a Malaysian context. Opara (2018), on
47
48 96 the other hand, suggested improved information disclosure, transparency and risk
49
50 97 quantification of VfM assessment in Canada. Acknowledging the need to engage in
51
52 98 what Aldrich and Herker (1977) call external information processing, Grimsey and
53
54 99 Lewis (2005) compared the views of academics and practitioners on VfM assessment
55
56 100 and its practice in different countries. Subsequently, Morillos and Amekudzi (2008)

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3 101 reviewed the VfM model adopted by agencies in Australia, Canada, Europe, and Asia.
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5 102 Addressing the variances in different states in the U.S, Morillos *et al.* (2009) surveyed
6
7 103 their VfM analyses for transport projects. While these studies have attempted to span
8
9 104 the single-country boundary to a number of settings to draw lessons, they focus on the
10
11 105 VfM assessment without considering the context underlying it; do not reflect the
12
13 106 spectrum of changes within organisations, particularly in the most recent situations; and
14
15 107 do not provide a possible solution to the procurement conundrum. Therefore, this paper
16
17 108 provides a timely inquiry to make sense of the VfM assessment in the global market,
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19 109 which is particularly directed at policy in the UK, to inform the use of PPPs in the post
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21 110 COVID-19 epoch. A fresh approach, through these findings, would enable decision-
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23 111 makers to garner an understanding of how VfM assessment can be better utilised. We
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25 112 now review the concept of PPPs, VfM and their significance in infrastructure
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27 113 procurement before heading to the methodology.
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115 **2. Public Private Partnerships (PPPs) and Value for Money (VfM)**

116 **2.1 PPP definitions**

117 PPPs gained momentum in the UK in the 1990s where it took the form of Private
118 Finance Initiative (PFI) and subsequently PF2. As an innovation to public procurement,
119 PPPs have been adopted around the globe to deliver infrastructure projects and/ or
120 public services in the areas of transport, water, energy, education, etc. However, their
121 common application does not result in a common definition of PPPs, as governments
122 assume different priorities and intentions (Muleya *et al.*, 2020). Cherkos and Jha (2021)
123 report that emerging markets embrace PPPs mainly through economic and financial
124 stimuli, compared with developed countries' pursuit of service quality. As a result,
125 various approaches such as PFI, build-operate-transfer (BOT), concession and franchise,

1
2
3 126 have been generated to accommodate multiple types of assets (e.g., new or existing),
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5 127 functions borne by private sectors, and payment sources such as users or governments
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7 128 (The World Bank, 2017). In the UK, HM Treasury (2021) defines PFI as ‘a long-term
8
9 129 contract between a private party and a government entity where the private sector
10
11 130 designs, builds, finances and operates a public asset and related services.’ Australia’s
12
13 131 Department of Infrastructure and Regional Development (2008) perceives PPPs as ‘a
14
15 132 long-term contract between the public and private sectors where government pays the
16
17 133 private sector to deliver infrastructure and related services on behalf, or in support, of
18
19 134 government’s broader service responsibilities’. China, on the other hand, seeks to build
20
21 135 a long-term partnership where private entities design, build, operate and maintain the
22
23 136 infrastructure while the government supervises its price and quality (Ministry of
24
25 137 Finance - MoF, 2014). These definitions reinforce the perception that a ‘one-size-fits-
26
27 138 all’ approach to PPPs may be problematic. However, in line with Collier (1993),
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29 139 evaluating cross-experiences could facilitate the identification of problems and promote
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31 140 best practice in different settings.
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142 **2.2 The concept of VfM**

143 Another element that is intertwined with PPPs is VfM. According to Almarri and
144 Boussabaine (2017), the viability of PPPs is determined by VfM to demonstrate the
145 additional value realisation through private participation in infrastructure (PPI). The use
146 of VfM ranges from daily life (e.g., buying a phone) to professional trade (e.g., selecting
147 a best practice procurement approach). Yet in the latter, the concept of VfM is not clear-
148 cut because of variables such as stakeholders, measurement, attribution, and stability
149 (McKevitt, 2015). One of the most cited definitions of VfM is that it ‘is the optimum
150 combination of whole-of-life costs and quality (or fitness for purpose) of the product or
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3 151 service to meet the users' requirement' (Morallos and Amekudzi, 2008). Similarly,
4
5 152 Almarri and Boussabaine (2017) argue that life-cycle cost efficiency and clear service
6
7 153 outputs should be added to VfM. On the other hand, the '3Es' (economy, efficiency and
8
9 154 effectiveness) plus a recent fourth 'equity' are commonly used as proxies for VfM
10
11 155 (Jackson, 2012). Ismail (2013) affirms that VfM depends on realising technical
12
13 156 innovation through competitive tendering. In other words, commentators consider VfM
14
15 157 to be a function of multi-attributes. Nevertheless, Ng *et al.* (2012) and Cui *et al.* (2019)
16
17 158 have identified that cost effectiveness is the most fundamental driver. This to some
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19 159 extent explains why cost is paid overriding attention in actual VfM assessment.
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26 161 **2.3 Why is VfM assessment important?**

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28 162 VfM assessment can be classified into *ex-ante* assessment and *ex-post* assessment. The
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30 163 mainstream role of the former is to determine an optimal procurement route between
31
32 164 different options at the initial decision-making stage. Typically, it is conducted by
33
34 165 comparing the net present value of a PPP with that of a traditional public procurement
35
36 166 option (Ismail, 2013). The *ex-post* VfM assessment is often entangled with performance
37
38 167 measurement to target whether VfM has been realised via the selected method (Liu *et*
39
40 168 *al.*, 2018). Some organisations, such as the UK's National Audit Office (NAO), have
41
42 169 institutionalised VfM assessment into the scrutiny of government spending, thereby
43
44 170 aligning and comparing an *ex-post* with the *ex-ante* VfM assessment (Heald, 2003).
45
46 171 Given the lump-sum capital investment, unsuccessful infrastructure delivery will not
47
48 172 only result in the financial vulnerability of stakeholders but loss of overall social welfare.
49
50 173 As such, according to Shi *et al.* (2020), VfM assessment has attracted attention in
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52 174 academia and formed a major research area in PPP related studies. In practice, it has
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54 175 become a mandatory procedure in the procurement process of some countries (e.g., UK,
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3 176 Australia and China) if PPPs are being considered. A number of other countries, such
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5 177 as Belgium (Van Den Hurk, 2018), Malaysia (Ismail, 2013), Albania (Keci, 2019), and
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7 178 Vietnam (Hang, 2016) are also proposing and implementing their own VfM frameworks.
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11 12 180 **2.4 Problems with VfM assessment**

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14 181 The pervasive use of VfM assessment in project evaluation requires the methodology
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16 182 itself to be sound and reliable, otherwise the validity of the decision would be in doubt.
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18 183 However, current questions in the VfM debate include, *inter alia*: what is a suitable
19
20 184 discount rate? And should the same discount rate be used for evaluating PPPs and
21
22 185 traditional procurement? Jomo *et al.* (2016) confirm that discounting PPP costs at a
23
24 186 higher discount rate renders a lower, more attractive net present equivalent, and thus
25
26 187 may bring a disproportionate advantage to the PPP option. Another argument concerns
27
28 188 the balance of risk allocation between the two main contractual parties (Jin and Zhang,
29
30 189 2011). There are cases where undue risks have bankrupted the PPP provider. For
31
32 190 example, Ng and Loosemore (2007) report that Airport Link Company, the private
33
34 191 consortium of the \$920 million New Southern Railway project in Sydney, Australia
35
36 192 entered into receivership due to the project's controversial risk allocation. In addition,
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38 193 with a contract valid up to 30 years, an exhaustive and accurate prediction of risks and
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40 194 their valuation is a persistent challenge (Kumar *et al.*, 2018). More importantly,
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42 195 Grimsey and Lewis (2005) argue that VfM assessment relies heavily on a hypothetical
43
44 196 cost construction of a public delivery, known as the 'public sector comparator' (PSC),
45
46 197 which evades an 'apple-to-apple' comparison. Therefore, Opara (2018) concerns that
47
48 198 VfM assessment is compromised as a bureaucratic tool to legitimate a pre-conceived
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50 199 mindset, i.e., that PPPs are better. Examples have been seen worldwide (including those
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52 200 in the UK, the EU, Australia and the U.S.) that PPPs have, retrospectively, been shown
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1
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3 201 to be more expensive than estimates of the same delivery using a traditional method
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5 202 (Hodge and Greve, 2007; Leigland, 2018). If headway is to be made against these
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7 203 problems, after decades of PPP development, it is necessary to conduct a comparative
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9 204 study of global markets to extract best practices, particularly when the post COVID-19
10
11 205 era calls for more prudent public expenditure.
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17 207 **3. Methodology**

