

A SECURE, SIMPLE AND EFFICIENT WAY TO TRADE

PARTISIA GENERIC AUCTIONS



PARTISIA
MARKET DESIGN

SECURE

- The bids are encrypted and remain so forever
- The required computations are done directly on the encrypted bids
- The decryption key is split such that no single organization or person can access the system

SIMPLE

- The searching and matching is done by the secure mediator
- Competitive prices are settled by the secure mediator
- The security policy is reduced to a minimum – just protect the key!

EFFICIENT

- Maximize gains from trading
- Cost efficient administration since no confidential information is involved
- Cost efficient repetitions since all processes can be computerized



AUCTION DESIGN IS NOT "ONE SIZE FITS ALL".

Paul Klemperer: What Really Matters in Auction Design (2002)

INTRODUCTION

Trade create value by matching buyers and sellers and finding the right price. Well-designed auctions ensure optimal matching and pricing.

If the traded commodity is well specified, a simple price auction is often the most efficient approach. In more complex market situations more advanced auctions or flexible approaches are required. It may for example be useful to combine simple auctions with negotiations: An initial price auction may for example select the parties for intermediate negotiations, and a final price auction may ensure an efficient price settlement with the negotiated product or service characteristics.

Auctions often benefit from fully or partially sealed bidding, with Partisia Market Design, sealed bidding is done in a secure, simple and efficient way.

Partisia Market Design is developing and maintaining a range of generic auctions based on our innovating secure, simple and efficient approach.

Moreover, Partisia economists help design the optimal mechanism for the given context, and in collaboration with Partisia computer specialists, they ensure that the generic mechanisms are adapted to the specific application.



WHERE COLLUSION IS A SIGNIFICANT THREAT,
USE SEALED-BID RATHER THAN ASCENDING AUCTIONS

GENERALLY, SEALED-BID AUCTIONS ARE
BETTER THAN ASCENDING AUCTIONS
IN PROMOTING PARTICIPATION

OECD Policy Roundtables: Competition in bidding markets (2006)

SECURE

Our new approach to information security guarantees ideal (deep) confidentiality. Participants' bids are encrypted using state-of-the-art security technology before they leave the participants' computers. The submitted bids remain encrypted at all times and are never decrypted. Using the unique Partisia technology computations are done directly on the encrypted bids.

The system relies on a number of "key custodians" and the security can only be broken if they cooperate. So by giving parts of the decryption key to each of several interest groups, the security can only be broken if they cooperate - and if they do so, confidentiality would not have been an issue in the first place.

Keeping the bids confidential is an important feature. Sealed bidding with Partisia technology avoid some types of collusion and limits others. Apart from preventing collusion the specific context may provide several reasons for keeping the bids confidential including:

- General reluctance to share private information
- Avoid a central accumulation of private information
- Hold back information that may be used in related negotiations



THE SECURE APPROACH
SIMPLIFIES THE ADMINISTRATION
BY LEAVING NO CONFIDENTIAL
INFORMATION TO HANDLE.
THE SECURITY POLICY IS REDUCED
TO SAFEGUARDING A KEY.

Partisia Market Design

SIMPLE

Trading is simple: It only requires that the participants submit information about demand and/or supply. This is done through a secure and user-friendly web page. Hereby, the participants no longer has to go through the hassle of finding buyers or sellers and negotiate prices at the risk of not settling at the right prices - all trades are examined and the most optimal realized.



Administration is simple. The secure approach simplifies the administration. All the required computations are done directly on the encrypted bids and the public result is revealed simultaneously to the involved parties. Therefore, no special procedures are required to handle confidential information. In practice, the traditional complex security policy is reduced to safeguarding a decryption key. A decryption key that is useless by itself.

Also, in terms of communicating the security, the simplicity makes it easy: All bids are encrypted and remains encrypted forever. Only through the keys held by the custodians can computation be performed.

To ease the implementation of Partisia Market Design Solutions with existing IT systems, the required integration is kept at a minimum.

BETTER MARKET DESIGNS
WILL DO A BETTER JOB OF
MATCHING BUYERS AND SELLERS,
ULTIMATELY ENHANCING
THE WELFARE OF THE SOCIETY

Amy Greenwald: Game Theory and the Design of Electronic Markets
"Hot topics" www.reviews.com (2006)

EFFICIENT

The central matching and pricing using our secure and simple approach realizes the most competitive prices at minimal costs. Auctions from Partisia Market Design ensures:

- Maximal gains from trade
- Cost efficient administration with no confidential information involved
- Cost efficient repetition since all processes can be computerized



TRANSACTION COST
MINIMISATION IS ESSENTIAL
TO ENSURE GOOD
MARKET PERFORMANCE.

EUs Commission's report on the economic effects of public procurement 2004

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