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The impact of information asymmetry on public-private partnership contracts: Theoretical approaches

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Institutional arrangements for making the benefits of expert information systems technology available to state enterprises in South Africa have been impacted by information asymmetry. The proliferation of infrastructure improvements has become palpable, hence the necessity to address information asymmetry in the public sector. The reliance on the private sector for expertise and knowledge has exacerbated the information asymmetry gap. A systematic literature review was done on 102 articles using words such as public value, return on government investments, public-private partnerships governance and public accountability, risk management, risk-sharing, and information asymmetry. Content analysis with the use of ATLAS/TI an automated tool was used to analyse the 102 articles that were published in management journals, conference proceedings, and books. The struggle faced by the public sector to overcome information asymmetry was discussed and described. The findings indicated that there is a specific gap in the literature relating to information asymmetry, regarding information and communication technology service delivery using PPP contracts. The contribution of this paper provides literature on information asymmetry and the management of PPP contracts. The employment of skilled information technology professionals in the public sector could eliminate the dependency on private sector resources, thereby minimising the risk of information asymmetry.

Key words: Governance, risk sharing, public value, accountability.

INTRODUCTION

The advent of the South African democracy in1994 has seen an increasing demand for Information and Communication Technology (ICT) infrastructure improvements through Public-Private Partnership (PPP) contracts. This has highlighted the impact of information asymmetry challenges in the public sector which is almost always, at a disadvantage due to lack of expertise and technical competence on work that is performed by the private sector (Lohmann and Rötzel, 2014). While corruption is rife all over the world (Umar and Okafor, 2015), in South Africa under the term "state capture" it has proven that state enterprises has literally destroyed South Africa's economy by providing contracts to consulting companies and not receiving the value these contracts purported to provide (Madonsela, 2016). The challenges of information asymmetry are one of uneven sharing of knowledge and control between the public and private partners and might create power brawls between

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workers of the partners (De Schepper et al., 2015; Galasso, 2015; Marques and Berg, 2011). The challenges with retention and recruitment of skilled resources have been the driving force for government to engage the assistance of the private sector through PPP type collaborative partnerships to upgrade information technology infrastructure (Fourie and Burger, 2000).

The novel philosophy is that traditional ways of delivering service should give way for new inventive techniques to overwhelmed government resource restraints, therefore PPPs are regarded as a practical attainment selection, which was endorsed by Treasury Regulation No.16 of 2004 (Treasury, 2004). Whereas PPPs have grown to be the latest procurement phenomenon in South Africa's public management they have been in use in urbanized economies of North America, Europe, and in Australia for years (Linder, 1999). PPPs are seen as exceptional purpose vehicles to introduce the private sector into public service sectors, for example, education, hospitals, labour, and prisons, to offer progressive skills as well as to attain competence (Treasury, 2012; Fombad, 2013).

From 1999, the government of South Africa has implemented more than 22 PPP enterprises under Treasury Regulation 16 with different amounts of success (National Treasury, 2019). The initiatives might be characterised into five diverse sectors: Health, transport and road, information systems, tourism, and others. Majority of this ingenuity was conducted but the results were not observe relating to contract targets such as performance monitoring issues, problems in the retaining of expert resources and cost overruns. Van der Merwe (2011) stated that PPP contract failures are because of management ineffectiveness, information irregularity, opportunistic negotiating, and absence of governance and responsibility as well as relationship breakdowns. The public sector is typically at a drawback because of expertise deficiency and technical capability on the work being executed by the private partner, resulting in information irregularity in favour of the private partner (Lohmann and Rötzel, 2014; Spiller and Moszoro, 2014).

Research done to date has concentrated on controlling outlines for PPPs, and the trials of recognising international best practices. Fombad (2013) specifies that organised blockages have fashioned ambiguities in PPP contracts, inspiring international best practice for the responsibility of the efficacious conveyance of PPP projects. The lack of expertise for ICT service delivery projects in the public sector has created dependency on the private sector and leaves the public sector vulnerable. The dearth of literature that exists on the challenges of information asymmetry should be enhanced. It has been recognised that PPP dealings are 'incomplete contracts', categorised with possibly inconsistent interests, and loss of control to the public sector, creating dependences on the private partner (Esteve et al., 2012).

