RULE-BASED NEGOTIATIONS: HARNESS THE POWER

HOW TO USE GAME THEORY AND RULE-BASED PROCESSES TO GET AN EDGE IN PROCUREMENT NEGOTIATIONS

Procurement negotiations are renowned for being a battle of wills and a show of steely determination, more akin to a game of poker than a business transaction. With the application of game theory, the scientific framework which analyses interactions between different parties, Procurement can ensure they hold all the cards and turn this game of chance into a scientific, proven and reliable process.

This revolutionary approach enables procurement professionals to use rule-based negotiation processes, which outmanoeuvre traditional sales tactics and ensure they can steer negotiations in their favour.

What is rule-based negotiation?

Rule-based negotiations are where the procurement manager defines the rules of the process upfront, as well as the decision criteria and how the supplier selection will be made. The decision is then taken mechanistically, which means that the chosen rules and criteria determine the winner with little or no intervention by the procurement manager. In such settings, procurement managers need game theory to develop the best rules for the specific situation.
Eliminate traditional sales tactics problems

Utilising rule-based negotiation ensures that some of the worst problems of traditional sales tactics are avoided – such as inflated pricing.

Traditionally, sales anticipate extended negotiations and thus pitch a high price at the beginning to allow room for haggling. However, if the sourcing decision is taken mechanistically through a game-theoretically optimised negotiation design, there is no benefit in pitching a high price anymore as the rule-based mechanism is blind to such tactics. Game theory in effect forces sales to show their hand.

The most commonly known example of a rule-based negotiation is an auction, where this point is well made: There simply is no point in bluffing in an auction house. One either raises one’s bid to the next increment or one does not. If one does not before the hammer comes down, someone else wins and there is no further argument about the outcome post auction.

Get the design right to harness the power correctly

Unfortunately, designing the right mechanism is not all that simple.

Rule-based negotiation processes come in all shapes and guises ranging from face-to-face negotiations which follow a pre-determined rule set, to very mechanistic negotiation formats such as auctions. Powerful as they are when used correctly, choosing the wrong negotiation rules can have disastrous effects.

Different negotiation rules lead to completely different results

In any negotiation, small changes in the rules will result in big differences in the outcome. This is clearly shown in a simple example where a procurement manager wants to buy a commodity product which is off-the-shelf, available from many different suppliers and with little differentiation other than price.

Illustrative example

The procurement manager decides to run a rule-based negotiation, where the supplier offering the lowest price wins the contract. All suppliers understand that the decision of the mechanistic process will stand without further negotiations.

There are three suppliers shortlisted: Supplier A, B and C. Each supplier has a fall-back position equating to the lowest price they are willing to accept in negotiations:

Supplier A - GBP 120  
Supplier B - GBP 110  
Supplier C - GBP 100

The procurement manager considers three different scenarios:
Scenario 1: English Dynamic Negotiation Process

The procurement manager starts with a high price and the suppliers make offers by simply shouting a lower price than the previously best bidder. The last supplier to make an offer wins the business at their offered price.

RESULT: In this scenario, Supplier C would win at a price of GBP 110.

Scenario 2: English Ticker Process

The procurement manager starts with a high price and reduces the price by GBP 5 in each round. Suppliers need to confirm the current price step, otherwise they drop out of the process and cannot re-join. The last supplier to accept a price step wins the business at the last accepted price.

RESULT: In this scenario, Supplier C would win the business but this time at a price of GBP 105.

Scenario 3: Dutch Ticker Process

In this scenario, the procurement manager starts with a low price and increases the price by GBP 5 in each round. Suppliers can only accept or reject the price steps. The first supplier to accept a price step wins the business at the accepted price.

RESULT: Again, Supplier C would win the business but at a price of GBP 100.

The results explained

In all three scenarios, Supplier C (the supplier with the lowest fall-back position) wins the business. The resulting price is different though in all three scenarios, which is a striking result for any procurement manager.

If we turn this around, it means a suboptimal negotiation design can leave money on the table.

But why do these different negotiation rules lead to different outcomes?

Dutch processes are first price mechanisms

Dutch negotiation processes are so-called first price mechanisms. This means the moment the first bidder is willing to accept a price, negotiations are over, and so the resulting price equals the lowest fall-back position.¹
English processes are second price mechanisms

English negotiation processes are so-called second-price mechanisms. This means the process stops when the second-to-last bidder drops out, meaning that the price the winning bidder receives is equal to, or slightly below the second-to-last bidder’s fall-back position, even if the winning bidder would have been willing to accept a lower price.

