INVESTIGATING THE DECISION MAKING PRACTICE OF PUBLIC PROCUREMENT PROCEDURES

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ABSTRACT. Public procurement procedures provide a crucial function in the public sector and often involve making decisions of far-reaching effects. Recent years have seen much debate about the advantages and disadvantages of using open procedures as the main legal vehicle for public procurement. Investigating public procurement procedures as decision making processes could provide insights about the nature of various types of procedures. This paper provides findings regarding the difficulties decision makers face when running open procedures. The investigation includes cases of Hungarian public procurement projects run by both private and public contracting authorities according to the EU-conform Hungarian Act on Public Procurement.

INTRODUCTION

The area of Public Procurement received increased attention during the first few years of this new millennium - not only in the EU but worldwide (Thai, 2005). Most of the discussion concerned strategic issues of governing such as relationships of the regulatory environment (Krüger, 2004), the possible support of high-level policy goals (Erridge, 2005), emerging practices involving private financing (Lawther and Martin, 2005), questions surrounding the development of long-term supplier relationships, or investigation of the effect of strategic procurement decisions on particular sector markets (Caldwell et al., 2005). These strategic challenges seemed to overshadow the problems of everyday procurement activities, the issues public officers and private procurement professionals face as decision makers when trying to cope with the requirements placed upon them by the environment. Thus the daily issues of executing (mainly large) individual procuring projects seemed to receive less attention as the focus shifted from transactional issues to strategic influencing.

This paper reports on the theoretical framework developed to conduct research using case studies of Hungarian firms and public organizations executing procurement projects under EU and national Public Procurement regulations. Some preliminary discussion of the corresponding case study research is also presented. Various decision theoretical models are used to investigate the effect of the regulatory environment on procurement decision making practices of individual awarding procedures.

The paper first looks at the main aspects of Public Procurement as the background for proposed research and sets out the research questions. Section 3 presents a short summary of recent trends in Public Procurement research, followed by some relevant results from the field of decision theory and decision support. Section 4 provides a decision theoretical investigation of the legal framework as well as individual procedures as decision making processes. Section 5 presents a preliminary discussion of the corresponding case study research currently under way in Hungary. Finally the paper concludes with some recommendations.

RESEARCH BACKGROUND AND MOTIVATION

The function of public procurement

Procurement is the process of acquiring goods, works and services. Public Procurement (PP) as a function of government includes decisions about the services that will be delivered to local authorities and the communities they serve (Hughes, 2005). It is utilized not only to secure goods and services required by public sector organizations for their missions and to support services provided to taxpayers, but it is also used to implement national policies and to achieve social and other objectives (Thai, 2004).

Entities affected by European Union regulations

Public Procurement regulations of the European Union (EU) play a crucial role in not only spending government money as part of public service (Directive 2004/18/EC, see European Commission, 2004b) but they do affect private enterprise as well for at least two reasons. On the one hand even private owned entities operating in the water, energy, transport and postal services sectors (or “utilities”) are subject to the

related EU PP directive, Directive 2004/17/EC (European Commission, 2004a), on the other hand, most EU funding support (i.e. subsidies) received by private firms carries with it the requirement of following EU PP rules when spending the funds received (European Commission, 2004b, Article 8).

As it does not affect the main message of this paper all affected procuring entities will be referred to as 'contracting authorities' (or CAs for short) despite the fact of not all of them are public bodies. In fact, the Hungarian Act on Public Procurement (2003) even integrates the two separate groups of the two directives under one common Act.

Public procurement as focus of growing attention

Inevitably, governments are the biggest "spenders" world-wide. The figure, of course, varies from country to country, but according to various sources (see for example Knight et al., 2003a) government spending on public services accounts for anywhere between 15-45% of GDP[1]. Most of this amount is "internal" spending (of salaries and alike), but some 25% to 50% is indeed spent "externally" (on sourcing goods and services) and mainly through Public Procurement. The sheer amount of this spending has a huge impact on the economy. It is no wonder that the area gained increasing attention during the last decade from all sorts of directions - and not only at the national level.

There were several international conferences held just the last few years[2]. In addition, international studies, surveys, and workshops spanning continents were organized during the same time (Knight et al., 2003a and 2003b, Harland et al., 2005). There are organizations and institutes focusing specifically on PP research. Furthermore, the first issue of the *Journal of Public Procurement* was published in 2001.

The European Union after almost a decade of discussions has announced changes to the EU legal system governing PP. Two new directives were issued early 2004 (2004/17/EC and 2004/18/EC – see European Union 2004a and 2004b respectively) and national laws of Member States had till January 31, 2006 the latest to conform.

These activities all indicate the growing attention public procurement receives. Practitioners in the field and researchers involved raised and discussed various issues and goals. Among them financial issues and legal framework received considerable attention (Krüger, 2004 is an excellent comparative review). Yet, not only commercial (e.g. cost or

efficiency) or regulatory (i.e. competition or transparency) questions were addressed. In fact, most of the agenda was dominated by the question of how to address and achieve high level policy objectives within the realm of public procurement. The articles, reports and case studies published during recent years have addressed a wide range of major concerns such as sustainability (e.g. Walker et al., 2004), socio-economic values, support of SMEs, environmental concerns (recital (1) of 2004/18/EC), diversity and equality considerations (e.g. Hughes, 2005), low cost, cost savings and value for money policies including adopting whole life costs and benefits (e.g. Erridge, 2005), market stability and continuity (Caldwell et el., 2005), innovation (OGC, 2004), devolution, and electronic commerce (Knight et al. 2003). Some even proposed the use of public procurement as a lever for government reform (Knight et. al., 2004). Participants and authors called upon all sorts of disciplines such as management science, public choice theory, basic principles of economics, game theory, project management knowledge and more to stake their claims.

However, relatively little attention was paid to how regulations translate into daily practice (of individual purchasing decisions) and what type of difficulties purchasing professionals face when affected by the law in their daily "routine" of making PP transactions and contracting decisions. There are no theories about the nature of this environment as it affects these individual decisions and decision makers, neither there is a clear understanding how the "cover surface" of these independent decisions shape up (although some interesting preliminary case study results are reported by Caldwell et al., 2005). Furthermore, there is almost no literature investigating the effect of PP regulations on non-public sector entities and their suppliers.

Goals and research questions

During the summer of 2005 the Decision Support Research Group of Budapest University of Technology and Economics (Hungary) in cooperation with the Department of Business Information Systems of University College Cork (Ireland) started an investigation into the decision making practices under EU and corresponding national PP rules.

The aim of the research is not about PP as a supporting vehicle of delivering public service, rather, the effect of EU PP rules as a regulatory framework affecting a wider application base than the public sector itself is considered. The primary focus of this research is to

understand how the various – usually conflicting and regularly ill-defined – goals are considered (or ignored) by procuring entities from both the public and non-public sector subject to the law.