The gap in the study is to explore the impact of information asymmetry affecting PPPs and the challenges faced by the public sector to increase knowledge and expertise is the main motivation for this study. The paper is structured as follow: A discussion on PPPs, information asymmetry literature and the role of agency theory emerging from literature. This is followed by the research methodology where coding was discussed for the analysis using ATLAS/TI to arrive at the findings. The next section of the paper provides empirical findings from the themes derived from the literature review process. The final section will reflect on both theory and practical implications that emanate from information asymmetry and will provide a conclusion and suggestions for further research.

Theoretical discussion: Public-private partnerships, information asymmetry and agency theory

Hodge and Greve (2005), as well as Linder (1999), insecurely defined PPP initiatives as cooperative institutional schedules between the public and private sector for the effectual understanding of some projects. In 1992, PPPs were projected as an instrument of the New Public Management movement introduced by The United Kingdom (UK) government. The PPP policy was meant to create Private Finance Initiatives (PFI) to inspire private involvement in substructure improvement and social service provision, to bring effectiveness to public sector controls (Burchell, 2000). Lately, researchers have regarded PPPs as institutional activities to achieve public value for which governments are deficient in the know-how (Naik et al., 2010; Liu et al., 2014; Reynaers and De Graaf, 2014). In the succeeding years, most advanced as well as emerging economies approved PPP guidelines by setting up PPP units, for example in South Africa. Presently these partnerships between the public and the private sectors are recognised substitutes to the customary state delivery of public services. Questionably, this combined working method permits the public and private sectors to blend resources and skill for the drive to achieve a common result, which beforehand could not be achieved by just one group (Akintoye et al., 2003). Conversely, the application of PPP is not stress-free and directs (Ameyaw and Chan, 2015).

While some PPPs have had a positive performance on results, others have had remarkable disappointments that have led some scholars to express caution in their adoption (Ameyaw and Chan, 2015). As stated by the World Bank (2003), the termination and renegotiation of PPP agreements for ICT service providers globally have made headlines and, for numerous intentions, the renegotiation of contracts has not been an uncommon incidence. The World Bank states that the aims for termination of PPP jobs comprise:

(1) The private sector terminated the provision of services

to public sector workers or failed to deliver licence contracts for software practice;
(2) The private sector conveyed economic awareness of the project back to the public sector before the end of the venture;
(3) The private sector deserted the project and failed to transmit information to stakeholders of the public sector.

In the current incarnation, the PPP has its roots in the new public management idea of decreasing the part of the government and growing the role of private sectors in the society by inviting private funding for public projects via PFIs (Salamon, 1995; Savas and Savas, 2000). Spectacular let-downs of the PFI method, like the loss of government regulator and resourceful conduct (avoidance, price extorting) by private sectors, led to the reconsidering of the arrangement of private input in the public domain. This resulted in the awareness of PPPs as a tool for teamwork and shared regulator of public schemes (Bloomfield, 2006; Chong et al., 2006). PPPs as collaborations for distributing structure or facilities are considered groups for cooperatively structuring, possessing and functioning arrangement and facilities, wherein each partner's assignment and the aims of the corporation are well-defined in a lawful contract that stipulates the joint privileges and duties (Gasiorowski and Moszoro, 2008; Hodge and Greve, 2007). Nevertheless, monetary arrangement and proprietorship rights of PPPs can still differ between two extremes:

1. Public ownership and operation of services or infrastructure, and
2. Private ownership and operation of the services or infrastructure (Hart, 2003; Gasiorowski and Moszoro, 2008).

The PPP prototype of private use and procedure of public services has been extensively criticised as a neoliberal approach to privilege private enterprises with no thought for citizens and society (Vining and Boardman 2008; Johnston and Gudergan, 2007). Nevertheless, international groups such as International Monetary Fund (IMF) and the World Bank repeatedly push this prototype on governments in unindustrialized and emerging countries (Gasiorowski and Moszoro, 2008; McKee, Edwards and Atun, 2006; Estache and Serebrisky, 2004). The central squabble of its supporters is that it is an ideal capital arrangement for unindustrialized and emerging economies with resources constrictions (Gasiorowski and Moszoro, 2008). Nevertheless, these nations are often feeble in governance and lack negotiating power and the procedural capability to carry out governance arrangements to efficiently accomplish foreign private partners (Marin, 2009; Abednego and Ogunlana, 2006). The PPP model of private ownership and operating has also had some remarkable catastrophes and has been extensively condemned in advanced countries like the United Kingdom (English, 2007; Johnston and Gudergan, 2007; Vining and Boardman, 2008). Thus, public administration scholars have come to view PPPs as very risky (Wettenhall, 2003; Teisman and Klijn, 2002). Global knowledge displays that PPP constricting privations ‘ ex-ante' (assessment and good groundwork) of contracts that cover easy-going and tough matters of governance; these could punish the representative for poor presentation and could remove the moral threat (European Commission, 2003).