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19 208 To recap, the work presented here aims to streamline the UK's VfM assessment practice
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21 209 by making sense of the 'context' from a global lens. As Davidoff (2019) put it: "context
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23 210 plays an important role in both improvement science and implementation science;
24
25 211 limited understanding of context therefore limits understanding of both the fundamental
26
27 212 principles of improvement and the actions that put improvements into practice."
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29 213 Essentially, the importance of *context* has been emphasised in infrastructure research,
30
31 214 such as Hertogh *et al.* (2008), OMEGA centre (2012) and Love and Ika (2021). Noting
32
33 215 the hierarchical levels of context identified by Biggermann and Buttle (2009), we
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35 216 framed the VfM context to the institutional (macro-level) and the methodological
36
37 217 (micro-level) perspectives. In particular, the institutional level was interpreted by a
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39 218 social, economic and political framework, and the methodological level was elucidated
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41 219 through a qualitative and quantitative VfM assessment.
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51 221 In addition to the internal ("-emic") context, boundary spanning theory has called for
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53 222 the external ("-etic") information processing to assist implementation and improvement
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55 223 (Marrone, 2010). To do so, Esser and Vliegthart (2017) suggest that a comparative
56
57 224 analysis would fit as a boundary spanner to gain a deep understanding of one's own
58
59 225 system by comparing against the routine prevalent in other countries. While there are
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226 many countries implementing PPPs, three criteria were adopted to choose the sample,
 227 and they consider: (1) similar and different systems that can capture variances as well
 228 as consistencies as proffered by Lor (2010); (2) representativeness of PPP experience;
 229 and (3) data accessibility (Table 1). Accordingly, three countries – the UK, Australia,
 230 and China – were selected because: (1) they have different institutional characteristics
 231 that to some extent underlie their methodological approaches to VfM assessment (i.e.,
 232 different systems); (2) VfM assessment is legal procedure in these three countries that
 233 has to be followed if PPPs are deemed viable (i.e., similar systems); and (3) the UK and
 234 Australia are widely considered mature PPP markets in terms of their complexity and
 235 volume of projects (Grasman *et al.*, 2014). China's PPP market, since its official
 236 adoption in 2014, has grown to be the world's largest (currently c.£16 trillion - 28 times
 237 larger than the UK's) and Perera *et al.* (2019) have equated its maturity to that of the
 238 UK and Australia (i.e., representativeness). According to Seawright and Gerring (2008),
 239 sample selection is by no means an easy task and requires an agenda of study.
 240 Nevertheless, by following the criteria and the reasons explained above, we submit that
 241 this comparison shows useful variations on the dimensions (macro and micro; internal
 242 and external) of theoretical interest (Seawright and Gerring, 2008), and can act as a
 243 point of departure for a better VfM assessment. Figure 1 outlines the overall research
 244 framework.

245 Table 1. Countries and their respective VfM assessment guideline selected for research

Countries	Guidelines	Documentary sources
The UK	Value for Money Assessment Guidance	HM Treasury (2004)
	Value for Money Assessment Guidance	HM Treasury (2006)
	Quantitative assessment: user guide	HM Treasury (2011)
	The Green Book	HM Treasury (2020)
Australia	National PPP Guidelines Overview	Department of Infrastructure and Regional Development (2008)
	Volume 4 Public Sector Comparator Guidance	Department of Infrastructure and Regional Development (2008)
	Volume 5 Discount Rate Methodology	Department of Infrastructure and Regional Development (2013)
China	PPP Value for Money Assessment Guidance	MoF (2015)

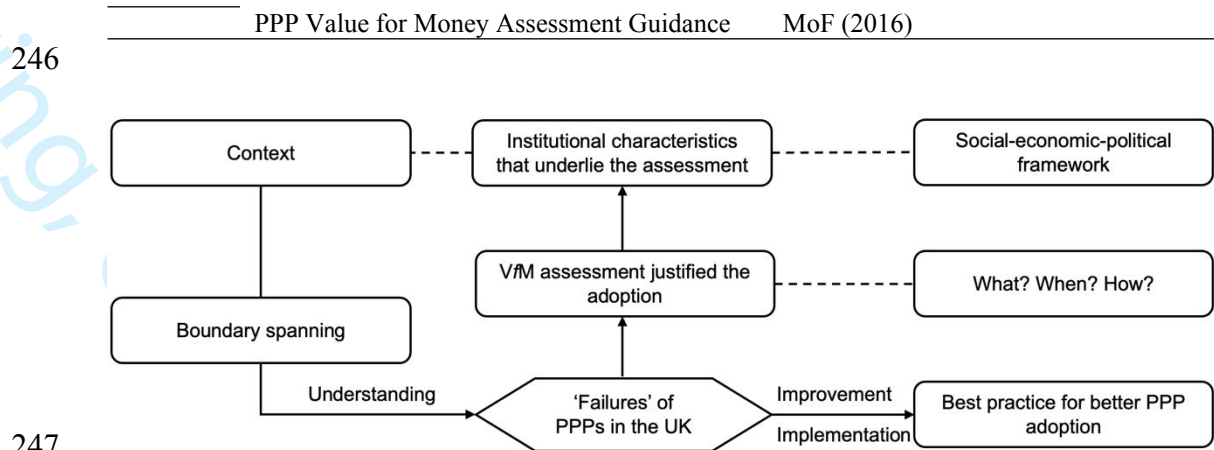


Figure 1. Research framework

4. Findings – A Tale of Three Practices

The motivation for this study is driven by the demand for infrastructure provision in the post COVID-19 era and the abolition of PFI and PF2 in the UK. It should be noted that the ‘pause’ that followed did not discredit PPPs *per se*. On the contrary, they are booming both in the mature and emerging economies, and the UK is establishing a new infrastructure bank to harness PPI to expedite the recovery from COVID-19 (HM Treasury, 2020, p70). It is with this backdrop that we now try to make sense of the previous ‘failures’ and propose an option framework for the future by presenting the results from the comparative analysis. By ‘the future’ or ‘better PPP adoption’, we refer to the provision of equivalent services at a less cost or better services at the same cost (Dixon *et al.*, 2005). That is, true VfM can materialise.

4.1 Institutional characteristics

Infrastructure, labelled as “economic arteries and veins”, is inextricably related with economy. As noted by the World Bank (2006), a nation’s socio-political environment shapes its development process and *vice versa*. The purpose of this study is not to delve deeply into their functioning mechanisms, which are sophisticated and delicate, and

267 happen to be beyond the scope of this study. Instead, we delimit it to the specific social
 268 (e.g., population boom and urbanisation), economic (e.g., infrastructure provision) and
 269 political (e.g., policy and governance structure to PPPs) framework (Table 2) that
 270 conditions PPPs and VfM assessment. This explorative perspective has shown that: (1)
 271 some institutional barriers need to be removed before PPPs adoption; (2) PPPs are an
 272 approach that enables a particular government to deliver its promises to society; (3) The
 273 use of PFI is a way to stimulate economy; (4) The social, political and economic
 274 backgrounds to some extent determine how PPPs are applied; and (5) VfM assessment
 275 becomes an instrument to legitimate PPPs and is necessary to monitor whether the best
 276 VfM is delivered.

277 Table 2. Institutional characteristics of VfM assessment in the UK, Australia and China

	The social	The economic	The political (governance)
The UK	1) High unemployment rate; high interest rate; housing crisis; 2) Demand for quality NHS and education; 3) Under-investment in infrastructure; 4) Protection for staff; 5) Ongoing need for better public services, opportunity and security.	1) The early 1990s recession; 2) Fiscal responsibility and government guarantee; 3) 60% PFI are on the balance sheet; 4) The 2008 financial crisis and tighter regulations on banks	1) NPM, retirement of the 'Ryrie rules' and the 1992 general election; 2) the 1997 general election; 3) Using PFI to meet the investment challenge in 2003; 4) Using PFI to strengthen long-term partnership; 5) Introducing equity finance and transparency
Australia	1) Population size; 2) Expectation for excellence in public service provision; 3) Reluctancy to more tax	1) High public debt; 2) The longest sustained increase in commodity prices and the terms of trade but generally healthy*	1) New Public Management (NPM); 2) Federal government; 3) Reform of Australian Public Service
China	1) Population aging; 2) Poverty; 3) Environmental issues	1) Economic downward pressure; 2) Insufficient domestic demand	1) New administration; 2) Law modifications (e.g., long-term budget plans and taxation)

278 * Source from Gerard and Kearns (2011) The Australian Economy in the 2000s.