Experiences with supporting the transition of Hungarian organizations to conform to EU PP laws after the accession of the country in May 2004 lead to the need for a more formal investigation of three groups of questions:

- How PP decisions are actually made and what role methodology plays in this picture?
  - Does the complexity of the regulatory environment (potentially combined with malpractice) comprise quality?
- How to improve the practice individual procurement transactions of invitation and awarding?
  - Do local and short term goals and cost-saving objectives dominate criteria (and what are the effects)?
  - How to control the interrelated system of selection and contract award criteria in order to balance (above discussed) conflicting objectives and incorporate non-regulatory policy goals within the realm of the rules?
- What are the challenges and chances of supporting legally bound decision making processes?
  - How these special decision making requirements may be supported by professional facilitation and through the use of Decision Support Software Tools (DSS)?

In order to answer above questions the first step was to establish a theoretical framework using existing literature and the analysis from observation technique based on twenty years of decision support experience mainly in the field of procurement and public procurement (first report is Gelléri and Martinez, 1988). Within this framework, data and evidence is (being) collected both from qualitative case studies (of Hungarian CAs) and relevant literature (of EU and North-America).

The theoretical investigation considers EU directives and limits itself to the most controversial characteristic of open[3] and restricted procedures[4]. The case study research uses Hungary as an example to show difficulties of the practice and consequences of regulations. The focus is on the selection and award procedure where actual decisions (procuring activities) happen. Hungary was chosen because it is

representative of several countries that are new to the EU. The country is also typical of Central and Eastern European economies.

Hungary as an example

Hungary, a country with so called "transition economy" is in a state of flux. On top of the still ongoing radical social and economic changes that started after the "fall of the iron curtain" fifteen years ago Hungary has recently joined the European Union which brought on additional pressures.

The May 1, 2004 accession was well prepared yet it still came with quite a few immediate changes regarding the legal environment. As an important component of harmonizing legal regulations, the national Act on Public Procurement had been amended to line up with EU directives[5]. The changes in the regulations affected all three groups identified above: public offices, "utility" operators and EU fund subsidised businesses. What especially interesting in the case of Hungary is that firms falling under the scope of directive 2004/17/EC (thus companies in the utilities sector, some of whom, ironically, have not been privatized for long) suddenly have found themselves in an unusual setting.

There are two main bodies who overview public procurement. For purposes of enforcing the objectives set out in the Act, a Public Procurement Council is set up subordinated to Parliament only. Members of the Council (nineteen in number) are appointed by the government, representatives of Contracting Authorities, and representatives of tenderers. The Council has two main functions (among several duties). It makes arrangements for editing the “Public Procurement Bulletin” and the verification and publication of notices related to contract award procedures. It also appoints the members of the main judicial body, the Arbitration Committee for Public Procurement (or Arbitration Board). The Arbitration Board is then responsible for all appeals and remedy procedures related to any infringements or disputes within the field of public procurement.

Summary of findings and limitations

As a preliminary report the paper focuses on the results of the theoretical investigation done in preparation for the case studies. As only a portion of the studied cases has been processed so far and there are other cases still under investigation, this article may only report on the theoretical framework applied and some of the preliminary observations

that is supported by other related evidence from relevant literature. Warrants of claims are presented through references, excerpts from the law, and cases from the consulting practice

Main claims are that – at least for EU PP rules – the law creates a normative decision making environment. For open and restricted procedures this leads to meta decision making where procurement experts need to create the rules how the winner is selected without direct influence by the decision maker, instead of collecting or creating options and then choosing in an iterative manner. This has an effect on PP selection procedures and restricts the chances and ways of involving (higher-level) goals beyond regulatory ones. This is further reinforced by the law, or rather, its interpretation, as it may block policy goals to be even considered - yet to be achieved.

Evaluation methodology carries a higher weight than assumed. Consequently, decision support may improve individual procurement procedures as lack of methodological knowledge or misunderstanding of mechanisms involved could affect performance in a negative way.

The law making process needs to consider these issues more closely. It is not a straightforward question what to include or not to touch on in the law and into what details law should go when it comes to methods.

The Hungarian examples and cases are used here not to present particular problems of that country, but to draw out key themes about the nature of the PP legal environment as a decision making context. Most of the statements and conclusions are true for EU directives and do not seem to be specific to Hungary[6]. To go beyond Hungary the findings are compared and related to European and even international trends and situations.

MODELS AND METHODS

Views and models in PP research

Procurement as a process spans from identification of needs through to the end of a services contract or the end of the useful life of an asset. It includes the design and delivery of those works, products or services, the assessment of their quality, and the evaluations and reviews that will lead to further procurement (Hughes, 2005). The whole process contains

several decisions about the services that will be delivered to local authorities and the communities they serve.

Thai (2001) introduced a model depicting the scope of Public Procurement and analyzing the direct and indirect relations of various components. He identified five components: policy making and management, procurement regulations, authorizations and appropriations, procurement function in operation and feedback.

A wider and somewhat deeper view is taken by the "initial conceptual model for public sector supply" discussed by Harland et al. (2000) as it considers many of the environmental factors and contexts influencing government actions. The main factor groups are: Political (like stakeholder influence, regulation or accountability), Economic (like competition and supply market), Societal (among them recipient factors), Technological (e.g. sector context). The model then places into the centre of these factors both the 'nature of the public sector' (including supply network features) and the type and level of government actions.

Hughes (2005) considers five main steps when evaluating procurement practices: assessing needs, service design, supplier shortlisting, supplier selection, and supplier performance evaluation.

Várday (2005) also presents a simplified sequence of basic PP steps**:**

- preparation (determination of the object and quantity of the procurement task and decision about the needs);
- proposal (forming the contracting strategy, developing the tendering documents, assessing proposals and awarding the contract);
- execution (delivery including necessary education and invoicing);
- monitoring and analysis of the results (assessing whether original goals were met, collecting experiences and improving the procurement process).

There seem to be limited research reported on the methodological aspects of developing contract award criteria (Soudry, 2004). Discussions about how to set up the whole interrelated system of technical, capability and suitability requirements as required by law are fairly simple. Piga and Zanza (2004) do touch on the problem but only lists a few solutions applied without any discussion of their applicability or related issues.

The question of risk is well discussed. The Byatt report (2001) contains a good, in-depth consideration of the topic and it perfectly summarises the appropriate view on risk associated with PP procedures: "Better procurement requires a new approach to risk. The key issue is not how risk should be allocated but how it should be managed. The trade-offs between risk and reward should be assessed... This should be coupled with strategies for dealing with what could go wrong…".