Information asymmetry

Information irregularities are obtained in agency theory, where the agent keeps more information than the principal, thus surreptitiously influencing the representative (Eisenhardt, 1989). This is problematic for the representative to notice up until it is too late as it is attempting to upsurge its know-how. Information Asymmetry arises when a situation favours the more knowledgeable party in a transaction (Clarkson et al., 2007). In relation to PPPs, the private sector has an upper hand on the public sector, since the private sector works on multiple projects in different organisations and would know how to address certain challenges that the public sector does not have exposure too (Jensen, 2003). Information asymmetry is sometimes due to deliberately withheld information because there is no incentive to share the information (Almeida, 2012). New information sharing practices for a contract are required in partnerships to try and address information asymmetry and create awareness. It often stems from inadequate information sharing and can have destructive consequences for parties who are information-poor or information-rich (Clarkson et al., 2007).

The influence of information asymmetry irregularity is because of moral threat also denoted to as "ethical threat" which permits the representative to challenge the principal's position neglecting the main defenceless (Lohmann and Rötzel, 2014). Information asymmetry irregularity does not essentially stand as an issue if the representative's wellbeing is associated with the principals for the profit of both. Irregularity, nevertheless, has influenced the level of profits distressing the principal and this adopts that goal conflict occurs between the principal and the representative. When the agent's conduct is not handled or controlled, the aim of the principal is improbable to be achieved. Based on this conduct, the principal will smear novel methods of constricting to reduce nonconformity from identified objectives (Caers et al., 2006).

Levinthal (1988) pointed out that agency theory distinguishes between symmetric information and asymmetric information models of which both these models assume that the principal can monitor the agents' behaviour. Furthermore, both models assume that the principal can observe a certain outcome, produced by the combination of the level of effort exerted by the agent and the occurrence of a certain state of nature. Thus, referring to some exogenous variables that influence productivity levels but lie beyond the control of the agent), but differ based on information available to the principal. The models also generally assume the agent is not very keen on taking risks. When offered the choice between a contract with a fixed fee and a contract with a variable pay that yields the same average height (lower than the fixed fee in case of an unfortunate outcome and higher in case of a good outcome), the agent will always opt for the certainty of the former (Levinthal, 1988). The agent can only be persuaded to opt for the latter when the average compensation level is significantly higher than the one under the fixed-fee contract that is, the agent is assumed to be, risk-averse. The principal, on the other hand, is generally assumed to be risk-neutral (Eisenhardt, 1989).

Within the symmetric information model, it is assumed that the principal also knows the information possessed by the agent. In other words, the principal is perfectly informed as to the character of his agent and can observe the effort exerted on the task. Levinthal (1988) have indicated that the principal can collaboratively design a contract that service the agent and himself on agreed compensation upon the level of effort exerted.

The principal will almost always desire the maximum effort and will persuade the agent in that regard, however it is always dependent on how the contract was structured and the knowledge level of the principal to manage the agent. Within the asymmetric information model, the informational symmetry between principal and agent is destabilized by the introduction of moral hazard or adverse selection (Almeida, 2012). Moral hazard refers to the fact that the precise level of effort the agent dedicates to a particular task can be shrouded, leaving the principal to make an educated guess about his contractual counterpart's true efforts.

The agent, however, will always know how much effort is dedicated to a task. Adverse selection, on the other hand, refers to the fact that the principal is unable to observe relevant characteristics of the agent before forging the contract. The introduction of an informational asymmetry is not necessarily a problem. If the agent's interests are perfectly aligned with the principal's, asymmetry will not affect the level of benefits streamed toward the principal. However, one of agency theory's basic assumptions is that a conflict exists between the interests of the principal and those of his agent.