279

280 *UK context*

281 In the UK, the institutional barriers to PFI were cleared following the 1992 election of
 282 a Conservative government. To cope with an economic crisis that involved high

1
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3 283 unemployment, high interest rates, and high public borrowing, there was a shift to
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5 284 'NPM' (see Hood, 1991 for details regarding NPM), and departure from the 'Ryrie rules'
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8 285 that limited the raising risk capital from financial markets (see Heald and McLeod, 2002,
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10 286 p.420). In 1997 the incoming Labour government adopted PFI to improve public
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12 287 services: commissioning, between 1997 and 2003, 34 PFI hospitals with an estimated
13
14 288 cost of £21.76 billion and expanding PFI into other areas such as education. The first
15
16 289 VfM assessment guideline (PSC) was introduced by the Private Finance Treasury
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18
19 290 Taskforce in 1999, and in 2003 VfM became the criterion, as opposed to the simple
20
21 291 'off-balance sheet' attraction of earlier years. The number of UK PFI projects then
22
23 292 remained stable (around 60 every year) until the 2008 financial crisis. Despite the
24
25 293 introduction of the amended 'PF2' strategy in 2012, by 2018 only one PFI project (i.e.,
26
27 294 Arc21 Residual Waste Infrastructure Procurement) was commissioned at which time
28
29
30 295 PFI and PF2 were deemed inflexible and complex.
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297 *Australian context*

37 298 Unlike the UK, Australia has a federal parliamentary system. The first formal adoption
38
39 299 of PPPs occurred in 2000 when the Victoria State Government established 'Partnerships
40
41 300 Victoria'. Other state PPP units followed, including 'Projects Queensland' (now
42
43 301 'Queensland Treasury's Commercial Group') and 'New South Wales (NSW) PPPs'
44
45 302 (now the 'Infrastructure and Structured Finance Unit'). These are responsible for the
46
47 303 procurement of PPPs in each jurisdiction and apply state-specific guidelines (Table 3)
48
49 304 where the National PPP Policy and Guidelines (NPPG) allow. At the federal level, the
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51 305 Council of Australian Governments monitors, reviews, and refines the NPPG with the
52
53 306 assistance of its 'holder', Infrastructure Australia. Table 3 shows the relevant guidelines
54
55 307 alongside the uptake of PPPs by each unitary player (the three major states and
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308 Infrastructure Australia). Notably, the populations of NSW, Victoria and Queensland
 309 account for 77.85% of total Australian population, which accounts for the predominance
 310 of PPP projects in these states. With the reform of its Australian Public Service
 311 (Australian Government, 2019), PPPs continue to breathe and grow even amid the
 312 COVID-19 as can be seen in the Sydney Metro City & Southwest OTS2 PPP, the
 313 Footscray Hospital PPP, the Inland Rail PPP in NSW, Victoria and Queensland,
 314 respectively.

315 Table 3. Federal and state governance on PPPs in Australia

Unit	Guidelines	Document year	Number of projects/ Project value after 2000*
Infrastructure Australia	NPPG contains: (1) National PPP Policy Framework; (2) National PPP Guidelines Overview; (3) Volumes 1-7 on detailed technical instructions; (4) Roadmap for Applying the Commercial Principles	2008: Original release; 2015: Revised version	90/ ≈\$109.13 billion
Partnerships Victoria	Partnerships Victoria Requirements	2009: Original release; 2010: Update on PSC; 2013: Revised version; 2016: Revised version	24 / ≈\$29 billion
Queensland Treasury's Commercial Group NSW	Queensland public private partnership supporting guidelines	2015	11/ ≈\$24 billion
Infrastructure and Structured Finance Unit	NSW Public Private Partnership Guidelines	2012: Original release; 2017: Revised version	26/ ≈\$38 billion

316 * Source secured from Infrastructure Partnerships Australia in July 2021. Guidelines are sourced from Department of
 317 Infrastructure and Regional Development (2008), Treasury and Finance (2016), Queensland Government (2015), and The NSW
 318 Treasury (2017).

320 *China context*

321 In China, an aging population, extreme poverty for 100 million people, urbanisation,
 322 and environmental worries, have all provided a stimulus to innovate in infrastructure.
 323 This contextual backdrop coincides with the surging number of PPPs in the area of
 324 urban and city development, elderly care, environmental protection, and social housing.
 325 The first BOT project (i.e., Shajiao B power plant) in Shenzhen, China can be traced

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3 326 back to 1984 with foreign direct investment. However, the central government's
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5 327 enthusiasm for PPI in 2014 (see Cheng *et al.* 2016 for macroeconomic environment and
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7 328 policies that shaped PPPs in China pre-2014) casted a watershed in PPPs. This was
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10 329 attributed to the newly elected administration declaring, in 2013, the decisive role of
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12 330 the market in resource allocation and allowing the private sector to invest in
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14 331 infrastructure. There was a milestone policy by the MoF (2014) that considered PPPs
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16 332 as a way to transform economy, support urbanisation, convert the role of government
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18 333 in public service, and reform the finance and taxation system. So far, 10,120 PPP
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20 334 projects have been commissioned across China led by the municipal sector, transport,
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22 335 environment, and urban and city development. One significant characteristic embedded
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24 336 with this rapid uptake is the involvement of state-owned enterprises (SOEs) ¹ due to
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26 337 their ample resources and extensive political and financial access (Xiong *et al.*, 2021).
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28 338 In addition, dozens of laws, regulations and policies have been administered mainly by
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30 339 its national-level Standing Committee of the National People's Congress, State Council,
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32 340 MoF, National Development and Reform Commission to promote, regulate and
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34 341 stabilise PPPs. However, the perception of PPP as merely a source of finance has led to
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36 342 some concerns, and the MoF (2019) has warned some local authorities against the
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38 343 excessive invisible public deficits that may result.
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47 345 **4.2 What do 'VfM' and VfM assessment mean in the context?**

48 346 As the pioneer of PPPs, the UK has been grappling longest with their assessment.
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50 347 Specifically, the UK has replaced the PSC model developed in 1999 with a three-level
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52 348 (programme level, project level, and procurement level) assessment in 2004 and 2006,
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58 ¹ The role of SOEs is also detected in Queensland and NSW, Australia (Queensland Government, 2015;
59 The NSW Treasury, 2017). In Queensland, the application of the PPP policy is not mandatory for
60 Government Owned Corporations, indicating an exempt from VfM assessment.

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2
3 349 withdrawn the quantitative assessment in 2012, and re-invigorated PSC in 2020 (HM
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5 350 Treasury, 2020). In contrast, Australia maintains its 2008 version while China updated
6
7 351 its 2015-practice in 2016. In addition to the UK's definition of VfM within these
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9 352 documents, Australia specifies 'VfM is a combination of the service outcome to be
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11 353 delivered by the private sector, together with the degree of risk transfer and financial
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13 354 implications for government.' Although China does not have an explicit VfM definition,
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15 355 it emphasises the improvement of service quality and operation efficiency, or reduced
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17 356 project cost over the project lifecycle (MoF, 2014).
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24 358 It should be noted that here VfM is considered in the context of a comparison between
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26 359 PPPs and traditional procurement. Other forms of procurement may fall into a wider
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28 360 evaluation. For example, Australia enacts a 'procurement options analysis' that can
29
30 361 evaluate PPPs against construct-only, design and construct, alliance contracting, etc. in
31
32 362 areas such as objectives, policy context, agency capability, and market. For PPPs to
33
34 363 qualify as a potential VfM alternative, each country has a shortlisting mechanism,
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36 364 shown in Table 4. Despite the \$50 million restriction in Australia, small projects that
37
38 365 present measurable risk transfer, whole-of-life costing, innovation, measurable outputs,
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40 366 asset utilisation, better integration, and competitive process may also qualify for PPPs.
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42 367 Compared with the conditions required in the UK, in Australia and China projects with
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44 368 certain characteristics (Table 4) can be identified. If the listed thresholds are met, a VfM
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46 369 assessment is then undertaken between PPPs and the traditional procurement approach.
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Table 4. Projects that may be suitable for PPPs

Countries	Conditions
UK	Non-IT/ICT projects*; Capital investment over £20 million
Australia	Capital investment over \$50 million (~£27.5 million)
China	Projects characterised with flexible price adjustment, high degree of market openness, high capital expenditure and stable demand.

371 * 105 ICT projects experienced major cost overruns (an average of 30.5%), delays and terminations
 372 (Whitfield, 2007).

373

374 4.3 When does VfM assessment take place?