Decision Theoretical background and Decision Support models

Normative, descriptive and prescriptive approaches

Decision theory investigates how people, individuals or groups, solve or should solve problems. It is not a universal and unified science. Rather, it is composed of streams of approaches, interpretations and ideas.

In the widest sense all situations where someone wishes to achieve certain goals but the ways to get there are unknown to him or her may be called a problem. In psychology the word 'problem' denotes questions or tasks that have no immediate precise answer or solution (Bartee, 1973). Decision theory then tries to understand the principles behind finding answers to questions and seeking solutions to achieve goals. It is about the analysis of decisions into possible options and their possible consequences.

Historically there are two main streams within decision theory: one rooted in economics and mathematics while the other is rooted in psychology and philosophy. The first, sometimes called foundations of decision theory, may be characterized by its axiomatic approach and its aim is to find scientifically or even mathematically proven ways how people should go about when solving problems. Due to its underlying logic this approach is usually called "normative". The second stream, which regularly denoted as behavioural decision theory, is concerned with the ways and means of how people actually think and go about when faced with questions or tasks to solve. This branch is differentiated by being "descriptive". By 'normative' we mean, that given certain conditions, there are ideal ways of thinking or standards to follow when evaluating a situation. In contrast, 'descriptive' refers to the way humans think and this approach identifies ways and reasons that prevents us from doing our best thinking. The two may be reconciled by "prescriptive"

theories addressing the question what we can do to improve our thinking and, therefore, achieve better decision making practices (Baron, 1995).

The basic question in all decision making is what constitutes a "good" decision. The 'rational' decision within the realm of the normative school is the one that adheres to standards and leads to the best, proven choice from given assumptions. From a descriptive point of view, a decision is right, if under given constraints (e.g. time or other resources) the conclusion of searching for a solution is acceptable for the decision maker, thus he or she is content with the option chosen even before knowing the final outcome. A potential prescriptive solution would be to identify steps to follow in order to avoid typical pitfalls of human thinking and to ensure necessary information or expertise is sought for.

The decision process

There are numerous process definitions in the realm of the decision sciences. On the light end there is a simple but powerful and regularly referenced descriptive process model introduced by Simon (1960) to analyse the steps of organizational problem solving. It consists of four phases: identifying the problem, defining alternatives, choosing from alternatives, and executing the solution. However, there are processes of 8, 11 or even 17 steps.

A typical normative model, one that would aim at finding the "best" decision may be described by the following steps: identification of organizational objectives, establishing evaluation criteria, describing the problem, finding alternatives, choosing from alternatives, testing the consequences, putting the decision into practice and monitoring the execution. This model assumes that the decision maker (a manager, for example) is able to define goals clearly and can find the right solution matching his criteria.

There are several complex descriptive models addressing the actual steps followed when solving ill-structured problems. Mintzberg et al., (1976) focuses on a general model describing all potential steps, while Vlek and Wagenaar (1978) puts identification of values into the centre of their analysis and include feedback loops between consecutive steps. What is important to note about these and similar models is the iterative nature of the process identified. Furthermore, they place the identification of alternatives either together or into a loop with setting up

the evaluation criteria. Making a choice means analysing the consequences of alternatives and comparing them to make an actual choice. These models include iterative efforts where the decision maker further improves the performance of promising alternatives against the preference criteria. In order to understand the behaviour of the criteria system used the models include sensitivity analysis of evaluation parameters investigating the effect of criteria parameter changes on alternative outcomes.

Conflicts and trade-offs

Most decisions involve conflicts. The solution, especially in terms of economic thinking, essentially involves making trade-offs among potential outcomes. Baron (1995) identifies three sources of conflicts and corresponding trade-offs.

The fact is, all human activity involves risk. The *conflict of risk* means making trade-offs between the probability and expected value of choices. The *conflict of goals* means making trade-offs among various (sometimes interrelated or even contradictory) goals. The last one of the three, the *conflict of stakeholders* means making trade-offs between goals of different people involved.

Uncertainty is the source of all risk - uncertainty that stems from lack of either information or understanding. The conflict of risk, therefore, leads to an additional issue. The *conflict of resources* addresses issues of time or more generally the cost of information. It asks the question how much time should be spent on collecting more information and at what cost in order to decrease uncertainty. Mathematically speaking it is possible to calculate the expected monetary value (or price) of perfect information (Howard, 1968).

Methodologies

The normative school is led by an underlying believe that in order to achieve our goals we should think 'rationally'. This usually leads to ways of mathematical decision analysis of probabilities and utilities. On the other hand behavioural decision theory is more inclined to facilitation (Phillips, 1984) and decision support tools (Humphreys and McFadden, 1980) and may include results of the normative school when appropriate. These together offer a wide range of methods and tools to model the solution of various decision making situations.

The estimation and calculation of risks present in decision making processes depend on the tolerance (or acceptance) of uncertainty. The normative theoretical solution to the problem of uncertainty is expected utility theory (SEU for Subjective Expected Utility, as probabilities are the result of subjective assumptions on the side of the decision maker). Considering probabilistic judgements, the branch that deals with changes in probabilities in the light of new information is called Bayesian analysis. Bayes' theorem gives a formula how to update probabilities of a hypothesis as a consequence of additional test results.

There is a normative approach called Multi-attribute Utility Theory (or MAUT for short) that offers guidance how to deal with the conflict of differing goals. MAUT is based on the (mathematical) theory of utility functions where each value of any given attribute (each with a potentially differing unit of measurement) has a utility assigned. Then a single value calculation method replaces the set of utility values (or "neutral" points) of alternatives with one number. This integrating function usually incorporates weights which express the preferences of the decision maker over the set of attributes identified: more important attributes receive higher weights. The theory identifies various forms of integrating functions such as additive, quasi-additive, multiplicative and more together with defining conditions of their applicability. One of the most important conditions is that the attributes are independent, meaning that the value of a given attribute does not affect the utility of another. In the background there is a whole set of techniques how to construct one's utility function for a given attribute.

MAUT is a so-called "compensatory" solution to the problem of conflicting goals as it allows alternatives to make up for weaknesses at certain attributes with strengths at others. There are, of course, non-compensatory methods, most of which are based either filtering or ranking techniques. Filtering means either prioritizing attributes and choosing the alternative with the best performance at higher-ranked attributes, or applying cut-off levels at selected attributes to lower the number of alternatives until only one passes.

Descriptive approaches view alternatives as being either 'searched for' or created. They also try to incorporate the notion of creativity when identifying potential options or solutions. The decision maker may even modify them to reach desired features. Various forms and tools of

decision support may then aid the whole process including means to identify risk factors or allow for quantitative judgements.

Humphreys (1984) has introduced a framework that differentiates five levels of abstraction in representing decision problems: scenarios exploring small worlds, problem structuring languages, restructuring within a particular structural variant, formal operational: sensitivity analysis, and concrete operational: making 'best assessments'. At each levels during the problem solving process constraints are set that effect lower levels and gradually lead to selection of acceptable alternatives or even the best alternative.

