

NAVAL POSTGRADUATE SCHOOL

Monterey, California



THESIS

**THE POTENTIAL IMPACT OF REVERSE AUCTIONS ON
THE DEPARTMENT OF DEFENSE SUPPLIER BASE**

by

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December 2001

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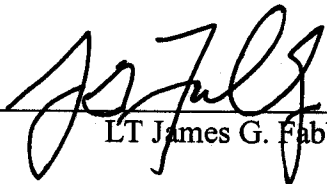
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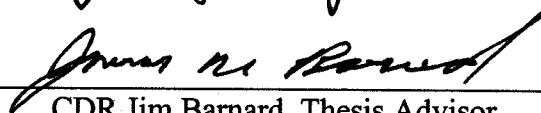
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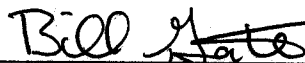


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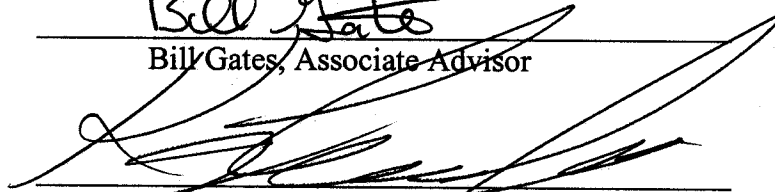
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ABSTRACT

Acquisition reform has resulted in many changes throughout DoD procurement. The draw down of the workforce and financial constraints demand acquisition professionals conduct business in a smarter, more efficient manner. The technology today provides Internet platforms that allow the commercial marketplace to take advantage of electronic commerce. Consequently, several Federal and State Government agencies have turned to Reverse Auctions for potential cost savings. Reverse Auctions have been conducted by several Government organizations within the past year and according to most reports, they were found to be a huge success. The focus for this analysis is to determine what impact, if any, the new Reverse Auction pricing initiative may have on the DoD Supplier Base. It includes an in-depth review of the Reverse Auction literature as well as a survey of over 40, historical and non-traditional, Government suppliers. The results of the survey uncovered several major concerns in respect to the use of Reverse Auctions within the Government. These concerns were analyzed and conclusions were made as to their validity. Several of these concerns are valid and are analyzed in Chapter IV. This thesis concludes with recommendations for the Reverse Auction process in the future.

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I. INTRODUCTION

A. PURPOSE

This research reviews and evaluates the potential effects of the relatively new technology of Reverse Auctioning on the DoD Supplier Base. The research focuses on the recent history of Reverse Auctioning within the DoD and evaluates how this new pricing concept is being accepted within the commercial marketplace. It documents the short-term impact that has been experienced with the use of Reverse Auctions and sheds light on any potential long-term impacts to the DoD supplier base.

B. BACKGROUND

After the end of the Cold War in the early 1990s, the DoD budget was significantly reduced, and it is barely keeping up with inflation at present. Acquisition reform, and specifically the 1994 Federal Acquisition Streamlining Act (FASA) and the 1996 Federal Acquisition Reform Act (FARA), have also resulted in many changes throughout DoD procurement [Ref. 1]. However, although the DoD budget is shrinking, its mission is becoming more complex and is greatly expanding. This serious dilemma of “having to do more with less” has led to innovative ways to deal with the decreasing budget.

Consequently, several Federal and State Government agencies have turned to Reverse Auctions for potential cost savings. Reverse Auctions have been conducted by several Government organizations within the past year and according to most reports, they were found to be a huge success. In these early auctions, significant savings were attained, and as a result, contracts are currently being written with Reverse Auction service companies to continue Reverse Auctioning well into the future. In the short-term, buyers within the Federal Government are buzzing about millions of dollars in savings.

However, what are the potential long-term implications to the DoD supplier base? The buyer seems to be happy, but what about the seller? Are we hurting the defense industrial base by depriving them of needed profits? If profits are being affected, what

implications will this have for the companies and the DoD? Many articles and presentations have documented the short-term advantages of Reverse Auctions for the Government, now lets look at the possible long-term implications and their potential impact on the Domestic Supplier Base.