375 The UK's three-stage VfM assessment happens during the annual budgeting round,
 376 outline business case (OBC) and post-OBC to financial close, respectively. In the latest
 377 *Green Book* (HM Treasury, 2020), these stages have been restructured as the longlist
 378 and shortlist appraisal stages. Australia and China conduct assessments after the
 379 investment decision is made and before the request for proposal is launched. In addition,
 380 China requires a mid-term assessment (3~5 years after the project is in operation) to
 381 check if the initial VfM is attained. There are also differences in the order of quantitative
 382 assessment (i.e., PSC) and qualitative assessment. Australia and China proceed with the
 383 quantitative assessment followed by a qualitative assessment. This emphasises the
 384 importance of the qualitative assessment, particularly when the PSC is close to the
 385 bidders' lowest price. The UK, however, has shifted from an identical practice to the
 386 opposite procedure, where critical success factors and other qualitative issues are
 387 assessed first, followed by a PSC calculation. A potential problem with this approach
 388 could be that the earlier qualitative assessment is not well interpreted (Coulson, 2008)
 389 and repeats the suitability test that is used where projects amenable to PPPs are
 390 subjected to preliminary screening. This is exacerbated by the evidence that UK's PSC
 391 guidance is biased towards PPPs (Pollock *et al.*, 2007). Similarly, China originally used
 392 a qualitative assessment certified by a group of experts, with the quantitative assessment

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3 393 being at the discretion of responsible agencies. The transformation to its current practice
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5 394 may again corroborate Coulson's (2008) concerns about qualitative VfM. The
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7 395 implication is that the UK should perhaps consider the general processes prevailing in
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9 396 Australia and China and thus avoid unnecessary repetition.
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398 **4.4 How is VfM assessed?**

399 *Quantitative VfM*

400 As mentioned above, PSC represents the hypothetical cost of a traditional procurement
401 approach which in turn exposes the cost difference between that and a PPP in order to
402 demonstrate VfM. Currently, the components of PSC are not detailed in UK's *Green*
403 *Book 2020*. Drawing on relevant literature and practices in Australia and China, a PSC
404 can be said to comprise: a 'raw' PSC (i.e., the construction and operation costs
405 associated with delivering the output specifications over a period), competitive
406 neutrality, transferred risk and retained risk. This benchmarking cost can be revisited
407 when consulting private sectors to illuminate potential market capability before the
408 formal tendering. In Australia, it is then compared against the PPP bidders' price to
409 quantify VfM. In China, a PPP value, which incorporates the cost the government is
410 required to bear in the PPP scenario, is calculated. As it is undertaken at the pre-tender
411 stage, this PPP value is akin to a shadow bid value (Grimsey and Lewis, 2005, p.353).
412 In addition to the PSC comparison against a PPP, an additional comparison between the
413 value of a PPP version of 'do the minimum' and a normal PPP is required in the UK.
414 Furthermore, the comparison can be widened to include 'Business as Usual', 'do the
415 minimum option', 'PPP', and any other viable alternative if no outsourcing or
416 insourcing change exists. This results in a cost-benefit analysis similar to the approach
417 taken at investment decision stage.
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419 The importance of selecting a discount rate which underpins the net present value
420 calculation is recognised. China proposes a discount rate based on local governments'
421 bond yields (e.g., a road project procured in 2019 in Fujian used 4.08%) for both the
422 PSC and PPP. It also requires that, if there are multiple discount rates available, the
423 minimum discount rate should be used. We understand this as an attempt to avoid the
424 debate that a higher discount rate underestimates the value of a PPP. The use of a single
425 discount rate also reveals the lack of a sensitivity analysis (which is common in the UK
426 and Australia) to trial the impact of different discount rates on decision-making.
427 Regarding Australia's social infrastructure, the PPP side discount rate is adjusted to
428 reward the private sector for assuming the transferred risks. For example, a risk
429 premium is added to the risk-free discount rate based on the percentage of risk sharing.
430 Although this practice has its roots in the capital asset model, the presumption that
431 governments can really transfer risks to the private sector can be disputed (Pollock and
432 Price, 2004). For its economic infrastructure, the project rate and risk-free rate are used
433 in a PSC and a PPP, respectively. In the UK, a 'social time preference rate' of 3.5% is
434 applied for all possible options at the shortlist stage. It shows the government prefers
435 the present society to the future, which in turn fits the institutional characteristic that
436 the UK's PFI is finance-oriented. This is reflected by the £199 billion that the UK
437 government has to pay for existing PFI projects until the 2040s (NAO, 2018).

438

439 To enable better risk management, all three countries uniformly price risks that
440 governments are exposed to in PSC. In the process, risks are identified, and their
441 probabilities and impacts are combined. Point estimate and Monte Carlo simulation are
442 recommended as techniques for risk quantification in the UK and Australia. The UK

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3 443 additionally suggests decision trees and real options for a follow-up decision as the
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5 444 project progresses. Instead of instructing these techniques, China promotes the use of
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7 445 scenario analysis (in cases where the impacts of risks can be measured but not their
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9 446 probabilities); a percentage method (when both impacts and probability are hard to
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11 447 estimate); and the ‘probability × impact’ method (when both can be calculated). Risk
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13 448 valuation is ultimately split into retained risks and transferred risks to prepare for the
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15 449 risk sharing that exists in PPPs. In order to avoid the illusion that a large project can be
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17 450 created with a small amount of investment, the UK has included an ‘optimism bias’
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19 451 adjustment based on experience of public-funded infrastructure. However, it is not clear
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21 452 how this concern is addressed in PPPs. For example, can a lower ‘optimism bias’
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23 453 percentage be applied to a PPP bid since private sectors are considered to have greater
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25 454 expertise? Moreover, empirical data reveal that change of ‘scope’ and ‘client
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27 455 requirement’ lead to project cost inflation (Love *et al.*, 2019). Similarly, transaction
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29 456 costs, which can be as high as 20% of the capital investment in PPPs are not clearly
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31 457 addressed. Such omissions can sow the seeds for an overestimation of a PSC and an
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33 458 underestimation of a PPP.
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42 *Qualitative VfM*

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44 461 In light of the extensive criticism of the UK’s PSC practice (e.g., Shaoul, 2005 and
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46 462 Pollock *et al.*, 2007), the quantitative assessment became dormant in 2012. As
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48 463 previously mentioned, despite the resurgence of PSC in 2020, its components and how
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50 464 it is operated are elusive. However, a new form of qualitative assessment at the longlist
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52 465 stage can reveal the social value of a project intervention. Table 5 outlines the
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54 466 qualitative factors that are considered in each of the three countries.
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Table 5. Qualitative factors in VfM assessment

Countries	Timing	Factors
UK	Before quantitative assessment	Measurable objectives and outputs; risk allocation and management; operational flexibility; equity, efficiency and accountability; innovation; contract duration and residual value; incentives and monitoring; The Market; timescale; skills and resources.
Australia	In conjunction with or after quantitative assessment	Service delivery and operational requirements; interface/relationship and project management; design considerations.
China	After quantitative assessment	Life-cycle integration; risk identification and allocation; performance and innovation; competitiveness; governments' capabilities; financeability; asset correlation in the bundled contract.

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469 Spackman (2002) and Sun *et al.* (2021) argue that financial constraint skews the
 470 ideology to PPP forms of procurement in the UK and China. Consequently, a large
 471 number of projects are made possible by leveraging up limited budgets to meet
 472 immediate infrastructure demands. The concomitant risk is an uplifting public debt level
 473 and the jeopardising of the long-term VfM (Ball *et al.*, 2001). In practice, a red flag was
 474 waved by China's State-owned Assets Supervision and Administration Commission
 475 (2021) regarding local SOEs' debt risk. The UK and Australia have a similar
 476 affordability analysis to avoid using PPPs simply as a way of off-balance sheet funding.
 477 Currently, this affordability is set at around 10-15% of total investment in public
 478 services. However, in Australia's qualitative assessment, *service* is emphasised through
 479 combined consideration of project management and prescient design inclusion. The
 480 ensuing result is its better performance at least in terms of cost and time (Raisbeck *et*
 481 *al.*, 2010). In summary, the qualitative assessment employed by each of the three
 482 governments reflects their policy orientation in a specific spectrum, but each is subject
 483 to methodological weaknesses.

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3 485 The emphasis on ‘service’ does not make the qualitative assessment in Australia
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5 486 faultless. Compared with the UK and China, not only is the number of factors
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7 487 considered confined but also their assessment is unclear. In the UK a series of simple
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9 488 questions (see Table 5) have to be answered by the procuring team to pass the evaluation.
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11 489 By contrast, China implements a relatively robust qualitative assessment. An even
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13 490 number (more than nine) of experts in the fields of finance, accounting, regional
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15 491 development, construction, etc. are summoned to rate the weighting and score of each
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17 492 factor using criteria set by the local PPP unit. A total weighting of 20% is assigned to
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19 493 the ‘supplementary factors’ that are not outlined in Table 5 to accommodate the project
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21 494 characteristics. The threshold between ‘fail’ and ‘pass’ is 60. However, a weighted
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23 495 average of over 80 can waive the need for a PSC, instigating pressure on the panel’s
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25 496 independence and professionalism. Issues that are common to all three countries are
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27 497 that: (1) factors are appraised purely against the PPP option (and not against its
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29 498 traditional procurement alternative); and (2) the criteria are generic and not sector-
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31 499 sensitive. For qualitative issues to play their part in VfM calculations there should be a
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33 500 carefully considered and rigorously designed qualitative assessment to minimise bias
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35 501 and subjectivity.
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503 **5. The Option Framework**

504 The UK has been confronted with the controversial use of PFI in that sometimes
505 services are compromised (Ahmad *et al.*, 2021), costs more expensive (40%) (NAO,
506 2018), and best VfM not achieved (Heald, 2003). The institutional characteristics and
507 VfM assessment have provided an understanding of why this is the case by comparing
508 the UK with Australia and China. It further corroborates the inherent political nature of
509 PPPs as argued by Hodge and Greve (2017). However, even when the institutional
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barriers are removed to advocate PPPs, our findings identify that: (1) VfM is increasingly lauded to rationalise PPPs in the scheme of things; and (2) lessons can be learnt from the global market to improve the VfM assessment. We concur with Wu *et al.* (2016) that as governments will be held ultimately accountable for public expenditure, a robust VfM assessment is required to defend the move to PPPs. In Figure 2, therefore, we propose an option framework as the catalyst for action albeit its conceptual nature. Its aim is to stimulate an enhanced practice and to accommodate the institutional characteristics (as we by no means advocate a ‘one-solution-fits-all’ approach). Notably, this framework is designed in the UK context. However, it can be adapted to fit other national settings.

