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**Abstract:** An Invention Patent is a result of scientific work that could be useful for industrial application and as a tool to support business procedures. Intellectual property rights support innovation, competitiveness and economic growth across the globe and are strongly protected by International Law and Treaties. On the other hand powerful competition regulator statutory agencies in all civilized countries do fight against any preferential rights violating competition. There 11 steps towards a European Patent Office patents grand and 12 steps for a Public-Private Partnership according to European Investment Bank internal procedures. The patent advantage actually concerns only intimidation to the competition and limited other benefits. Such business use of the legal benefits of patent inspired us to extend this simplified approach into a complex "Blitzkrieg" interference to a public call for procurement. We choose two patents to present an example of our approach. The first interacts with competitive tendering prior the official launch while the other after the public call for proposals. Both approaches violate completion but they promote new technology.

**Key words:** protectionism; procurement; antitrust institutions; contracting; invention patent **JEL codes:** O31, L41

JEL COUES: 051, L41

## 1. Introduction

Invention Patents in general did not attract scientific community. A patent is a result of scientific work that could be useful for industrial application. In our times the patent evolved into a tool for business procedures. Intellectual property rights support innovation, competitiveness and economic growth across the globe and are strongly protected by International law and treaties. On the other hand powerful competition regulator statutory agencies in all civilized countries do fight against any preferential right violating competition. As a result the use of invention patents in investments varies according to different legal entities supporting various investors.

Current research in the area includes: patents anti-competitive conduct (Trappey, 2016), standard-essential patents as valuable assets (Kang, 2015), a range of alternative indicators based on a firm's position in patent citation network (Bekkers, 2012), an empirical strategy to estimate competition in innovation markets (Patel, 2011).

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Modified tendering procedures needs contracting out serious research like Cordella (2010), Duberley (1999), Elinder (2013), Giannikis (2011), Heartfield (2009), Huawang (2009), Jiang (2013). A more free approach provides insights on how to manage collective innovation in the digital economy, and finally innovation does not weaken healthy competition (Lopez, 2014).

# 2. Invention Patent Procedure

To submit an invention patent to the European Patent Office eleven steps are required (EPO, 2017). A step-by-step guide to the grant procedure includes:

- 1) Before applying a European patent
- 2) Application
- 3) Filing and formalities examination
- 4) Search
- 5) Publication of the application
- 6) Substantive examination
- 7) The grant of a patent
- 8) Validation
- 9) Opposition
- 10) Limitation/revocation
- 11) Appeal

These steps generally are consecutives except in partial rejection or total grand failure. In such case a recursive procedure is applied.

# 3. Invention Patent Schema

The EPO MATLAB procedural graph is constructed by an array "epotxt", two vectors indicating relation points and a weighted array.

Gepo = digraph (epoinit, epoend, epoweigh, epotxt); plot (Gepo);



Figure 1 EPO Directional Procedural Graph in 3D Mode

## 4. Samsung Case Study Patent Duration Elimination

The typical patent protection is analyzed for manufacturer Samsung patent for Galaxy Note Edge (Sang, 2014). The normal patent waiting period is 36 months while patent protection lasts for 20 years. After marketing analysis conducted by our team we found that these deadlines are no longer valid. The true story starts when Samsung files the application patent, and it starts marketing and manufacturing the product. Apple or any other manufacturer sees the benefits and faces the dilemma:

- Apple proceeds to production and marketing the Apple-edge cellphone. If it does so after 36 months has to pay license fees to Samsung. This is done only if the patent is doubtful or very profitable.
- Apple waits 36 months until the patent is granted to Samsung. Then it negotiates production rights from Samsung, but its too late, the train left the "profitable station.

The timeline clarifies the situation:

Task Name	Duration 👻	Start	Finish 👻	2013 '13	2014 '14	2015 '15	2016 '16	2017 '17	2018 '18	2(
PATENT FILING=Flexible display device -US 20140268595	1 day	Thu 13-03-14	Thu 13-03-14							
official announcment for the Samsung Galaxy Note 5 and Galaxy S6 Edge	0 days	Sat 06-09-14	Sat 06-09-14	• 06-09						
Expected EPO aplication aproval	900 days	Fri 14-03-14	Thu 24-08-17	Ť						
US patent approval	900 days	Fri 14-03-14	Thu 24-08-17	Ť						
SAMSUNG SALES	1200 days	Wed 01-10-14	Tue 07-05-19		_					
Legal APPLE edge iPHONE sales	600 days	Fri 25-08-17	Thu 12-12-19				ľ			

Figure 2 Samsung-Apple Product Preferential Headstart

The patent advantage actually concerns only intimidation to the competition and limited other benefits. Such business use of the legal benefits of patent inspired us to extend this simplified approach into a complex "Blitzkrieg" interference to a public call for procurement or services.