PUBLIC PROCUREMENT DECISION MAKING

Public Procurement procedures are decision making processes

Procurement procedures are decision processes: the procuring authority has to compare the proposals (submitted in response to a contract notice) against pre-set criteria and needs to choose one of them or reject all of them. The decision logic of procurement can be characterized as follows: it is a 'one winner' selection process from known alternatives, where the alternatives are compared at the same time using a previously determined, unified criteria system. Procurement procedures are also group processes, and negotiations among the stakeholders is an essential part of completing the task.

The decision making environment

In terms of the model by Thai (2001) the focus is on Procurement Function in Operation and its relations to Procurement Regulations. Secondary concern relates to the relations with Policy Making and Management. To analyse the forces shaping the environment of PP decision making a model (Figure 1) was developed based on the integration of the above model and the one by Harland et al. (2000) also discussed earlier. For the purpose of the research the former is extended to include entities outside the public sector while the latter is simplified (by grouping factors together).

The regulatory framework is a result of the law-making process. The procurement practice is then subject to interpretations of the law. This is partly determined by the appeal review board and court case decisions, partly by the every day work of procurement officers and professionals

as they apply the rules. The decision is influenced by the conditions of the market (in particular the availability of the suitable and qualified suppliers, technologies offered, prices, etc.), and determined by the aspirations of the CA as well as by the (expressed or identified) needs of service recipients.

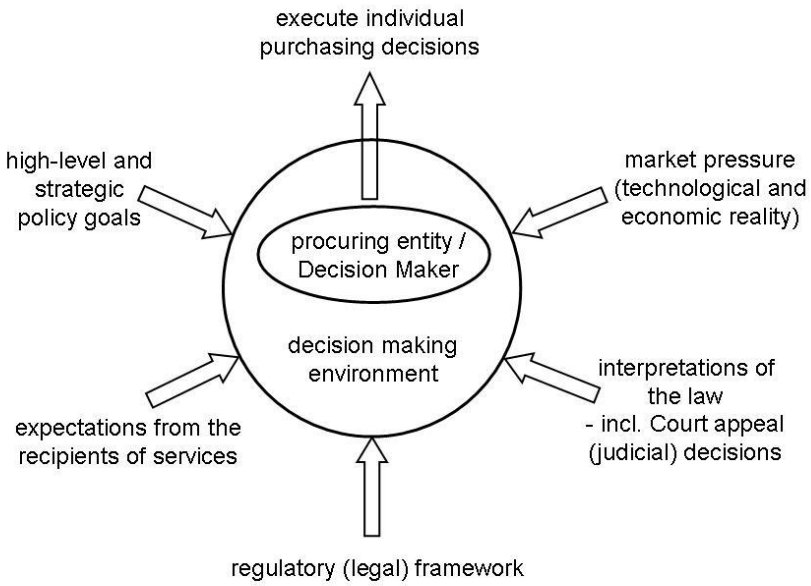

Figure 1. Forces shaping Public Procurement decision making environment

Characteristics of the PP decision making process

In terms of the process by Várday (2005), the primary focus at this point is the proposal phase. The law explicitly defines the steps and their order to follow: preparation and publication of the notice, submission of proposals, evaluation of the proposals and contracting.

The law tries to trim certain (assumed) negative tendencies of the CAs when it comes to the question of ensuring fair competition. The rules are also supposed to be set such that they aimed at restricting

potential corrupt practices. Thus, it seems, the intention of the lawmaker may be described as prescriptive.

However, the decision making setting created by the legal framework of the EU Directives (even more so of the Hungarian Act on PP) is normative in two ways. It determines in considerable details the steps of the process how to run procedures. It also restricts (standardizes) the means how to collect information and the methods to be used for selection (tenderer evaluation and awarding).

As pointed out by descriptive models of decision making, most decisions mean searching for alternatives and iteratively modifying them along with the goals, objectives and value-relations according to options available. This is true for either (private) business or strategic or even personal decisions as well as for public sector political decisions. Options (thus alternatives) are debated and modified, values raised and questioned.

However, a PP procedure is neither an interactive nor an iterative decision making process. Once the notice is published, the CA may not learn during the process (except that he may improve his practice next time around). As a result, the CA may not make a mistake: if the contract notice or the technical documentation is faulty or contains errors those may not be corrected. The last resort may be to recall the procedure (but not without legal consequences). Therefore, assembling the selection and contract award criteria in harmony with the goals and the technical documentation has serious consequences.

During PP decision making the CA does not create alternatives - neither they are readily available to choose from. The procuring entity need to "generate" them indirectly. Alternatives are the proposals received in response to a contract notice. The CA has to freeze both qualitative selection and contract award criteria in advance[7] in the contract notice already. Consequently, the CA does not actually make a selection either. Instead, the CA makes meta-decisions (decisions about a decision) that create the *rules* how the winning tenderer will be selected. This is true for almost all types of procedure to a certain extent: open, restricted, framework agreement, negotiation and even the form of auction that is allowed under PP directives. Only competitive dialogue could be considered fully exempt.

The predetermined set of criteria along with data provided in the proposal combined with expert judgements rank the proposals. The room for the decision maker to manoeuvre is limited. He may set the strategic goals and objectives for the purchasing project and may appoint the members of the expert team. He could also review all important aspects of the contract notice and the technical documentation before finalizing and publishing them.

The complex system of selection and contract award criteria put forward by the procuring entity is used to identify the winner on any given transaction. Therefore, it is of upmost importance.

Dealing with trade-offs

Risk trade-offs

Calculating and deciding about risk types is typical of private sector strategy building. On the other hand, this – seemingly – is missing from public procurement. Seemingly, because although it is rarely talked about especially within the regulatory system, there is indeed a lot of risk associated with individual Public Procurement procedures[8]. Unfortunately, risk is not always properly dealt with. As Erridge (2004) rightly points out "... public procurement regulations and accountability systems reinforce formal procedures and a risk avoidance culture". Hughes (2005) identifies risk avoidance as the fifth most important obstacle to improving procurement at the local government level.

The legal framework does not leave much room even for the notion of risk. Risk handling is an exception and only relates to pricing matter (see European Commission, 2004, Article 47 on "Economic and financial standing" of the candidate"). No mention of technical, project or personnel risk - therefore no means recommended how they might be handled. Of course, the question is open whether the law should go into such details - but it does go into certain details regarding other aspects of the contracting and selection procedure.