A Reverse Auction is one of several types of auction techniques. In a Reverse Auction, prospective sellers bid the price down as they compete to provide the industrial parts, raw materials, commodities, or services sought by the buyer. Offerors bids are submitted electronically over the Internet. Each offeror can see each bid on a “real time” basis, while the identities of all offerors are concealed. The bidding continues until a pre-established bidding time expires. Ideally, the lowest bid is made prior to the bidding time expiring. At the conclusion of the bidding time, a winner is selected for award.

Typically, a Reverse Auction is held on-line and uses a secure Internet based technology. Most Reverse Auctions throughout DoD have been hosted or managed by a private company or auction “enabler”. The Reverse Auction creates the potential for realized savings if the competition bids below the price established by the buyer’s price analysis. Price analysis helps determine what price is fair and reasonable and is of particular importance because it is directly related to the possible savings incurred by the procuring agency. The price analysis establishes the starting point for the opening bid and is the maximum amount the agency would pay using traditional procurement methods.

C. RESEARCH QUESTIONS

1. Primary Research Question

What are the potential impacts of Reverse Auctions on the DoD supplier base?

2. Secondary Research Questions

- What is Reverse Auctioning?
- How is Reverse Auctioning being employed within the DoD?

- How is the commercial marketplace, both historical DoD suppliers and non-traditional DoD suppliers, responding to the use of Reverse Auctions?

D. METHODOLOGY

The methodology used in this thesis research will consist of the following steps.

- Conduct a comprehensive literature search of news, magazine, and journal articles, along with library information resources.
- Examine a sample of Reverse Auctions conducted within the DoD, City, State and other Federal Government agencies, and commercial corporations.
- Survey current and potential DoD suppliers to obtain their perspective on DoD's use of Reverse Auctions.
- Conduct follow-up interviews with selected survey participants.

E. SCOPE AND ORGANIZATION

The thesis scope will include: (1) an in-depth review of the Reverse Auction literature, (2) a survey of the Domestic Supplier Base, both of Reverse Auction participants and non-participants and, (3) an evaluation of the effects Reverse Auctioning has had on the Domestic Supplier Base to date and a prediction of its effects in the future. This thesis will conclude with recommendations for continuing, discontinuing, or modifying Reverse Auction procedures in the future in order to accommodate any resulting industrial base concerns.

Chapter I introduces the thesis topic and covers the primary and secondary thesis questions. It also details the scope, methodology, and benefit of the thesis, along with its organization.

Chapter II examines the concept of online Reverse Auctions and looks at the use of Reverse Auctions in contracting. It reviews the basic framework of the Federal acquisition pricing process and the history of auctions.

Chapter III presents the researcher's on-line Reverse Auction survey and studies the Marketplace's Perception of Reverse Auctions. It gives the view of the historical

DoD supplier and the view of the non-traditional DoD supplier via presentation of the results of the Reverse Auction survey.

Chapter IV consists of an analysis of the online Reverse Auction survey results.

Chapter V draws conclusions and makes recommendations for future Reverse Auctions. Research questions are answered and suggested areas for further research are discussed.

F. EXPECTED BENEFITS OF THIS THESIS

This study is intended to provide information, related to industrial base concerns, to organizations that are currently participating in Reverse Auctions and those who are considering whether or not to participate in the future. The results of the researcher's survey and the subsequent analysis of that information are intended to create more educated users and consumers of the Reverse Auction process.

II. BACKGROUND

A. INTRODUCTION

This background chapter gives a brief history of the auction. It discusses and describes auctions and gives examples of the many different formats. Finally, the chapter examines the concept of online Reverse Auctions and looks at the use of on-line Reverse Auctions in contracting. Reverse Auctions are fast becoming a very useful tool in Government contracting and this chapter will also discuss their legality.

B. THE AUCTION

1. What is an auction?

You have probably seen auctions in movies or read about them. In fact, you have probably participated in an auction before and believe nothing could be simpler, right? The usual scenario is: someone bids, the price goes up, someone else bids, and when everyone is silent, the object is sold. Not necessarily!