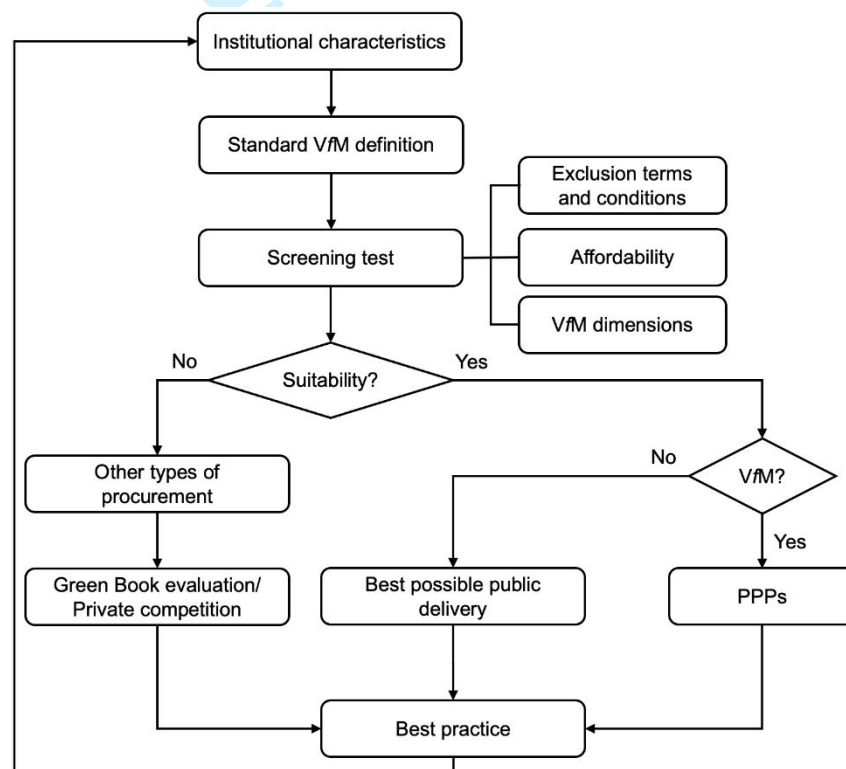


Figure 2. An option framework

In the face of what Pollock *et al.* (2002) call the ‘sleight of hand’ in justifying PPPs, a government-wide definition of VfM which integrates government-side considerations

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3 525 (e.g., cost savings) and taxpayer-side benefits is urgently needed. This compound
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5 526 definition is supported by the global market's consensus that cost is not the sole
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7 527 determinant of VfM. The emergent prototype (i.e., a standard VfM definition) then sets
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9 528 the tone for VfM assessment and particularly how qualitative assessment is employed.
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11 529 The implications are that quantitative assessment and qualitative assessment (which
12
13 530 often uses a quantitative scoring system) are complementary and together yield a solid
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15 531 decision. The importance of the qualitative assessment becomes more relevant as
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17 532 Vickerman (2021) argues that COVID-19 has made the prevailing competitive model
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19 533 (i.e., low costs as in the quantitative assessment) infeasible. In fact, Butcher (2018) has
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21 534 suggested a transition from 'on the market' to 'on the track' competition (i.e.,
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23 535 performance measurement as in the qualitative assessment) to sustain the UK's rail
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25 536 system.

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33 538 To address the problem of process repetition identified in the UK, a screening test is
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35 539 proposed prior to the VfM assessment. In it, the affordability analysis is similar to
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37 540 existing examples, but the 'exclusion terms and conditions' will shortlist projects for
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39 541 sector-specific VfM dimensions check. By doing so, this initial test appraises all
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41 542 available options rather than the previous PPP-only qualitative assessment, and includes
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43 543 the currently absent but important sector-specific circumstances (Roe and Craig, 2004).
44
45 544 The necessity of this is emphasised by the fiasco of ICT contracts revealed by Whitfield
46
47 545 (2007) which demonstrates that PPPs are not suitable for all areas. If PPPs are
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49 546 potentially suitable, they will be compared against the best possible public delivery,
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51 547 which would otherwise be the VfM option. In addition to the normal *Green Book*
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53 548 evaluation (e.g., 'Business as Usual' and 'do the minimum option'), we add *private*
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55 549 *competition* (as opposed to PSC) to ensure the best practice is selected from other types
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3 550 of procurement (e.g., design-build and alliancing). The rationale of competition in both
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5 551 sides lies in the fact that if PSC is there to demonstrate the VfM of PPPs, a ‘private
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7 552 sector comparator’ should be formed to stimulate the public sector (Burger and
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9 553 Hawkesworth, 2010). This ‘public-private’ and ‘private-public’ competition is
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11 554 important as it can compensate for the limited competition between bidders. This arises,
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13 555 according to OECD (2014), from the limited tender participation due to the complexity
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15 556 of PPPs, leading to potential monopoly and thus the sacrifice of VfM. Therefore, the
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17 557 result (best practice) generated from the rigorous screening and suitability test will be
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19 558 able to deliver VfM and in turn justify the institutional characteristics that originally
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21 559 underlie the VfM assessment. Equally, as the framework is fixed and consistent,
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23 560 concerns raised by Shaoul *et al.* (2010) and NAO (2018) over the previous obscure
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25 561 process can be mitigated to encourage transparency.
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33 563 **6. Conclusions**

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35 564 PPPs have been globally adopted to deliver infrastructure and/ or provide public
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37 565 services in lieu of the traditional approach to public sector procurement. PPPs are
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39 566 however, plagued with controversy as to whether the purported advantages materialise
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41 567 over project life-cycles. Failures of this nature have led to the suspension of PFI and
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43 568 PF2 in the UK, which inevitably maligned the already controversial VfM assessment
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45 569 that rationalises PPPs. Given the significant role infrastructure plays (including
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47 570 recovering from COVID-19) and the lack of detailed VfM assessment in the UK, it is
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49 571 imperative that best practices are extracted to safeguard the public purse when it
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51 572 prepares for future forms of PPP. The intention of this paper is not to conclude on the
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53 573 superiority of one practice over another. On the contrary, it calls for a sober
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3 574 consideration of global practice and argues for a more rigorous calibration of the
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5 575 existing procurement approach.
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10 577 In line with the theory of boundary spanning, the UK, Australia and China are selected
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12 578 to make sense of the way VfM assessment is underpinned by their individual
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14 579 institutional characteristics. Generally, the institutional characteristics (Table 2) have
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16 580 shaped how VfM is assessed. Specifically, the UK and China converge on the financial
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18 581 stimulus that drives the use of PPPs while Australia is service-oriented. Contrary to the
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20 582 stereotype, China is shown to be exerting the power of the market on PPP infrastructure
21
22 583 delivery. In terms of the concept of VfM, the UK focuses on quality and whole-of-life
23
24 584 cost while Australia seeks service, risk transfer and cost, and China prioritises cost,
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26 585 service quality and operational efficiency. As a consequence, PSC serves as a reliable
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28 586 tool in Australia and China for comparing the net present value of two options. The
29
30 587 record of PSC in the UK is a recurring theme of adoption, replacement, withdrawal and
31
32 588 re-adoption. Yet, the current version remains vague on its components and how it
33
34 589 operates. Other issues such as ‘optimism bias’ and transaction costs are touched upon
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36 590 but are not clearly estimated especially in the case of the evaluation of PPPs. In light of
37
38 591 the potential manipulation of PSC, the spotlight has shifted to qualitative assessment.
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40 592 Both Australia and China conduct such assessment after the PSC comparison, while the
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42 593 UK undertakes the opposite. The concrete steps take the form of questions in the UK
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44 594 and a weighted average in China capitalising on experts’ experiences. Australia, on the
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46 595 other hand, proposes a few qualitative factors without providing ‘how’. The findings
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48 596 further reveal that in spite of the ‘weaknesses’, China has a direct and simple way on
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50 597 both types of assessment whilst the UK is enigmatic on PSC and Australia falls short
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52 598 on qualitative assessment. The understanding of the institutional characteristics and
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3 599 VfM assessment then provide a foundation for the option framework (Figure 2) for
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5 600 improvement. By considering the UK context, under the auspices of a standard VfM
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7 601 definition, it combines a screening test, comprising shortlisting mechanisms,
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10 602 affordability analysis and the sector-specific VfM factors check, and a VfM assessment
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12 603 that consolidates public competition for PPPs and private competition for other types
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14 604 of procurement. The standardised and consistent approach to infrastructure procurement
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16 605 can solve the repetition and conflict inherent in the current evaluation tool and increase
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19 606 transparency.