There are formal and controlled pre-set means in the directives and in the Hungarian AoPP how a contracting authority may deal with risk associated with economic operators. However, these are limited to suitability of tenderers (European Commission, 2004, Section 2). It is questionable whether these are the best, or even the only worthwhile means to consider. The point is they are the only ones legally acceptable. Furthermore, these are go–no-go measures, meaning related risks may

not be estimated or taken into account when calculating the "expected utility" of a feature or a proposal. Thus Erridge (2004) is, again, right with his statement: "the main focus is on compliance with ... directives". The thing that is missing most is means to incorporate risk calculations into the criteria system (see also Krüger, 2004). Additionally – and it is not a legal matter –, guidance on how to calculate and integrate risk factors into the selection process might prove helpful.

Goal trade-offs

Hughes (2005) lists seventeen components spanning from best value performance plan to e-government tasks and from staff consultation issues to local health delivery plan – all assumed to be part of a Local Government's procurement strategy. Thus the objectives to be considered by a typical public procuring entity is wide ranging when it comes to purchasing.

On the other hand, the core of the regulations is about emphasizing the goals of open competition and transparency. The Preamble of the latest EU directives (European Commission, 2004, recital (46)) aims at bringing other objectives into the picture "such as meeting environmental requirements" or "criteria aiming to meet social requirements, in response in particular to the needs … of particularly disadvantaged groups".

This may be juxtaposed to socio-economic responsibilities of the government and increased efforts towards the inclusion of higher-level objectives in PP procedures.

The final vote is then cast by the choice of criteria. However, comparing Preamble recital (46) and Article 57 and taking the rules on contract award criteria restrictively essentially rules out the possibility of bringing in any socio-economic goals except certain environmental and possibly employment criteria (as long as they relate to the object of the contract). Decisions resulting from the dominance of regulatory goals may not serve the intended goal of competition (Parliamentary Secretary's Task Force, 2005). This is not surprising as immediate short term goals usually dominate long term goals (Harland et al., 2005). Preamble recital (46) states: "… the contracting authorities … shall assess the tenders in order to determine which one offers the best value for money… In order to do this, they shall determine the economic and quality criteria which … must make it possible to determine the most

economically advantageous tender … The determination of these criteria depends on the object of the contract … as defined in the technical specifications, and the value for money of each tender to be measured, compared and assessed objectively." Thus all strategic, socioeconomic or other non-regulatory goals may only be interpreted within the frame of VfM, the criteria for which is to be determined within the requirement of transparency in the name of competition.

In the UK, for example, there is an explicit Government definition of "best value" for procurement (ODPM, 2003). It is “the optimum combination of whole life costs and benefits to meet the customer’s requirement”. Conflict may be identified within the EU directives when one compares recital (1) with recital (46) and then both with Article 53. The result is a shrinking space for the Contracting Authority to set criteria in order to achieve his goals. To add salt to the wound no definition of Best Value or Value for Money exists in the Hungarian Act on PP.

One resolution might be that instead of hoping for cost decrease in PP procedures, the resulting higher price (see Arrowsmith, 2002, Krüger, 2004, or Parliamentary Secretary’s Task Force, 2005) – or sometimes lower quality (Piga and Zanza, 2005) – of open procedures could be considered to be the price tag of open competition and transparency.

Stakeholder trade-offs

Procurement procedures are usually group decision processes in two senses: on one hand, various organizational leaders (managers, officials etc.) meet and their interests and preferences clash during the process, and on the other hand, making the proper decision usually calls for a wide range of expertise to be harnessed in order to make the decision. In more complex cases, such as procurement of large development and construction projects resolving negotiations and other issues among the stakeholders as well as among the experts is not a straightforward exercise and may require professional help.

The AoPP requires the forming of a jury[9]. It also specifies what type of expertise need to be represented during both the preparation and the evaluation phase. The rules even require jury members to write individual reports representing their own opinion and judgements of each proposal. However, it is not clear, whether each member should only

vote on award criteria belonging to their area of competence or on all criteria.

The cost of information and time

Regulatory rules of open procedures indirectly assume that the procuring entity has sufficient knowledge of the market such as what the market has to offer, who the (dominant) players are, or what the typical costs or prices are. Furthermore, the CA needs to know the competitive behaviour (bidding logic) of potential tenderers in order to determine which procedure type to select (McMillan, 1994). However, in reality, the CA only has assumptions based on his limited knowledge of the market and behaviour of economic operators. The result also depends on the time and expertise available. How could he calculate possible consequences and set criteria correctly, when he knows very little about candidates or their offer?

It is essential to plan in advance as well as to collect as much information as possible during the preparation of the notice and technical documents. But this is not without a price tag, of course.

Methods applied in PP procedures

The methodology applied during this process determines how the CA 'searches' for and finds alternatives and how he compares them. By methods we mean the conditions used during the evaluation of the tenderers and their tenders: how selection and award criteria are defined and related, how weights and utility of each award criteria are determined, how scores are calculated and so on.

Choosing a procedure type results in limited methodology choices. During the preparation of an open procedure the CA needs to identify his trade-offs and be able to express this in the terms of the criteria and associated scoring techniques. He needs to make assumptions about potential alternatives, along them an ideal one, which would receive the highest score.

The criteria for qualitative selection as defined by EU rules (e.g. 18/2004/EC, Chapter VII, Section 2) results in a yes-no type or filtering decision rule. This is further limited by the means how to prove suitability or capabilities and how tenderers may be rejected. The result is essentially a normative expectation over the choice of method. It is worthwhile to note though, that in essence these verification

requirements are aimed at reducing risk. There is no possibility, however, to include risk as an attribute for contract award criteria.

The Hungarian AoPP goes into specific details how the final score of tenders for the contract award criteria should be calculated (Hungarian Act on Public Procurement, 2003, Article 90). It defines additive MAUT structure. The requirements for the contract award criteria usually meet most of the related preconditions, such as being psychologically independent, but it is questionable, whether enforcing a specific scoring and calculation schema would meet the standards of a more rigorous mathematical inquiry. More importantly, however, the validity of the whole approach when considering policy or even personal decisions is, at minimum, debated (Schwartz, 1986). Piga and Zanza (2005) reports, that various European countries use differing mathematical formulae to calculate the scores to find the most economically advantageous tender. There is no mention of the conditions to be met for those formulas to be applicable.

To summarise, although from the point of view of competition it might make sense to set the criteria in advance, yet it is NOT at all intuitive as the CA might not be able to tell the consequences of the criteria system created. Sensitivity analysis over assumed proposals might be of help but it requires not only the intention but skills and tools as well.

A note on the role of economic operators

The whole setting implicitly assume that economic operators do know and are able and willing to follow the rules. Tenderers also must be able to understand the contract award criteria and methodology so they can determine their own trade-offs. They should be able to calculate what features of their offer to improve to achieve the highest technical marks with the lowest cost to them. This “rational” behaviour, on the other hand, may help CAs to set their criteria such, that if directs tenderers into desired directions.

