Innovative bidding law and consortia for the World Cup and Olympic Games in Brazil

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Abstract
The objective of this research was to describe the types of business networks formed to meet the requirements established by the new bidding law, the Differential Public Procurement Regime, the innovations of this bidding system and the effect on the construction supply chain. This is a descriptive study based on a qualitative–quantitative analysis of a case study of road works on BR-381/MG, in Minas Gerais, Brazil. The units of analysis were the bidding documents, respective contracts, and the construction sites. The results showed that 40 companies took part in the bidding process in 13 cooperative consortia, 8 of which were vertical and horizontal networks, and 5 were vertical networks. An incremental innovation related to the project delivery method was identified between the government and construction companies in Brazil by means of integrated design and build procurement, which changed relationships within the construction supply chain by moving the design supplier into the contractor consortium and improved supply chain management. Moreover, inversion of stages by the new bidding law has increased agility in procurement of public works, as prices are analyzed prior to the other documents.

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Keywords: Construction consortium; Bidding; Road works; Integrated procurement; Design-build contract

Introduction
Internationalization of the economy has caused changes in management of businesses that seek organizational configurations adapted to a newly established reality. Forming business networks is one of the strategies adopted to obtain the new productivity and quality standards required. This cooperative business network allows for the creation of strategic alliances, such as consortia. With these, companies aim to complement the skills of one another in order to enter markets within the new world scenario (Olive & Amato Neto, 2001).

Companies participate in cooperative networks in order to enter new markets and maintain or improve their position in established markets (Quadt, 2012). Thus, they create competitive advantages by boosting their partners’ skills (Araújo & Guerini, 2012; Jorde & Teece, 1989; Miranda, 2010). The existence of so many cooperative alliances, such as joint ventures, consortia, minority interests, and research or production cooperation agreements is no surprise (Lastres & Cassiolato, 2003; Wernerfelt & Karnani, 1987).

The Differential Public Procurement Regime [Regime Diferenciado de Contratação] (DPPR) came into force in August 2011, aimed at contracting sporting infrastructures for the competitions beginning in 2013, with the Confederations Cup, and ending in 2016, with the Olympic Games, held in Rio de Janeiro, which allows for the formation of business consortia.

The National Transportation Infrastructure Department [Departamento de Infraestrutura de Transporte] (DNIT, 2013) employs the Differential Public Procurement Regime (DPPR) widely in their bidding processes, including the case under study, tender notice No. 165/2013. The object of this tender

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notice is to increase traffic capacity on the BR-381/MG highway, in the Metropolitan Region of Belo Horizonte – one of the Brazilian cities hosting the Confederations Cup and the World Cup, and the headquarters for the United Kingdom’s Olympic team.

The objective of this research is to describe the types of business networks formed to meet the requirements set out by the DPPR, the innovations of the DPPR bidding system, and the regime’s effect on the construction supply chain.

**Literature review**

*Business cooperative strategy*

Business networks are types of relationships whose objective is to provide some kind of benefit for its members (De Lima & Campos Filho, 2009). Companies can cooperate in many ways, from a simple business connection involving the exchange of money for products to a complex integration of goods, services, financing, and systematically managed information (Eiriz, 2001).

The network typology can be constructed by analyzing the position of a company in relation to the others. According to the position occupied by companies in a network, their vertical location upstream or downstream in the supply chain can be identified, as well as its horizontal location at the same operational level of the focal firm (Britto, 2000).

Competing companies can constitute consortia of horizontal cooperative networks due to mutual gaps of complementary skills required to attain certain objectives they would otherwise fail to meet, or in order to create a synergy between their isolated skills (Andrade & Hoffmann, 2010). There are also consortia of vertical cooperative networks, when non-competiting companies established at different levels of the supply chain form an alliance (Britto, 2000; Masquietto, Sacomano Neto, & Giuliani, 2011; Moro & Glitz, 2013).

Civil construction business networks are formed with the purpose of obtaining complementary skills and improving the position of its members in relation to the industry competition (Barbosa, Zilber, & Toledo, 2009). Constituting business networks in the production chain can bring about competitive advantages, to attract new ventures for the network members, or to improve the development of construction in progress (Casarotto, 2002).


**Bidding system**

Heinen (2014) states that the Differential Public Procurement Regime (DPPR) is an attempt to change the current procurement process for supply of goods and services. The DPPR’s innovations are practices found in public and private international organizations and in the Brazilian private sector. However, the regime is groundbreaking compared to General Bidding Law No. 8.666/1993. “The State is giving the private sector a task that has traditionally been theirs, i.e. drawing up of the basic designs” (Heinen, 2014, p. 40).

The new bidding regime set out by Law No. 12.462/2011 allows for the transfer of responsibilities around technical engineering projects to firms contracted to execute the works. Bidders submit the preliminary designs of the desired end product, with companies being responsible for preparing the executive designs. This transfers to them many of the risks that were previously the responsibility of contracting parties (Dotti & Junior, 2013; Schwind, 2014).

Also noteworthy are the bidding systems used in procurement processes, which cover three key domains: the bidding type, the execution regime, and the project delivery method, all of which must be mutually supporting (Darrington & Lichtig, 2010).

According to Ferreira and Santos (2012), Bicalho (2013), Heinen (2014), and Quintella (2014), the potential innovations in the processes of contracting infrastructure works are related to the criteria of bidding type (company selection), execution regime (form of measurement and payment of services rendered), and delivery method (project scope).

Each construction project requires appropriate choices for the project delivery system. The project delivery system includes the bidding type, the type of contract and the project delivery method (Azevedo, 2005; Thomsen, Darrington, Dunne, & Lichtig, 2013).

The bidding type is related to the selection criteria that determine winning bidder, e.g. the lowest price model, the qualitative criterion model – such as the best technical merit – and a combination of technical merit and lowest price type. It is the granting criterion (Chaovativongse, Wang, Williams, & Chaovativongse, 2012; El Wardani, Messner, & Horman, 2006; Safa, Yee, Rayside, & Haas, 2016).

The execution regime is the type of contract, which specifies how to measure and compensate the contractor for services rendered, e.g. lump-sum, unit price, guaranteed maximum price (GMP) and cost-plus-a-fixed-fee contracts (Pakkala, 2012; Thomsen et al., 2013).

The project delivery method refers to the project scope, which encompasses the scope of the product to be delivered and how to manage it and the relationship with its owner, e.g. design-bid-build (DBB) and design-build (DB) (Vellalos & Gordon, 2012).

The DBB is the traditional project delivery method. In this method, first the owner prepares or hires a designer company to produce construction drawings and specifications. Then, through a bidding process, they hire a contractor for the construction works (El Wardani et al., 2006; Martin, Lewis, Petersen, & Peters, 2016; Yu, Shen, & Shi, 2016).

In the DB method, the owner hires one single company or consortium to deliver both the design and construction. Upon conclusion, the owner is responsible for the operation and conservation of the product delivered (El Wardani et al., 2006; Ghadamsil & Braimah, 2016; Yu et al., 2016).
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