RESEARCH METHODOLOGY

A qualitative research approach was used to review articles published in peer-reviewed journals, conferences, and books regardless of their impact about PPPs challenges and information asymmetry from 1994 - 2016 for the analysis of this paper. The research method for uncovering the assumptions in the empirical materials was content analysis using ATLAS/TI (Klein and Truex, 1995). The empirical materials used in this study consist of 102 journal and conference articles. ATLAS/TI is an analysis tool that assisted with the process of analysis by establishing teams and keywords to search the 102 journal and conference articles to find literature that provide insight into information asymmetry. The research methodology followed a systematic structure using the 5-step approach defined by Creswell (2011).

Stage 1: A search was conducted for articles, journals, books in academic libraries, google scholar and the internet. In order to find the 102 articles that were used for the research, keywords were identified such as PPPs, information asymmetry, opportunistic bargaining, risks, moral hazard to search google scholar.

Stage 2: This step involved content analysis and coding. All the files for the study were PDF documents which were uploaded into ATLAS/TI:

1. Using the keywords the articles were searched and coded.
2. Information searched from the literature about information asymmetry was extracted under three distinct headings
3. The literature was grouped under the three headings after many iterations of reviewing the extracts from the analysis.
4. It was transcribed to provide a systematic review from various scholars about information asymmetry challenges concerning PPPs.

RESULTS AND DISCUSSION

According to Creswell (2011), the relevancy of the articles can be inspected through different dimensions such as topic, problem and question, accessibility and individual, and also site relevance. Based on the searched terms and concepts in this research, the topics, abstracts, and conclusions of the articles were examined and later on, a review of the complete articles were performed on the remaining ones. The inclusion criteria of the articles were done on relating challenges of governance, accountability, transparency, return on investment and management challenges. This strategy was used to prevent an unmanageable number of literatures that has low relevance to the topic. The literature suggests that the impact of information asymmetry will be challenging for PPPs if certain management challenges are not addressed and improved.

PPPs face a range of management challenges due to information asymmetry which differs from the subject to the objectives and the kind of governance and administrative arrangement they undertake. Conversely, there are three grave sections of organization issues that apply to the accomplishment of all kinds of PPPs:

1. Public value and return on government investments.
2. PPP governance and public accountability.
3. Risk sharing and risk management.

The operative controlling of these issues is an essential state but not the adequate circumstance for the accomplishment of PPPs and to accomplish information asymmetry (Jacobson and Ok Choi, 2008; Li et al., 2005; Zou et al., 2015). Scholars have highlighted that PPPs are effective when there is noticeable regulation, vigorous governance arrangements, transparency and responsibility (Kernaghan, 1993; Levin et al., 2007; Mitchell, 2008; Iossa and Martimort, 2012). Tangible and robust supervision can lessen the impact of information asymmetry.

Public value and return on investment

The main goal of PPPs is believed that of procuring greater public value for the deal on public funds than is thought conceivable from the customary public works method (McKevitt, 2015; Grimsey and Lewis, 2005). An essential precept of the novel public management viewpoint, as well as the presence of PPPs, is that they are more effectual means to achieve public capital projects than the conservative public works method (Leigland, 2006; Osborne, 2010; Morallos and Amekudzi, 2008; McKevitt, 2015). This has led to the knowledge of a Public Sector Comparator (PSC) degree, which is useful to measure how appropriate PPPs projected a rating as a substitute to government projects in providing worth for money (Leigland, 2006; Heald, 2003). On the other hand, experiential research has exemplified that PPPs do not offer any improved takings on investment than customary public works ventures and, owing to the participation of private partners, PPP projects regularly take greater risks than is possible if government were the sole investor (Bruzelius et al., 2002; Estache, 2010; Flyvbjerg, 2009, 2013). Also, Budzier and Flyvbjerg (2011) claim that ICT projects are more prone to greater risks than other infrastructure projects. Even if the PSC technique has come under criticism as a legal metric for evaluating worth for money owing to its absence of correctness, tests on appraising discount charges and subjective influence by analysts in both advanced and emerging countries (including South Africa) still use it as a yardstick to appraise worth for money (Flyvbjerg, 2009, 2013; McKevitt, 2015). The task then for supervisors of PPP projects is to carry out their projects in good time while supplying a value for money assurances that might or might not be feasible (Flyvbjerg, 2014; Martins et al., 2014; Grimsey and Lewis, 2005; Tsukada, 2015). Delivering PPP projects on time, on budget and as pledged comes from tests concerning information asymmetry.