Factors influencing the PP decision making practice

The forces identified earlier (see Figure 1 on page 882) still represent abstract components of the environment. However, as the above theoretical analysis revealed, the everyday decision making practice is influenced by more “mundane” forces. Figure 2 introduces the factors the

investigations have identified[8] as important in influencing "daily" PP decisions. These became the focus of the related case study research.

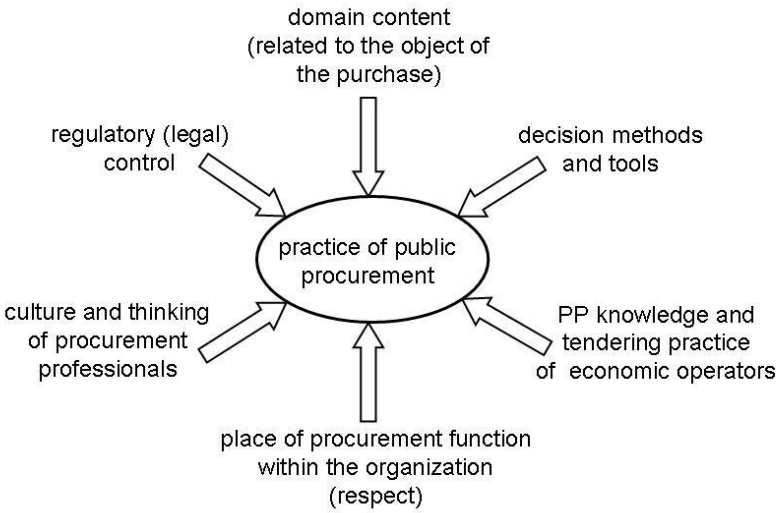

Figure 2. Factors influencing PP decision making practice

To understand the dynamic of this model the following questions were leading the investigation within the original goals (see Section 2.4):

- In what ways does legal control (especially the interpretation of the law as reflected in appeal decisions by the PP Arbitration Board) affect everyday PP decision making?
- How important is the domain knowledge during PP procedures and is it treated accordingly?
- How economic operators' behaviour and tactics influence the preparation of the evaluation and contract award criteria?
- Would the status of the procurement function within organizations be reflected on the process and its outcome?
- What types of attitude characterize procurement professionals in their work?
- Do CAs apply Decision Support in any form and how does that (or lack thereof) effect their performance?
- All in all, how does the overall surface of the combined result of individual purchasing decisions measure up regarding socio-

economic goals? Are ambitions to use PP to support high-level government aims even attainable when it comes to the "muddling-through" (Caldwell et al., 2005) of individual procedures?

The expectation would be a healthy balance of these factors influencing the practice. However, evidence from case studies as well as from the literature have shed light on certain anomalies resulting from the interactions among these factors.

DISCUSSION OF THE PRACTICE

The surrounding environment (judicial bodies or the society at large) is more sensitive to the mode of selection and the procedural aspects than the appropriateness of the content or methodological correctness. This may be due to the fact that the former two aspects may be controlled and are easier to verify. The dominance of regulatory goals leads to distortion of the practice. Paradoxically, the resulting decisions may not serve the intended goal of competition.

No matter how carefully crafted the legal regulations are legal control in itself without the professional control of the content (thus without proper domain knowledge related to the object of purchase) there is room not only for mistakes but for corruption as well. As demonstrated in several of the cases investigated in Hungary, over-controlled legal environment or overreacting legal control may lead to absurdity of the content or empty criteria not serving the goal of selecting a quality proposal from a reliable supplier.

The quality of the decisions is further undermined by mistakes and errors on the part of the contracting authority. Some are the result of lack of knowledge of either the market or the regulations, others are due to negligence. This allows trickery tenderers to have a field day. The negligible cost of an appeal combined with the lack of punishment if it is lost resulted in the practice of an almost automatic appeal in some market sectors. On the other hand, unprepared economic operators unaware of the rigorous requirements of the PP system may end up wasting their effort as their proposal is more likely to be rejected - either due to formal problems or content issues. In extreme cases the CA might end up with no contract as a result of having no valid proposals. This point was, unfortunately, well proven during the first half a year after Hungary had

joined the EU, as the regular suppliers of those CAs who were newcomers to the PP arena (i.e. firms from the utilities sector and those who received subsidies) were unfamiliar with PP rules and were unable to submit acceptable tenders.

Although this varies from country to country and from sector to sector, the status of the procurement function and its professionals on average is perceived to be lower compared to other public sector functions (when it is expressed through compensation and job attractiveness - see responses from the 2nd IRSPP Workshop[11] reported by Harland et al., 2005). This seems even more negative when it is compared to the importance of the function and the attention it receives (especially when it performs poorly such as in case of proven corruption incidents).

Regarding methodology, lack of skills and understanding and the resulting wrong choice of methods may lead to unwanted results. According to Soudry (2004), for example, the new tool of dynamic purchasing systems as a method of choice could lead to financial savings, but only if used properly. However, misjudging its appropriateness could lead to serious losses as it could backfire if used improperly (McMillan 1994). It is unlikely to be able to support any high-level policy objectives.

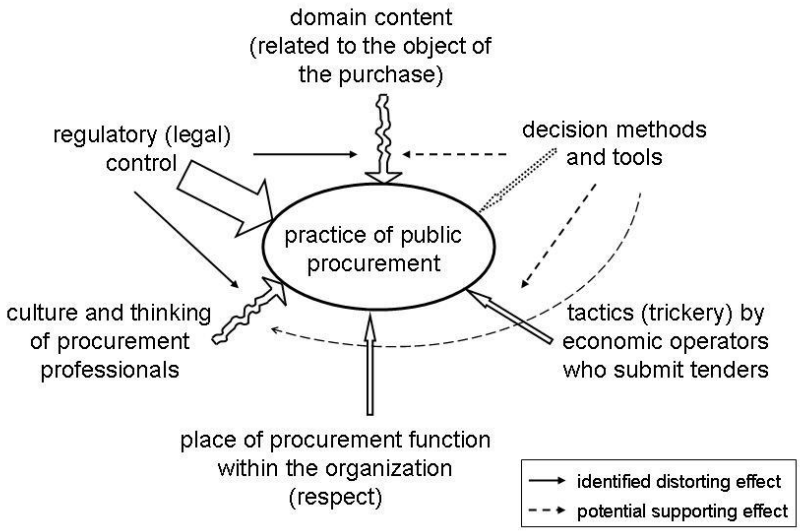

Figure 3. Main interactions – distortion and support – among factors

Although all forms of competitive tendering is indeed a decision making process the need for this particular type of knowledge is not even recognized[12]. CAs are reluctant to spend money on hiring required experts. In fact, in most municipalities of Hungary there is a limit on pre-project spending: it may not exceed 1% of the estimated total cost. That is not enough to run proper studies, pay experts or hire consultants with relevant background (as a comparison, according to industry standards most private firms may spend 8-12% on the preparation of a major project). The result is, paradoxically (or may be not so paradoxically), a much higher risk factor associated with the execution of the project.