Even the term auction, whose root "auctio" means increase, is a misnomer because not all auctions have ascending price schemes [Ref. 2]. In fact, there are many different auction formats including the familiar ascending bid, but also including the descending, sealed-bid, simultaneous, handshake, and whispered forms of bidding. Auctions can be used for single items such as a work of art and for multiple units of a homogeneous item such as gold or Treasury securities. An auctionable resource can be nearly anything--land, livestock, wine, fish, automobiles, construction contracts, or equity shares. The common denominator is that the value of each item varies enough to preclude direct and absolute pricing.

Stated simply, an auction is a method of allocating scarce goods based upon competition. It is the purest of markets: a seller wishes to obtain as much money as possible, and a buyer wants to pay as little as necessary. It is efficient in the sense that an

auction usually ensures that resources accrue to those who value them most highly and ensures also that sellers receive the collective assessment of the value.

2. Auction History

Although the exact date and time that auctions were first organized is not known, most historians agree on one thing - auctions have been around for a very long time. Some scholars argue that the very first auction occurred when his brothers sold "Joseph of the many-colored coat" into slavery in the fifth century. However, it was the Greeks that held the first generally accepted auctions where women were sold on condition that they be married. The women with special beauty inspired the most vigorous bidding and the prices paid were high. Owners, or fathers, of the less attractive women had to add dowries or other monetary offers in order to make the sale [Ref. 3].

The Romans were the first to organize sales of goods at auction. Auctions were used as an organized process of disposing and marketing of goods produced in the area and were held in the "atrium auctionarium." The auction method was also used to sell items seized during wars with rivals. It is not known whether the auctions were ascending or descending, but ascending is presumed since auctus means increase. After a victory a Roman soldier would plant his spear in the ground to mark the location of his spoils and later he would put these goods up for sale at auctions [Ref. 3].

Roman business agents or auctioneers were said to have accompanied warriors into battle to coordinate the auctions. Possibly the most amazing auctions in history occurred in the year 193 A.D. when the entire Roman Empire was auctioned off by the Praetorian Guard. After killing Pertinax, the emperor, they announced that the highest bidder could claim the Empire. Didius Julianus outbid all others and subsequently became the emperor for the price of 6,250 drachmas per Guard. He was beheaded two months later when Septimus Severus conquered Rome and may have been the first victim of winner's curse [Ref.3].

The British facilitated regular auctions of books and art in the 1600's. Several records of auctions in England have survived the times and the sale of goods at "public

outcry" seemed to be a normal method of selling general goods. The terms "auction" and "public auction" are found in many forms of English literature late in the 1600's [Ref. 4].

The English method of auctioning was brought to America in the 1700's and American culture began to use auctions when property needed to be sold to satisfy debts or for nonpayment of taxes. The auction business retained the stigma of selling at "forced sales" for centuries [Ref. 4].

After World War II, the auction business began to make great strides as businessmen began to see an opportunity to use the auction method as an alternate marketing tool. In the post-war period, the sale of goods and real estate at private sale was booming and there was a need to move it faster than the private market would allow. Thus, the modern auction business was born [Ref. 4].

C. TODAY'S AUCTIONS

When you stop and think about it, the Stock Market is really nothing more than an auction: selling assets in this case stocks or bonds, on the open market. As the demand increases for a particular stock, the higher the sales price, thus, the market determines the value of the asset.

The U.S. Treasury Department also utilizes auctions when it sells several trillion dollars of debt each year. Each week the Treasury Department announces the amount of debt it will auction off the next week. The results of these auctions give an indication of the way institutions regard the fiscal policies of Congress and the President.

The existence of Internet has dramatically changed the traditional auction business, into online auctions. Most of the normal traditional auction practices have changed. Now bidders can participate in auctions by sitting in front of their PC and simply hitting enter.

Online auction businesses have developed for over four years. Over 2,000 person-to-person and business-to-business online auction web sites have been created. Currently, the most popular online auction service is eBay, which has the largest customer base and operates as person-to-person auction service. Since 1995, eBay's revenues have been growing at a rate of approximately 30% a month [Ref. 5].