## 5. Antitrust Authorities

The Federal Trade Commission's Bureau of Competition enforces the nation's antitrust laws, which form the foundation of our free market economy. The antitrust laws promote the interests of consumers; they support unfettered markets and result in lower prices and more choices. The Federal Trade Commission Act and the Clayton Act, passed by Congress in 1914, give the Commission authority to enforce the antitrust laws. These laws prohibit anticompetitive mergers and business practices that seek to prevent hard-driving competition, such as monopolistic conduct, attempts to monopolize, and conspiracies in restraint of trade. The Antitrust Division handles all criminal antitrust enforcement. Various scientists have significant research on the area (Ward, 2016; Kovacic, 2015).

European antitrust policy is developed from two central rules set out in the Treaty on the Functioning of the European Union: First, Article 101 of the Treaty prohibits agreements between two or more independent market operators which restrict competition. This provision covers both horizontal agreements (between actual or potential competitors operating at the same level of the supply chain) and vertical agreements (between firms operating at different levels, i.e., agreement between a manufacturer and its distributor). Only limited exceptions

are provided for in the general prohibition. The most flagrant example of illegal conduct infringing Article 101 is the creation of a cartel between competitors, which may involve price-fixing and/or market sharing. Second, Article 102 of the Treaty prohibits firms that hold a dominant position on a given market to abuse that position, for example by charging unfair prices, by limiting production, or by refusing to innovate to the prejudice of consumers (Jestaedt, 2010).

It is obvious that the antitrust legislation is contradictory with patent preferential rights.

## 6. Public-Private Partnerships

There are a lot of Public call for offers like Build-Operate-Transfer (BOT) scheme has been widely advocated with increasing demand of public infrastructure in recent years (Bao, 2015). Since we work very close with European Banks we have chosen the basic PPP definition from European Investment Bank (EIB, 2017).

A PPP arrangement differs from conventional public procurement in several respects. In a PPP arrangement the public and private sectors collaborate to deliver public infrastructure projects (e.g., roads, railways, hospitals) which typically share the following features:

- a long-term contract between a public procuring authority (the "Authority") and a private sector company (the "PPP Company") based on the procurement of services, not assets;
- the transfer of certain project risks to the private sector, notably with regard to designing, building, operating and/or financing the project;
- a focus on the specification of project outputs rather than project inputs, taking account of the whole life cycle implications for the project;

The rationale for using a PPP arrangement instead of conventional public procurement rests on the proposition that optimal risk sharing with the private partner delivers better "value for money" for the public sector and ultimately the end user.

PPP arrangements are more complex than conventional public procurement. They require detailed project preparation and planning, proper management of the procurement phase to incentivize competition among bidders. They also require careful contract design to set service standards, allocate risks and reach an acceptable balance between commercial risks and returns.

According to EIB steps for successful call for offers are:

**1 PROJECT IDENTIFICATION** 

- 1.1 Project Selection
- 1.2 Assessment of PPP Option
- **2 DETAILED PREPARATION**
- 2.1 Getting organized
- 2.2 Before launching the tender
- **3 PROCUREMENT**
- 3.1 Bidding process
- 3.2 Contract and financial close
- 4 PROJECT IMPLEMENTATION
- 4.1 Contract management
- 4.2 Ex post evaluation

## 6.1 PPP Schema

The Math conceptual representation is a beautiful cross.