The conclusion is that the priority of regulatory expectations leads to distortion of the practice. The overall picture of above interactions is depicted in Figure 3.

CONLCUSIONS AND SOME RECOMMENDATIONS

There might be a hidden cost for the primacy of regulatory values in the name of competition and transparency as advocated by the directives and the EC. The law making process needs to consider methodological issues more closely. It is important to consider what to include or not to touch on in the law and into what methodological details should the law go. It sounds reasonable to include passages that support the application of sound decision methods during the tender preparation and the bid evaluation process. It is important to avoid over-regulation (which was typical of former Hungarian Procurement Acts) as well as under-regulation (usually fought for by lobby groups). By over-regulation we mean regulating a certain aspect in details that cannot fit every project. If the law contains methodological components, it is also necessary to avoid simplification in order to have easily followed regulations as complex problems cannot always be handled in simple manner or using simple solutions. In Hungary it has proven useful to provide detailed methodological guidelines as a complementary reference to the Act. These guidelines may openly talk about practical traps and how to avoid them.

Regarding individual procedures, properly applied decision support techniques may be able to help (Gelléri and Csáki 2003). The process may be aided by facilitation and could also be supported by dedicated

decision support software tools. Good knowledge of proper methodology could have a positive effect and may determine how organizations perform in executing their plan. However, the motivation and circumstances determining whether decision support solutions with promising effects are actually used, as well as the success of their application depends on several interplaying conditions (Gelléri and Csáki, 2006). Finally, high value and complicated processes should consider the involvement of decision support experts.

Being new to public procurement seemed to be an advantage, however, as these companies could leapfrog other organizations. With consulting support they could directly deploy a higher level of decision-making methodology and technology. Some of the Hungarian organizations have started anew and in response to consultant recommendations introduced proper methodologies right form the start. Appropriately designed corporate public procurement regulations can lower the chance of corruption as well by clarifying decision making roles and responsibilities and developing harmonized policies along with guidelines and best practices (Gelléri and Csáki, 2006). As a result, it would be hard to influence or deflect the process.

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1. NOTES

1. Singapore reported 17%, while Canada is over 40% and the UK is in the range of 44% (Knight et. al., 2003a).
2. See for example the 1st International Public Procurement Conference in Florida, USA, the Public Procurement Conference of the Americas in Vancouver, Canada, or the Public Procurement:

Global Revolution conference in Nottingham, UK, just to name a few.

3. Also called "sealed bid" in US terminology.
4. As both negotiated procedures and the dynamic purchasing system solution contains elements that resemble the features of open procedures, most of the statements are valid for those particular procedure elements as well. This is also true for the first phase of framework agreements.
5. Since then this new Act was modified to comply with the latest 2004 EU directives. No new Act was issued as the 2003 Act was supposed to be harmonized and only the new procedure types needed to be introduced.
6. The research started before the latest modifications of the Directives and the corresponding Hungarian Act took effect of January 15, 2006. However, the Act of May 1, 2004 was conceived already under the notion of the new EU directives and only new procedure types were added and some amendments made to line up with the final version of the directives. Consequently, the findings presented would not be limited to the old set of EU directives.
7. This is not about ban-on-negotiations (Krüger, 2004). We do not intend to argue one-way or the other whether these rules are rational or not. We simply show the characteristics and decision theoretical consequences of given rules.
8. Risk is also present during the law-making process or when creating regulatory directives, however, this paper only focuses on the transactional level.
9. Also called evaluation committee or sometimes referred to as awarding commission.
10. For now only those factors are presented that could already be concluded from our case studies as relevant to PP contracting decisions.
11. IRSPP website: http://www.irspp.com/irspp2.htm.
12. Although our experience (reported in Gelléri and Csáki, 2006) clearly demonstrates its benefits in curbing corrupt effort, for example.

13. The solution of electronic dynamic purchasing systems as interpreted by EC Directives is essentially a limited mode of electronic reverse auctions.

REFERENCES

Arrowsmith, S. (2002). "The E.C. Procurement Directives, National Procurement Policies and Better Governance: The Case for a New Approach." *European Law Review*, 27(1): 3-24.

Bartee, E.. M. (1973). "A holistic view of problem solving." *Management Science*, 20: 439-448.

Byatt, I. (2001). *Delivering Better Services for Citizens: A review of local government procurement in England*. London, Department for Transport, Local Government and the Regions. [On-line] Available at: www.dtlr.gov.uk. [Retrieved April 22, 2006]

Baron, J. (1995). *Thinking and Deciding.* 2nd Edition, Cambridge University Press, USA.

Brown, A. (2004). "The Impact of New Procurement Directive on Large Public Infrastructure Projects: Competitive Dialogue or Better the Devil You Know?" *Public Procurement Law Review*, 13 (4): 160-177.

Caldwell, N. D., Walker, H., Harland, C., Knight, L., & Zheng, J. (2005). "Promoting Competitive Markets: The Role of Public Procurement." In Thai, K. V., et al. (Eds.), *Challenges in Public Procurement: An International Perspective* (pp. 315-334). PrAcademics Press, Boca Raton, Florida, USA.

Erridge, A. (2005). "UK Public Procurement Policy and the Delivery of Public Value." In Thai, K. V., et al. (Eds.), *Challenges in Public Procurement: An International Perspective* (pp. 335-354). PrAcademics Press, Boca Raton, Florida, USA.

European Commission (1996). *Public Procurement in the European Union: Exploring the way forward.* (aka Green Paper) Brussels, Directorate General XV. [On-line] Available at: http://europa.eu.int/comm/internal_market/publicprocurement/docs/green-papers/com-96-583/com-96-583_en.pdf. [Retrieved April 20, 2006]

European Commission (2004a). "Directive 2004/17/EC of the European Parliament and of the Council of 31 March 2004 coordinating the procurement procedures of entities operating in the water, energy, transport and postal services sectors." *Official Journal (O.J.),* No. L 134, 30/04/2004, pp. 1-113. [Also On-line] Available at: http://europa.eu.int/eur-lex/lex/LexUriServ/LexUriServ.do?uri=OJ:L:2004:134:0001:0113:EN:PDF. [Retrieved April 20, 2006]

European Commission (2004b). "Directive 2004/18/EC Of The European Parliament And Of The Council of 31 March 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts." *Official Journal (O.J.),* No. L 134, 30/04/2004, pp. 114-240. [Also On-line] Available at: http://europa.eu.int/eur-lex/lex/LexUriServ/LexUriServ.do?uri=OJ:L:2004:134:0114:0240:EN:PDF. [Retrieved April 20, 2006]

Gelléri, P., & Csáki, Cs. (2003). "Voter's confidence and some other targeted GDSS functionalities: where are they truly needed?" In Proceedings of the DSS 2004 IFIP WG 8.3 Conference in Prato, Italy, July 1-3, 2004 - #27. [On-line] Available: http://dsslab.sims.monash.edu.au/dss2004/proceedings/pdf/27_Gelleri_Csaki.pdf. [Retrieved July 3, 2004]

Gelléri, P., & Csáki, Cs. (2006). "Conditions and Benefits of Applying Decision Technological Solutions as a Tool to Curb Corruption within the Procurement Process: The Case of Hungary". *Journal of Purchasing and Supply Management* - Special Issue on Public Procurement (under publication). [Currently available online at http://dx.doi.org/10.1016/j.pursup.2006.01.002].