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24 608 The three-country comparison is a limitation of the study, as there are undoubtedly other
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26 609 national approaches to be considered and this could form the basis of further work.

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28 610 Nevertheless, examining the similarities and differences of the three selected countries
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30 611 is informative because it: (1) presents a holistic VfM landscape for the public sector that
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32 612 aims to engage with PPPs for their infrastructure interventions; and (2) develops an
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34 613 option framework for the recalibration of the existing procurement approach and
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36 614 provides a platform for future research to empirically examine the option framework
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38 615 and the ensuing VfM.

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41 42 43 44 45 617 **References**

- 46
47 618 Ahmad, S, Connolly, C and Demirag, I (2020). Toward an understanding of strategic control at
48 619 a distance in public service delivery. *Accounting, Auditing & Accountability Journal*,
49 620 34(3), 558-590.
- 50
51 621 Aldrich, H and Herker, D (1977) Boundary spanning roles and organisation structure.
52 622 *Academy of Management*, 2(2), 217-230.
- 53
54 623 Almarri, K and Boussabaine H (2017) The influence of critical success factors on value for
55 624 money viability analysis in Public-Private Partnership projects. *Project Management*
56 625 *Journal*, 48(4), 93-106.
- 57
58
59
60

- 1
2
3 626 Australian Government (2019) Delivering for Australians: a world-class Australian Public
4 627 Service: the Government's APS reform agenda. Available at:
5 628 <https://pmc.gov.au/sites/default/files/publications/delivering-for-australians.pdf>
6 629 (Accessed: 13/3/2021).
7
8 630 Ball, R, Heafy, M and King, D (2001) The Private Finance Initiative: a good deal for the public
9 631 purse or a drain on future generations. "Policy & Politics", 29(1), 95–108.
10
11 632 Biggemann, S and Buttle, F (2009) Coordinated interaction and paradox in business
12 633 relationships. "Journal of Business & Industrial Marketing", 24(8), 549-560.
13
14 634 Burger, P and Hawkesworth, I (2011) How to attain value for money: Comparing PPP and
15 635 traditional infrastructure public procurement. "OECD Journal on
16 636 Budgeting", 11(1), 91–146.
17
18 637 Butcher, L (2018) "Passenger rail services in England", Available at:
19 638 <https://researchbriefings.files.parliament.uk/documents/SN06521/SN06521.pdf>
20 639 (Accessed: 1-12-2021).
21
22 640 Casady, C B and Baxter, D (2021) Procuring healthcare Public-Private Partnerships (PPPs)
23 641 through unsolicited proposals during the COVID-19 pandemic. "Journal of Public
24 642 Procurement", DOI: <https://doi.org/10.1108/JOPP-07-2020-0061>.
25
26 643 Chan, A P C, Lam, P T I, Chan, D W M, Cheung, E and Ke, Y (2009) Drivers for adopting
27 644 Public-Private Partnerships – empirical comparison between China and Hong Kong
28 645 Special Administrative Region. "ASCE Journal of Construction Engineering and
29 646 Management", 135(11), 1115-1124.
30
31 647 Cheng, Z, Ke, Y, Lin, J, Yang, Z and Cai, J (2016) Spatio-temporal dynamics of public private
32 648 partnership projects in China. "International Journal of Project Management", 34(7),
33 649 1242-1251.
34
35 650 Cherkos, F D and Jha, K N (2021) Drivers of road sector Public-Private Partnership adoption
36 651 in new and inexperienced markets. "ASCE Journal of Construction Engineering and
37 652 Management", 147(3), 04020186.
38
39 653 Chowdhury, A.N., Chen, P.H. and Tiong, R.L.K. (2011), Analysing the structure of public-
40 654 private partnership projects using network theory, "Construction Management and
41 655 Economics", 29(3), 247-260.
42
43 656 Collier, D (1993) The Comparative Method. In: A. Finifter (eds.) "Political Science: The State
44 657 and Society in a Comparative Perspective". London: Sage Publications.
45
46 682 Coulson, A (2008). Value for Money in PFI proposals: a commentary on the UK Treasury
47 683 guidelines for Public Sector Comparators. "Public Administration", 86(2), 483–98.
48
49 684
50 685 Cui, C, Wang, J, Liu, Y and Coffey, V (2019) Relationships among Value-for-Money drivers
51 686 of Public–Private Partnership infrastructure projects. "Journal of infrastructure
52 687 systems", 25, 04019007.
53
54 688 Davidoff, F (2019) Understanding contexts: how explanatory theories can help.
55 689 "Implementation Science", 14(23), 1-9.
56
57 690 Department of Infrastructure and Regional Development (2008) National guidelines for
58 691 infrastructure project delivery. Australian Government.
59
60 692 Dixon, T, Pottinger, G and Jordan, A (2005) Lessons from the private finance initiative in the
61 693 UK: Benefits, problems and critical success factors. "Journal of Property Investment
62 694 and Finance", 23(5), 412–423.
63
64 695 Esser, F, and Vliegthart, R (2017) Comparative research methods. In: J. Matthes, C. S. Davis
65 696 and R.F. Potter (eds.) "The international encyclopedia of communication research
66 697 methods". London: Wiley-Blackwell.

- 1
2
3 698 Gerard, H and Kearns, J (2011) *The Australian Economy in the 2000s*. Reserve Bank of
4 699 Australia: Sydney.
- 5
6 700 Grasman S E, Faulin J and Lera-López, F (2014) Integrating environmental outcomes into
7 701 transport public-private partnerships. "International Journal of Sustainable
8 702 Transportation", 8(6), 399–422.
- 9
10 703 Grimsey, D and Lewis, M K (2005) Are public private partnerships value for money?
11 704 Evaluating alternative approaches and comparing academic and practitioner views.
12 705 "Accounting Forum", 29, 345-378.
- 13
14 706 Hang, D T T (2016) Evaluating the decision-making on a public-private partnership to finance
15 707 a road project in vietnam. "Journal of International Studies", 9(3), 124-137.
- 16
17 708 Heald, D (2003) Value for money tests and accounting treatment in PFI schemes. "Accounting
18 709 Auditing Accountability Journal", 16(3), 342–371.
- 19
20 710 Heald, D A and McLeod, A (2002) "Public expenditure", *The Law of Scotland: Stair Memorial*
21 711 *Encyclopaedia Constitutional Law Volume*, Butterworths, Edinburgh, 389-479.
- 22
23 712 Hertogh, M, Baker, S, Staal-Ong, P L and Westerveld, E (2008) Managing large infrastructure
24 713 projects – research on best practices and lessons learnt in large infrastructure projects
25 714 in Europe. Available at: <https://netlipse.eu/media/18750/netlipse%20book.pdf>
26 715 (Accessed: 3-5-2021).
- 27
28 716 HM Treasury (2004) "Value for Money Assessment Guidance". Available at:
29 717 <https://delta.bipsolutions.com/docstore/pdf/8038.pdf> (Assessed: 10-3-2021).
- 30
31 718 HM Treasury (2006) "Value for Money Assessment Guidance". Available at:
32 719 [https://webarchive.nationalarchives.gov.uk/ukgwa/20130103024255/http://www.hm-](https://webarchive.nationalarchives.gov.uk/ukgwa/20130103024255/http://www.hm-treasury.gov.uk/d/vfm_assessmentguidance061006opt.pdf)
33 720 [treasury.gov.uk/d/vfm_assessmentguidance061006opt.pdf](https://webarchive.nationalarchives.gov.uk/ukgwa/20130103024255/http://www.hm-treasury.gov.uk/d/vfm_assessmentguidance061006opt.pdf) (Assessed: 10-3-2021).
- 34
35 721 HM Treasury (2011) "Quantitative assessment: user guide". Available at:
36 722 [https://webarchive.nationalarchives.gov.uk/ukgwa/20130102211853/http://www.hm-](https://webarchive.nationalarchives.gov.uk/ukgwa/20130102211853/http://www.hm-treasury.gov.uk/infrastructure_ppp_vfm.htm)
37 723 [treasury.gov.uk/infrastructure_ppp_vfm.htm](https://webarchive.nationalarchives.gov.uk/ukgwa/20130102211853/http://www.hm-treasury.gov.uk/infrastructure_ppp_vfm.htm) (Assessed: 10-3-2021).
- 38
39 724 HM Treasury (2020) "National Infrastructure Strategy: fairer, faster, greener". Available at:
40 725 [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachme](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/938539/NIS_Report_Web_Accessible.pdf)
41 726 [nt_data/file/938539/NIS_Report_Web_Accessible.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/938539/NIS_Report_Web_Accessible.pdf) (Accessed: 11-3-2021).
- 42
43 727 HM Treasury (2020) *The Green Book: Central government guidance on appraisal and*
44 728 *evaluation*. London: The National Archives.
- 45
46 729 HM Treasury (2021) *PFI centre of excellence*. UK Government.
- 47
48 730 Hodge, G A and Greve, C (2007) Public-private partnerships: an international performance
49 731 review. "Public Administration Review", 67(3), 545–558.
- 50
51 732 Hodge, G A and Greve, C (2017). On Public-Private Partnership performance. "Public Works
52 733 Management & Policy", 22(1), 55–78.
- 53
54 734 Hodge, G A, Greve, C and Biygautane, M (2018) Do PPP's work? What and how have we been
55 735 learning so far? "Public Management Review", 20(8), 1105-1121.
- 56
57 736 Hood, C (1991) A public management for all seasons? "Public Administration", 69, 3-19.
- 58
59 737 Ismail, S (2013) Drivers of value for money public private partnership projects in
60 738 Malaysia. "Asian Review of Accounting", 21(3), 241–256.
- 739 Jackson, P (2012) "Value for Money and international development: Deconstructing myths to
740 promote a more constructive discussion". Paris: OECD Development Co-operation
741 Directorate.
- 742 Jin, X and Zhang, G (2011) Modelling optimal risk allocation in PPP projects using artificial
743 neural networks. "International Journal of Project Management", 29(5), 591-603.