Risk sharing and risk management

The distribution of perils is related to rewards and is an important feature of PPP success (Hart, 2003; Iossa and Martimort, 2012; Kociemska, 2010; Khadaroo, 2014). From the viewpoint of the new public administrative idea, risk distribution between the public and private allies is a significant objective of PPPs (Abednego and Ogunlana, 2006; Teisman and Klijn, 2002; Iossa and Martimort, 2012). Supporters of the NPM viewpoint claim that there is a part for risk distribution and that PPPs are planned to guarantee that risk is apportioned for both the private and public sector to guarantee decrease in cost overruns and value-positive consequences for the people (Osborne, 2010; Bovaird, 2009; Pollitt and Bouckaert, 2011; Valéro, 2015). Nevertheless, experiential research recommends that this has not continually been attained (McKevitt, 2015; Bing et al., 2005). A UK study, which revised UK Treasury forms, shows evidence of enormous cost overruns, deferrals, and terminations of PPP projects, which were ultimately remunerated by the citizens (Pollock et al., 2007). The private sector frequently have higher procedural knowledge of risk features and are capable to bargain as well as impact the design of PPP contracts to decrease their own risks, at the expense of the people (Bruzelius et al., 2002; Hodge, 2004; Love et al., 2012; Flyvbjerg, 2014; Loosemore and Cheung, 2015).

Another major difficulty in this area is the management of considered behaviour of private partners throughout the project (Smyth and Edkins, 2007; De Bruijn and Ten Heuvelhof, 2010; Klijn and Teisman, 2005; El-Gohary et al., 2006). Although it is presumed that the public sector organisation has the role of executing project governance and supervising the attitude of the private partner to guarantee positive value results for the citizens, attaining these roles is a chief difficulty (Jones and Noble, 2008; Osborne, 2010; Jessop, 1998; Klijn and Teisman, 2005). The aim of private enterprise is profit at all costs, and this goal can lead to unprincipled attitudes for example avoidance, renegotiation as well as under-performance when these attitudes are possible to advance profits for the private partner (Lohmann and Rötzel, 2014; Iossa and Martimort, 2015; Vining and Boardman, 2014; Shaoul, 2005). A vital plan for handling the planned attitude of the private partner is requiring performance standards in the PPP contract and observing routine acquiescence throughout the project (Katz, 2006; Medda, 2007; Klijn and Teisman, 2005). Contracts may also provide inducements and consequences to impact amenability attitudes of the partners (Iossa and Martimort, 2014; Wang and Pallis, 2014). Some have argued that public sector managers can act deliberately by battering authority, corrupt practices, and prejudiced cost estimates (De Bruijn and Ten Heuvelhof, 2010). Although exploitation has been detected in PPP projects all over the world, the public purse is always the loser (Umar and Okafor, 2015; Ferk, 2014).

PPP governance and public accountability

The third grave aspect of PPP management difficulties is project governance and public responsibility (Vining and Weimer, 2015; Johnston and Gudergan, 2007; Abednego and Ogunlana, 2006). Strong project governance as well as public responsibility are perceived as barricades against fraud and are operational in handling project hazards as well as attaining communal value for money (World Bank, 2003; Allard and Trabant, 2011; Bovaird, 2009; Pollitt and Bouckaert, 2011). From the official viewpoint, a supervisory outline is vital for the authority of the PPP procurement process and direct organisational management and control of the project (World Bank, 2003). It is likewise significant to elucidate the legal environs and parts of the government and private partners in PPP initiatives and is vital to avert and settle political matters when they rise (Qiao et al., 2001). A resilient controlling outline offers policy direction and explains the government's potentials for PPPs whereas offering a level of print that enables public responsibility and citizen maintenance (Verhoest et al., 2014; Yang et al., 2013). Nonetheless, official outlines for PPP governance have been antagonistic matters; private partners and devotees of the NPM philosophy frequently desire minute government by-law as probable (Emerson et al., 2012; Estache and Serebrisky, 2004; Johnston and Gudergan, 2007). Nevertheless, feeble institutional guidelines frequently bring about more power inequity for the public sector managers, contrary planned conduct of private partners and ensuing PPP failures (Vining and Boardman, 2008; Liu et al., 2014; Eberlein et al., 2014).