D. TYPES OF AUCTIONS SPACING

There are many different ways to classify auctions. There are open auctions as well as sealed-bid auctions. There are auctions where the price ascends and auctions where the price drops at regular intervals. Generally, experts agree that there are four major one-sided auction formats: English, Dutch, First-Price sealed-bid, and Vickrey [Ref. 4].

1. English Auctions

The English auction is probably the most common type of auction and is the one with which we are most familiar. In the silent format, the auctioneer calls out prices and bidders raise their hands if they accept the price. An alternate version allows bidders to call out their new offer. Users bid the highest price they are willing to pay for an item and bidding activity stops when the auction duration is complete.

English auctions occur in the following way: The auctioneer begins with the lowest acceptable price--the reserve price-- and proceeds to solicit successively higher bids from the customers until no one will increase the bid. The item is then sold to the highest bidder. Consequently, not all goods at an auction are actually sold. In some cases, when a reserve price is not met, the item is not sold.

Competition is at its highest in the English auction when some bidders are carried away with enthusiasm. This phenomenon, called “winner’s curse”, results in an individual paying more for an item than its value. The “winners curse” is widespread in the English Auction because inexperienced participants bid up the price [Ref. 4].

2. Vickrey Auctions

The Vickrey auction or the uniform second-price auction allows for selling single items as does the English auction. The bids in a Vickrey Auction are written. The item is awarded to highest bidder at a price equal to the second-highest bid. In other words, a

winner pays less than the highest bid. The Vickrey auction is well liked because bidders have the incentive to bid their true valuation and not worry about what other participants bid.

A Vickrey auction tends to mute "winner's curse" and therefore increases revenue to the seller because bidders are more aggressive. The Vickrey method is considered less prone to collusion. In general, the Vickrey auction is a simpler auction type, requires less bid preparation time, is less costly, and allows for greater bidder participation [Ref. 6].

3. Dutch Auctions

In a Dutch auction, the auctioneer begins at a high price; the price then descends by steps until a bidder indicates their intention to buy. The successful bidder then nominates all or part of the goods on the table. If any goods remain in the current lot, the auctioneer increases the offer price by a predetermined amount and then resumes the auction. The auction continues in this fashion until either the current lot is exhausted or its reserve price is reached [Ref. 4].

4. First-Price Sealed Bid Auctions

The fourth auction type considered here has the primary characteristic of being sealed and thus hidden from other bidders. A sealed-bid format has two distinct parts--a bidding period in which participants submit their bids, and a resolution phase in which the bids are opened and the winner determined. An important distinction must be made as to quantity--how many goods are being auctioned--one or multiple items. The name "first-price" comes from the fact that the award is made at the highest offer when a single unit is sold [Ref. 4].

Characteristics of Different Types of Auctions	
Type	Rules
English, or ascending -price.	Seller announces reserve price or some low opening bid. Bidding increases progressively until demand falls. Highest bidder earns right to purchase item.
Vickrey auction or second-price sealed bid.	Bids submitted in written form with no knowledge of the bids of others. Winner pays the second-highest amount bid.
Dutch, or descending-price.	Seller announces very high opening bid. Bid is lowered progressively until demand rises to match supply.
First-price, sealed bid.	Bids submitted in written form with no knowledge of bids of others. Winner is determined in the resolution phase when the bids are opened.

Table 1. Types of Auctions

E. REVERSE AUCTIONS: WHAT ARE THEY?

The word “auction” is from the Latin “auctio” which means increase [Ref. 2]. However, this is not always the case in auctions. In historical terms, methods other than the ascending bid method, include the Dutch or upside-down auction, famous for auctioning millions of dollars worth of flowers each week. Reverse Auctions are similar to Dutch auctions because the price is descending.

In order to understand the arguments made within this thesis, it is first necessary to understand what exactly a Reverse Auction is and how it works. As already discussed, normal auctions are processes in which buyers bid against one another, raising their prices, with the goal of obtaining the right to purchase an item. Conversely, a Reverse Auction works in the opposite direction. Suppliers are bidding against one another, lowering their prices, competing for the chance to supply an item to the buyer. There is only one buyer for each set of goods and there must be multiple suppliers for each auction, or at least two. In a Reverse Auction scenario, it is the seller that bears the risk of not being ultimately successful.