- 1
2
3 744 Jomo, K S, Chowdhury, A, Sharma, K and Platz, D (2016) “Public-Private Partnerships and the
4 745 2030 Agenda for Sustainable Development: Fit for Purpose?” UN Department of
5 746 Economic & Social Affairs, Working Paper No. 148ST/ESA/2016/DWP/148, United
6 747 Nations, New York.
- 7
8 748 Keçi, J. (2019) Infrastructure public private partnership implementation and risk management
9 749 – Lessons from Albanian approach. *IABSE Symposium, Guimaraes 2019: Towards a*
10 750 *Resilient Built Environment Risk and Asset Management - Report*, 2019. 900-911.
- 11 751 Kumar, L, Jindal, A and Velaga, N R (2018) Financial risk assessment and modelling of PPP
12 752 based Indian highway infrastructure projects. “Transport Policy”, 62, 2-11.
- 13
14 753 Legal and General (2020) “The power of pensions: how pension savings can help to build the
15 754 UK’s infrastructure and drive growth in all regions”. Available at:
16 755 [https://www.legalandgeneralgroup.com/media/18009/legal-general-the-power-of-](https://www.legalandgeneralgroup.com/media/18009/legal-general-the-power-of-pensions-17-june-2020.pdf)
17 756 [pensions-17-june-2020.pdf](https://www.legalandgeneralgroup.com/media/18009/legal-general-the-power-of-pensions-17-june-2020.pdf) (Accessed: 3-4-2021).
- 18
19 757 Leigland, J (2018) Public-Private Partnerships in developing countries: The emerging evidence-
20 758 based critique. “The World Bank Research Observer”, 33(1), 103–134.
- 21 759 Liu, H J, Love, P E D, Smith, J, Sing, M C and Matthews, J (2018) Evaluation of public private
22 760 partnerships: a life-cycle performance prism for ensuring value for
23 761 money. “Environment and Planning C-Politics and Space”, 36(6), 1133-1153.
- 24
25 762 Lor, P J (2010) International and comparative librarianship”, in M.J. Bates and M.N. Maack,
26 763 (eds.) “Encyclopedia of Library and Information Science”. London: Taylor & Francis.
- 27
28 764 Love, P E D and Ika, L A (2021) The ‘context’ of transport project cost performance: insights
29 765 from contract award to final construction costs. “Research in Transportation
30 766 Economics”, DOI: doi.org/10.1016/j.retrec.2021.101062.
- 31 767 Love, P E D, Sing, M C P, Ika, L A and Newton, S (2019) The cost performance of
32 768 transportation projects: The fallacy of the planning fallacy account. “Transportation
33 769 Research Part A: Policy and Practice”, 122, 1–20.
- 34
35 770 Ma, H, Zeng, S, Lin, H and Zeng, R (2020) Impact of public sector on sustainability of public-
36 771 private partnership projects. “ASCE Journal of Construction Engineering and
37 772 Management”, 146(2), 04019104.
- 38
39 773 Marrone, J A (2010) Team boundary spanning: a multilevel review of past research and
40 774 proposals for the future. “Journal of Management”, 36(4), 911-940.
- 41 775 McKevitt, D (2015) Debate: Value for money—in search of a definition. “Public Money &
42 776 Management”, 35(2), 99-100.
- 43
44 777 Ministry of Finance (2014) Notice on the problems regarding the promotion of PPPs. Available
45 778 at: http://jrs.mof.gov.cn/zhuanti2019/ppp/zcfbPPP/201410/t20141031_1155346.htm
46 779 (Accessed: 21-6-2021).
- 47
48 780 Ministry of Finance (2015) Notice on launching ‘PPP Value for Money Assessment Guidance’.
49 781 Available at: http://www.ccg.gov.cn/ppp/zcfg/201601/t20160106_6428967.htm
50 782 (Accessed: 21-6-2021).
- 51 783 Ministry of Finance (2016) Notice on launching ‘PPP Value for Money Assessment Guidance
52 784 (updated version)’. Available at: [http://www.pppcenter.org.cn/zcfg/bwzc/czb/201611/](http://www.pppcenter.org.cn/zcfg/bwzc/czb/201611/144829KJp.html)
53 785 [144829KJp.html](http://www.pppcenter.org.cn/zcfg/bwzc/czb/201611/144829KJp.html) (Accessed: 21-6-2021).
- 54
55 786 Ministry of Finance (2019) Notice on the reasonable development of PPPs. Available at:
56 787 http://www.gov.cn/xinwen/2019-03/10/content_5372559.htm (Accessed: 21-6-2021).
- 57
58 788 Morallos, D and Amekudzi, A (2008) The state of the practice of value for money analysis in
59 789 comparing public private partnerships and traditional procurements. “Public Works
60 790 Management Policy”, 13(2), 114–125.