The exact rules of the negotiation can influence the gap between the fall-back position of the second-to-last bidder and the winning price. In the first scenario of the English dynamic negotiation process, Supplier C could undercut Supplier B’s last bid by a bare minimum. In Scenario 2, the English ticker process, the distance between bids is determined through the pre-defined decrements.

So, is there one ideal negotiation approach?

Our results so far indicate that a Dutch negotiation process seems to be superior to an English one, but this is not a general result.

There are situations in which an English negotiation can be substantially more beneficial for the procurement manager, otherwise companies like Sotheby’s would have been using the ‘wrong’ format for more than 250 years.

The fall-back positions are not necessarily equal to suppliers’ costs, but usually include a certain margin that has been agreed internally ahead of the negotiation. This means that suppliers can adjust their fall-back positions over the course of the negotiation and might be willing to do so if, for example, they see that their competition is more aggressive than expected. This creates:

Scenario 4: English Ticker Process with supplier review

Information on suppliers’ bidding behaviour can be played back into the market to trigger a change. In this scenario, the procurement manager runs an English ticker process with GBP 5 decrements over the course of several days and informs all suppliers at each price step about the number of bidders that have confirmed the current step. Suppliers can then review the status at each step of the negotiation with their management. If all three suppliers were to reduce their fall-back position by GBP 10 following their internal reviews, the result would be different.

RESULT: It’s again Supplier C who would win the business, but this time at a price of GBP 95.

Interestingly, the winning price is now even lower than the price resulting from the Dutch ticker process in Scenario 3. The English ticker process (as a second-price mechanism) can thus outperform a first-price mechanism in some situations.

However, the English ticker process cannot fully capture the potential of Supplier C being able to accept a lower position of GBP 90 – again, there would be an opportunity to further improve the negotiation outcome.

But how can this be achieved, and how can we harness the full potential of rule-based negotiations?
To harness the full power, hybrid multi-phase negotiations are needed

Different negotiation rules have different advantages and disadvantages, and there are often trade-offs to be considered. In our example, the value of information being played back into the market offsets the effect of the second-price negotiation.

Moreover, in assessing the market situation, the procurement manager must often rely on assumptions as information is not available. For example, the procurement manager does not know the fall-back positions of all suppliers and therefore the lowest achievable price in the negotiation. A rule-based, game-theoretically optimised negotiation design can, however, be used by the procurement manager to extract the lowest possible price in most markets.

It does not come as a surprise that the reality is typically much more complicated than our simple example above. Most procurement settings therefore call for a combination of different negotiation elements to reduce the risk of choosing the wrong negotiation design due to incomplete information.

A hybrid negotiation design consists of several different phases, each tackling different problems individually, offsetting disadvantages of rules used in other phases and serving as a safety net to minimise the impact of inaccurate market assessments. This way, the procurement manager can make sure to deploy the full power of a rule-based approach and get as close as possible to market price.

The below illustration lists some examples for negotiation rules and parameters, and shows in which situations the elements should usually be applied. Please note, however, that these are indications only and by no means represent a complete guideline.
So the context for procurement managers is often much more complex than in our simple example. If the procurement manager is purchasing a bespoke product, there are usually differences between suppliers besides their commercial position, e.g. in terms of product design, service, reliability or technical competence.

There may be only a limited number of suppliers capable of delivering to specification/service level agreement; or there could be strategic considerations leading to a preference for one supplier, such as the need to use the upcoming negotiation to leverage reductions on existing business.

If this is the case, it is even more important not to apply a “one size fits all” approach, but rather to develop a negotiation design that is tailored specifically to the individual situation.

**Preview: How do committed, rule-based negotiations work for complex sourcings with diverse suppliers?**

If there are considerable non-price differences between suppliers, it is obviously not advisable to run a rule-based negotiation exclusively on price. This would just lead to a nomination of the cheapest supplier whereas the aim is to nominate the best supplier for the business and not the cheapest.

If we do not talk about easily comparable products, but bespoke solutions, services or complex investment decisions, cross-functional stakeholders do not naturally sign into a purely mechanistic supplier selection process. Such lack of commitment would clearly prevent Procurement from fully leveraging rule-based negotiations.

In our next whitepaper, we will therefore explore how Procurement can secure the commitment from cross-functional stakeholders in a context of highly strategic, high-stake sourcing decisions where suppliers are not easily comparable.

---

1 Suppliers sometimes try to increase their profit margin by not accepting the first price step above their fall-back position, but waiting for a higher price instead. The more risk-averse the supplier, the less likely and pronounced is this “bid-shading”. In our example, we assume that suppliers are risk-averse and keen to secure the business, so they accept whenever they can.