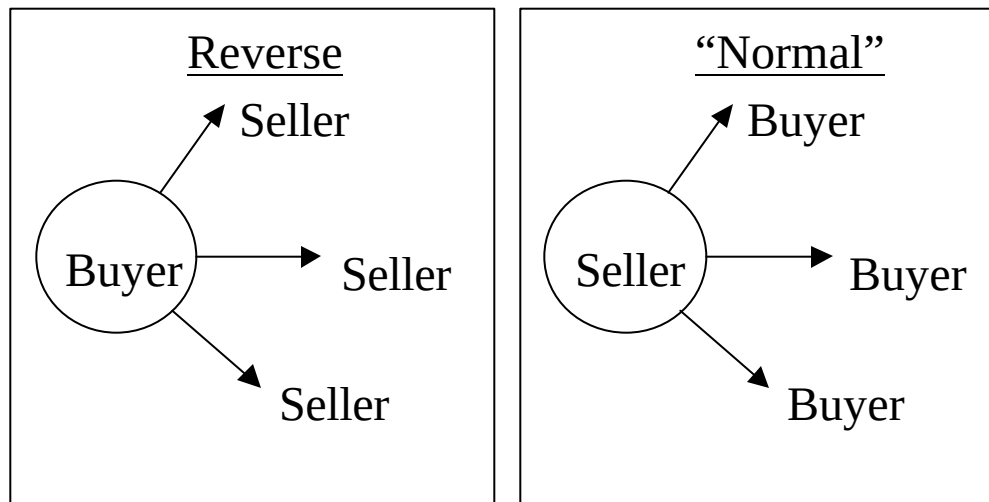


Figure 1 - Reverse vs. Normal Auction

Currently, most Reverse Auctions last for approximately one hour or less. However, there have been many instances where the auction has lasted for many hours and even days. Later in this thesis, several DoD suppliers will give real world examples of these "marathon" Reverse Auctions.

During the auction, buyers watch as prices fall in real-time. Bidding takes place for this duration and the bids normally increase in frequency as the auction begins to close. There is an auto-extend function available with most auctions that automatically extends an auction once a bid is entered in the last minute. This gives the other suppliers the chance to respond and submit their lowest bid. This overtime period normally lasts for five minutes or until another bid is received. Once another bid is submitted, another five-minute period begins. This process continues until no other bids are received and the lowest bidder is determined.

In a Reverse Auction, only the procurement team and the enabler know the identity of the bidders. By keeping the identities of the bidders confidential, reverse auctions are in compliance with the conditions of the Federal Acquisitions Regulations (FAR). Suppliers must be pre-screened and approved by the Government. Suppliers that are determined to be in the competitive range are given passwords to log into the reverse auction. If you do not have a password, then you cannot participate or view the auction. In a Reverse Auction, bidders are normally referred to only by a bidder or supplier number [Ref. 7].

For most Reverse Auctions in the corporate world, the winner is the lowest bid. Conversely, within the Federal Government the lowest bid is not always the winner. Companies that have a history of providing good support may still win contracts despite lower bids from less reliable competitors. Auctioning is not intended to take the place of source selection within the Federal Government. The best supplier, when price, services, and other factors are considered, will be awarded the contract.

F. DIFFERENCES AND SIMILARITIES BETWEEN REVERSE AUCTIONS AND STANDARD PROCUREMENT

The requirements of the procurement process have not changed by utilizing an auction to arrive at a fair and reasonable price. Reverse Auction contracts are researched, solicited and awarded much in the same way as a normal contract. Market research is conducted in order to determine potential suppliers. Specifications still must be detailed in the Request for Proposal (RFP) or Invitation for Bid (IFB). The solicitation must still be published in the Commerce Business Daily (CBD). A supplier must submit a technical offer that meets the requirements in the solicitation. A competitive range is still determined.

Conversely, differences are also found between Reverse Auctioning and standard procurement. Compared to the traditional sealed bid procedure, the active competition between potential suppliers in Reverse Auctions actually drives prices down. Unlike competitive contract procedures, negotiations are not conducted with all suppliers in the competitive range. Contracts may be awarded within a matter of hours after the auction is completed. This would be a significant savings of time compared to the standard procurement award process that may take a week to award a contract. This savings of time will be addressed in the following chapters.