Gelléri, P., & Martinez, F. (1988). "Culture of Decision-Making and the Use of DSS in Municipal Organizations." In P. Kovács and E. Straub (Eds.), *Governmental and Municipal Information Systems* (pp. 117-128). Amsterdam, The Netherlands: North-Holland.

Harland, C., Gibbs, J., & Sutton, R. (2000). "Supply Strategy for the Public Sector: Framing the Issues." *Proceedings of the International Purchasing and Supply Research and Education Association (IPSERA) Annual Conference*. London, Western Ontario.

Harland, C. M., Bakker, E. F., Caldwell, N. D., Phillips, W. E. & Walker, H. L. (2005). *The Changing Role of Public Procurement - Executive Report of the Second Workshop, International Research Study on Public Procurement.* Bath, UK: Centre for Research in Strategic Purchasing and Supply, University of Bath School of Management.

Howard, R. (1968). "The foundations of decision analysis." *IEEE Transactions on Systems, Science and Cybernetics*, SSC-4: 211-219.

Humphreys, P. C. (1984). "Levels of Representation in Structuring Decision Problems." *Journal of Applied Systems Analysis*, 11: 3-22.

Humphreys, P. C., & McFadden, W. (1980). "Experiences with MAUD: aiding decision making versus bootstrapping the decision maker." Acta Psychologica, 45: 51-69.

Hughes, M. (2005). *Evaluation of the Local Government Procurement Agenda - Baseline Survey Report*. The Office of the Deputy Prime Minister, London. [On-line]. Available at www.odpm.gov.uk. [Last retrieved April 20, 2006].

Hungarian Act on Public Procurement (2003). *Act CXXIX of 2003 on Public Procurement*. [On-line] Available at http://www.kozbeszerzes.hu/index.php?akt_menu=86&details=70 or http://www.kozbeszerzes.hu/index.php?akt_menu=86&details=70#. [Last retrieved: May 7, 2006]

Knight, L., Caldwell, N. D., Harland, C., & Telgen, J. (2003a). *Government Reform and Public Procurement – Report from the first International Research Study on Public Procurement*. Bath, U.K.: Centre for Research in Strategic Purchasing and Supply, University of Bath.

Knight, L., Caldwell, N. D., Harland, C., & Telgen, J. (2003b). *Academic Report from the first International Research Study on Public Procurement*. Bath, U.K.: Centre for Research in Strategic Purchasing and Supply, University of Bath.

Krüger, K. (2004). "Ban-on-Negotiations in Tender Procedures: Undermining Best Value for Money?" *Journal of Public Procurement*. 4 (3): 397-436.

Lawther, W. C., & Martin, L. L. (2005). "Public Procurement Partnerships." In Thai, K. V., et al. (Eds.), *Challenges in Public*

Procurement: An International Perspective (pp. 151-177). PrAcademics Press, Boca Raton, Florida, USA.

McMillan, J. (1994). "Selling Spectrum Rights." *The Journal of Economic Perspectives*, 8 (3): 145-162.

Mintzberg, H, Raisinghani, D., & Théorét, A. (1976). "The Structure of "Unstructured" Decision Processes." *Administrative Science Quarterly*, 21(June): 246-275.

Office of the Deputy Prime Minister - ODPM (2003). *Local Government Act 1999: Part 1 Best value and Performance Improvement.* London: TSO.

OGC Office of Government Commerce (2004). *Capturing Innovation: Nurturing supplier's ideas in the public sector*. Office of Government Commerce, London. [On-line] Available at http://www.ogc.gov.uk/. [Last retrieved April 30, 2005]

Parliamentary Secretary's Task Force, Government-Wide Review of Procurement – Government of Canada (2005). "Government-Wide Review of Procurement: Redesigning Canadian Procurement." In Thai, K. V., et al. (Eds.), *Challenges in Public Procurement: An International Perspective* (pp. 63-79). PrAcademics Press, Boca Raton, Florida, USA.

Phillips, L. (1984). "A theory of requisite of decision models." *Acta Psychologica*, 56 (I-III): 29-48.

Piga, G., & Zanza, M. (2005). "An Exploratory Analysis of Public Procurement Practices in Europe." In Thai, K. V., et al. (Eds.), *Challenges in Public Procurement: An International Perspective* (pp. 179-206). PrAcademics Press, Boca Raton, Florida, USA.

Schwartz, B. (1986). *The battle for human nature: Science, morality and modern life.* New York: Norton.

Simon, H. A. (1960). *The new science of management decisions.* Harper & Brother, New York.

Soudry, O. (2004). "Promoting Economy: Electronic Reverse Auctions Under the EC Directives on Public Procurement." *Journal of Public Procurement*. 4 (3): 340-374.

Thai, K. V. (2001). "Public Procurement Re-examined." *Journal of Public Procurement*. 1 (1): 9-50.

Thai, K. V. (2005). "Challenges in Public Procurement". In Thai, K. V., et al. (Eds.), *Challenges in Public Procurement: An International Perspective* (pp. 1-20). PrAcademics Press, Boca Raton, Florida, USA.

Várday, Gy. (2005) "A hazai közbeszerzés egy gyakorló szakértő szemével (Hungarian Public Procurement through the Eyes of a Practicing Professional)". In dr. Tátrai, T. (Ed.), *Közbeszerzési kézikönyv nem csak pályázóknak (Public Procurement Handbook – not only for those who seek subsidies)* (pp. 189-208). Szaktudás Kiadó Ház, Budapest. (In Hungarian)

Vlek, C. A. J., & Wagenaar, W. A. (1978). "Judgement and decision under uncertainty." In *Handbook of psychonomics*, North Holland, Amsterdam.

Walker, H., Harland, C., Knight, L., & McBain, D. (2004, June 28-29). "Sustainability, Public Procurement and Supply." Paper presented at the *Corporate Social Responsibility and Environmental Management Conference*. Nottingham, U.K.