Recognised agenda and conclusive rules are also essential for clearness and public answerability. Studies of a letdown in public answerability on PPP projects in numerous nations submit that tougher official rule could have made an important modification (Vining and Boardman, 2008; Mota and Moreira, 2015). Inadequate institutional frameworks hinder effective performance monitoring of the PPP actors (private and public) and expose projects to issues of exploitation and manipulation when results are not optimistic (Umar and Okafor, 2015; Ferk, 2014; Eadie, 2014; Fombad, 2015). More so, as stated by McKevitt (2015), Flyvbjerg (2009; 2013), and others, effective official directive is essential to guarantee there is a great level of inspection of PPP project tenders, which help everybody prevent disastrous disappointments. Some experiential studies of PPP super disappointments have point towards feeble official outlines and insufficient due attentiveness as key reasons for unnecessary failure (Osei-Kyei and Chan, 2015; Bruzelius et al., 2002; Estache, 2010). Though, it is often the case that developing and emerging countries are confronted to implement vigorous official guideline and frequently must hinge on private consultants to support their sign up; these private consultants' function as advisers to their private partners in PPP debates (Abbott, 2012; Verhoest et al., 2014; Jeppesen et al.,, 2017).

Conclusion

The literature review provides evidence that information asymmetry is palpable to the success of PPPs if opportunistic bargaining, risk management governance, accountability and public return on investment is not closely monitored and addressed. Tangible and robust management practices can lessen the impact of information asymmetry specifically if more focus is given to addressing information asymmetry. Two kinds of opportunism affect aspects PPPs hidden information and hidden actions. The insistent difficulty of information irregularity that arose is because the private sector has extra information on the item of exchange, (for instance, the merchandise or the service). The special effects of organizational incompleteness should be evaluated to discover possible alteration devices, in one way by a satisfactory system of enticements and in a new by a scheme of control intended to falsify effectual and unquestioning relations.

The problem of information irregularity that occurs is concealed information as well as the hidden action of partners. In addressing information asymmetry skills development of managers in the public sector should be a priority to manage the challenge that arises from managing PPP contracts which will change the dynamics of information asymmetry. For PPPs to have public value and return on investment is to ensure PPPs provide the value to the public that government projects. The dismissal of public value and lack of return on investment due to public servants not monitoring contracts resulting in high-cost overruns has become "the straw that broke the camel's back".

The fact that risks should be shared by contractual parties to reduce cost overruns and provide positive outcomes for the citizens is non-existent in PPP contracts (Valéro, 2015). PPP governance and public accountability have suffered the most from the asymmetry of information which has been sighted by public servants as the most challenging, due to weak institutional frameworks to effectively manage the performance of private consultants.

The challenge that exists regarding information asymmetry is concealed information and concealed action by consultants. The literature review provided rich data and information on the impact of information asymmetry but there is a limited focus on mitigating the risk related to disproportionate information in state enterprises. State enterprises have been put at risk by the government due to reliance being placed on the private sector for expertise and knowledge. Instead of developing and employing competent professionals to manage state enterprises, the South African government employ ‘cadres' to key positions that do not have the skills but they subscribe to the political agenda (Ensor, 2019). The public sector does not realise that information asymmetry apart from financial mismanagement is one of the biggest challenge affecting economic growth in South Africa.

The dearth of articles directly associated with challenges of information asymmetry on PPP contract management can be counted as a limitation. The paper contributes to the literature on the impact of information asymmetry in state enterprises in South Africa and the artefacts that emanate from asymmetric challenges affecting PPP arrangements. There is a lack of research to address information asymmetry specifically relating to management challenges, public value and return on investment, risk sharing and risk management, governance and public accountability when managing PPPs. However, by addressing skills and competent management challenges, asymmetric information and dependencies on consultants can be minimised for the long term benefits of state enterprises.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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