Figure 3 Public-Private Partnership Undirected Procedural Graph

## 6.2 Competitive Tendering and Patent Use

Various works motivated our research: Cost savings over successive rounds of tendering (Angeles, 2016), tendering legislation impact on management processes and outputs (Parker, 1990), Solino (2016) suggested a theoretical model, based primarily on transaction costs, for public-private partnership (PPP) projects. In particular, the model contrasts negotiated procedures with the open procedure, as defined by current European Union legislation on public tendering. Recently Anticipating the number and identity of bidders has significant influence in many theoretical results of the auction itself and bidders' bidding behavior (Ballesteros, 2016). Also Iso-score curves graph (iSCG) and mathematical relationships between Scoring Parameters (SP) and Forecasting Parameters (FP) can be used in Economic Scoring Formulas (ESF) used in tendering to distribute the score among bidders in the economic part of a proposal (Balesteros, 2013). A more practical use patent for economic development by Zissopoulos (2014) and Kanavas (2017).

In order to obtain up to a signed & stamped economic contract that implements a research patent into a viable economic investment we analyze two different contracting options after a public call for offers. Our first approach is to formulate an invention patent and persuade public authority by lobbying to understand our investment strategy. The second approach is more liberal. After an initial public call for offers we prepare a number of invention patents that support our proposal to gain the contract.

# 7. Patent Prior a Public Call, CityInfo and Parking Collection System

The normal way to do business with a patent is to promote it at any level. After we finally found a customer we prepare with him a pseudo public call for offers. This type of action is more unusual and unethical because it falsifies the competition. In our "parking city info system" example first we apply for the patent, then the city council rewrites our patent and launces an "open" call for offers. It is obvious that the final contract goes to "me, myself and I".

Interconnecting tasks are:

patents-prcuremnet combination	num
EIB:1_PROJECT IDENTIFICATION	1
EIB:1.1_Project Selection	2
EIB:1.2_Assessment of PPP Opti	3
EIB:2_DETAILED PREPARATION	4
EIB:2.1_Getting organised	5
EIB:2.2_Before launching the t	6
EIB:3_PROCUREMENT	7
EIB:3.1_Bidding process	8
EIB:3.2_contract and financial	9
EIB:4_PROJECT IMPLEMENTATION	10
EIB:4.1_Contract management	11
EIB:4.2_Ex post evaluation	12
EPO-CITY-INFOSYS-1 Before applying a Europea	13
EPO-CITY-INFOSYS-2 Application	14
EPO-CITY-INFOSYS-3 Filing and formalities ex	15
EPO-CITY-INFOSYS-4 Search	16
EPO-CITY-INFOSYS-5 Publication of the applic	17
EPO-CITY-INFOSYS-6 Substantive examination	18
EPO-CITY-INFOSYS-7 The grant of a patent	19
EPO-CITY-INFOSYS-8 Validation	20
EPO-CITY-INFOSYS-9 Opposition	21
EPO-CITY-INFOSYS-10 Limitation/revocation	22
EPO-CITY-INFOSYS-11 Appeal	23

## 7.1 Math Modelling

Math modelling in a bid is used only to reveal the hidden road to a profitable contract. The patent involves in the tendering procedure at the patent graph points "EPO3 Filing and formalities examination and EPO8 Validation", into the bidding process plugs "2.2\_Before launching the tendering and 4.2\_Ex post evaluation".



Figure 4 Prior Public Call Procedural Directional Graph

## 8. Patent After a Public Call: The Sisi Project

The small Cretan idyllic seaside resort of Sisi is seeking a financial and architectural town planning for the whole village. They released a public call for offers to convert their peaceful village in tourism traditional paradise. The competitive tendering procedure at the final stage is a rather open procedure. Our offer was to reinstate the seaside village in the animal driven economy by using service animals. Our financial offer was not the cheapest but the municipality has to assign us the contract. We are protected by a strong International Patent Law.

#### 8.1 Math Modelling

The patent involves in the tendering procedure at the patent graph points "EPO2 Application" and "EPO9 Opposition", into the bidding process plugs "3.1 Bidding process" and "4.2 Ex post evaluation". This combination leads to a new conceptual graph:



Figure 5 Patent After Public Call Procedural Schema

## 9. PPS: Patent Preferential Status Future Research

The preliminary global research for patent-competion relationship revealed several research and technical steps.

A patent promotion campaign is necessary to persuade the public authorities to support our technology.

A patent issuance brainstorming fast turnaround procedure must be adopted. We must file a patent application in the small time frame between call for proposals and submit our offer.

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