- 1
2
3 791 Morillos, D, Amekudzi, A, Ross, C and Meyer, M (2009). Value for money analysis in US
4 792 transportation public-private partnerships. "Transportation Research
5 793 Record", 2115(1), 27-36.
6
7 794 Muleya, F, Zulu, S and Nanchengwa, P C (2020) Investigating the role of the public private
8 795 partnership act on private sector participation in PPP projects: a case of Zambia.
9 796 "Journal of Construction Management", 20(6), 598-612.
10
11 797 National Audit Office (2018) PFI and PF2. Available at: [https://www.nao.org.uk/wp-](https://www.nao.org.uk/wp-content/uploads/2018/01/PFI-and-PF2.pdf)
12 798 [content/uploads/2018/01/PFI-and-PF2.pdf](https://www.nao.org.uk/wp-content/uploads/2018/01/PFI-and-PF2.pdf) (Accessed: 3-12-2020).
13
14 799 Ng, A and Loosemore, M (2007) Risk allocation in the private provision of public infrastructure.
15 800 "International Journal of Project Management", 25(1), 66-76.
16
17 801 Ng, S T, Wong, Y M and Wong, J M (2012) Factors influencing the success of PPP at
18 802 feasibility stage—a tripartite comparison study in Hong Kong. "Habitat
19 803 International", 36(4), 423-432.
20
21 804 OECD (2014) Competition issues in Public Private Partnerships. Available at:
22 805 <https://www.oecd.org/competition/competitionissuesinpublic-privatepartnerships.htm>
23 806 (3-5-2020).
24
25 807 Office for National Statistics (2021) UK government debt and deficit: June 2021. Available at:
26 808 [https://www.ons.gov.uk/economy/governmentpublicsectorandtaxes/publicspending/b-](https://www.ons.gov.uk/economy/governmentpublicsectorandtaxes/publicspending/bulletins/ukgovernmentdebtanddeficitforeurostatmaast/june2021)
27 809 [ulletins/ukgovernmentdebtanddeficitforeurostatmaast/june2021](https://www.ons.gov.uk/economy/governmentpublicsectorandtaxes/publicspending/bulletins/ukgovernmentdebtanddeficitforeurostatmaast/june2021) (Accessed: 1-12-
28 810 2021).
29
30 811 OMEGA Centre (2012) Mega projects executive summary. Lessons for decision-makers: An
31 812 analysis of selected large-scale transport infrastructure projects. Available at:
32 813 [http://www.omegacentre.bartlett.ucl.ac.uk/wp-content/uploads/2014/11/Mega-](http://www.omegacentre.bartlett.ucl.ac.uk/wp-content/uploads/2014/11/Mega-Projects-Executive-Summary.pdf)
33 814 [Projects-Executive-Summary.pdf](http://www.omegacentre.bartlett.ucl.ac.uk/wp-content/uploads/2014/11/Mega-Projects-Executive-Summary.pdf) (3-5-2021).
34
35 815 Opara, M (2018) Value for money and risk relationships in Public Private Partnerships:
36 816 evaluating program-based evidence. "Australian Accounting Review", 28(3), 391-404.
37
38 817 Perera, S, Silva, S D, Osei-Kyei, R, Yin, Y, Zhou, L, Jin, X, Fernando, N, Sabatunde, S and
39 818 Feng, Y (2019) BIM execution framework for early-stage estimating in PPP project.
40 819 London: RICS.
41
42 820 Pollock, A M, Shaoul, J and Vickers, N (2002) Private finance and 'value for money' in NHS
43 821 hospitals: a policy in search of a rationale. "British Medical Journal", 324, 1205-1209.
44
45 822 Pollock, A. M. and Price, D. 2004. Public Risk for Private Gain? The Public Audit Implications
46 823 of Risk Transfer and Private Finance, London: UNISON.
47
48 824 Pollock, A M, Price, D and Playe, S (2007) An examination of the UK Treasury's evidence base
49 825 for cost and time overrun data in UK Value-for-Money policy and appraisal. "Public
50 826 Money and Management", 27(2), 127-133.
51
52 827 Queensland Government (2015) Project assessment framework: Queensland PPP supporting
53 828 guidelines. Available at: [https://s3.treasury.qld.gov.au/files/paf-supporting-](https://s3.treasury.qld.gov.au/files/paf-supporting-guidelines.pdf?v=2)
54 829 [guidelines.pdf?v=2](https://s3.treasury.qld.gov.au/files/paf-supporting-guidelines.pdf?v=2) (Accessed: 3-6-2021).
55
56 830 Raisbeck, P, Duffield, C and Xu, M (2010) Comparative performance of PPPs and traditional
57 831 procurement in Australia. "Construction Management and Economics", 28(4), 345-
58 832 359.
59
60 833 Roe, P and Craig, A (2004) "Reforming the Private Finance Initiative". Centre for Policy
61 834 Studies, Surrey: 4-Print.

- 1
2
3 835 State-owned Assets Supervision and Administration Commission (2021) Guidance on
4 836 enhancing local SOE's debt risk management. Available at:
5 837 http://www.gov.cn/zhengce/zhengceku/2021-03/26/content_5595867.htm (Accessed:
6 838 2-6-2021).
- 7
8 839 Seawright, J and Gerring, J (2008) Case selection techniques in case study research: a menu of
9 840 qualitative and quantitative options. "Political Research Quarterly", 61(2), 294-308.
- 10
11 841 Shaoul, J (2005) A critical financial analysis of the private finance initiative: Selecting a
12 842 financing method or allocating economic wealth? "Critical Perspectives on
13 843 Accounting", 16(4), 441-471.
- 14
15 844 Shaoul, J, Stafford, A and Stapleton, P (2010) Financial black holes: the disclosure and
16 845 transparency of private financed roads in the UK. "Accounting, Auditing &
17 846 Accountability Journal", 23(2), 229-255.
- 18
19 847 Shi, J, Duan, K, Wu, G, Zhang, R and Feng, X (2020) Comprehensive metrological and content
20 848 analysis of the public-private partnerships (PPPs) research field: a new bibliometric
21 849 journey. "Scientometrics", 124, 2145-2184.
- 22
23 850 Spackman, M (2002) Public-private partnerships: lessons from the British
24 851 approach. "Economic Systems", 26(3), 283-301.
- 25
26 852 Sun, Q, Zhang, S, Ke, Y, Ma, X and Galvin, S (2021) Comparative analysis on the PPP research
27 853 in Chinese and international journals: a bibliometric perspective. "International Journal
28 854 of Construction Management", 1-21.
- 29
30 855 The NSW Treasury (2017) NSW Public Private Partnership guidelines: preparation,
31 856 procurement and contract management. Available at:
32 857 [https://www.treasury.nsw.gov.au/sites/default/files/2021-06/TPP17-](https://www.treasury.nsw.gov.au/sites/default/files/2021-06/TPP17-07%20NSW%20Public%20Private%20Partnerships%20Guidelines%202017-1.pdf)
33 858 [07%20NSW%20Public%20Private%20Partnerships%20Guidelines%202017-1.pdf](https://www.treasury.nsw.gov.au/sites/default/files/2021-06/TPP17-07%20NSW%20Public%20Private%20Partnerships%20Guidelines%202017-1.pdf)
34 859 (Accessed: 3-6-2021).
- 35
36 860 The World Bank (2006) "Equity and development". Oxford University Press: New York.
- 37
38 861 The World Bank (2017) "Public Private Partnership reference guide: version 3". Washington
39 862 DC: The World Bank.
- 40
41 863 The World Bank (2020) "The global economic outlook during the COVID-19 pandemic: a
42 864 changing world". Available at:
43 865 [https://www.worldbank.org/en/news/feature/2020/06/08/the-global-economic-](https://www.worldbank.org/en/news/feature/2020/06/08/the-global-economic-outlook-during-the-covid-19-pandemic-a-changed-world)
44 866 [outlook-during-the-covid-19-pandemic-a-changed-world](https://www.worldbank.org/en/news/feature/2020/06/08/the-global-economic-outlook-during-the-covid-19-pandemic-a-changed-world) (Accessed: 2-3-2021).
- 45
46 867 Treasury and Finance (2016) "Policy, guidelines and templates". Available at:
47 868 [https://www.dtf.vic.gov.au/public-private-partnerships/policy-guidelines-and-](https://www.dtf.vic.gov.au/public-private-partnerships/policy-guidelines-and-templates)
48 869 [templates](https://www.dtf.vic.gov.au/public-private-partnerships/policy-guidelines-and-templates) (Accessed: 2-3-2021).
- 49
50 870 UK Parliament (2021) "Infrastructure policies and investment". Available at:
51 871 <https://commonslibrary.parliament.uk/research-briefings/sn06594/> (Accessed: 2-11-
52 872 2021).
- 53
54 873 Van Den Hurk, M (2018) Public-Private Partnerships: Where do we go from here? A Belgian
55 874 perspective. "Public Works Management and Policy", 23(3), 274-294.
- 56
57 875 Verweij, S and van Meerkerk, I (2021) Do public-private partnerships achieve better time and
58 876 cost performance than regular contracts? "Public Money & Management", 41(4), 286-
59 877 295.
- 878
879 Vickerman, R (2021) Will Covid-19 put the public back in public transport? A UK
880 perspective. "Transport Policy", 103, 95-102.
- 881
882 Whitfield, D (2007) Cost overruns, delays and terminations in 105 outsourced public sector ICT
883 contracts. ESSU Research Report No. 3, European Services Strategy Unit.

- 1
2
3 882 Wu, J, Liu, J, Jin, X and Sing, M C P (2016) Government accountability within infrastructure
4 883 public-private partnerships. "International Journal of Project Management", 34(8),
5 884 1471-1478.
- 6
7 885 Xiong, M, Whetsell, T A, Zhao, J Z and Cheng, S (2021) Centrally administered state-owned
8 886 enterprises' engagement in China's public-private partnerships: a social network anal
9 887 ysis. "Area Development and Policy", DOI: [https://doi.org/10.1080/23792949.2020.1](https://doi.org/10.1080/23792949.2020.1851608)
10 888 [851608](https://doi.org/10.1080/23792949.2020.1851608).
- 11 889 Xiong, W, Zhong, N, Wang, F, Zhang, M and Chen, B (2021) Political opportunism and
12 890 transaction costs in contractual choice of public-private partnerships. "Public
13 891 Administration", 1-20.
- 14
15 892 Zhang, X and Tariq S (2020) Failure mechanisms in international water PPP projects: a public
16 893 sector perspective. "ASCE Journal of Construction Engineering and Management",
17 894 146(6), 04020055.
- 18
19 895 Zhao, J, Liu, J, Love, P E D, Greenwood, D and Michael C P S (2022) Public private
20 896 partnerships: a dynamic discrete choice model for road projects. "Socio-Economic
21 897 Planning Sciences", DOI: <https://doi.org/10.1016/j.seps.2022.101227>.
- 22
23
24
25
26
27
28
29
30
31
32
33
34
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37
38
39
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