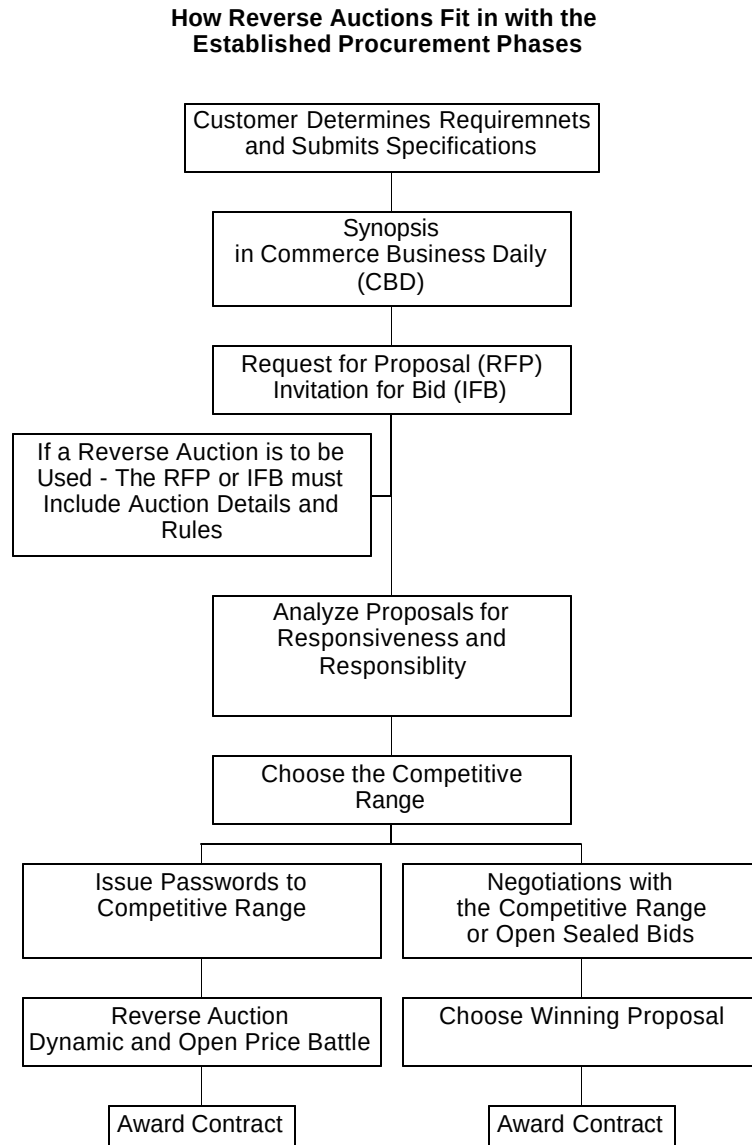


Figure 2 - RAs and The Procurement Phases

G. LEGAL OR ILLEGAL?

Several organizations, suppliers, buyers, and individuals have posed questions as to the legality of reverse auctions. Until recently, Part 15 of the Federal Acquisition Regulations (FAR) included a ban on using auctioning techniques during post-proposal discussions with bidders in the competitive range. In 1997, Part 15 of the FAR was rewritten eliminating the ban on auctioning during discussions, while it still prohibited releasing a specific bidder's prices without that bidder's approval [Ref. 8].

The question regarding the legality of reverse auctions was posed to the Department of Defense, Office of Counsel. They advised,” the Office of Counsel has determined that if properly structured, auctioning is permissible in the framework of existing law and regulation.” The conditions of having two or more bidders participating in a public auction satisfies the basic intent of the FAR for fair and open competition. The Contracting Officers need to conduct a reasonable price and cost analysis prior to completing the procurement has also been met [Ref. 9].

H. RECENT USES OF REVERSE AUCTIONS

The State and Federal Government and Reverse Auctions

Although they have become somewhat popular in the Government in the past year, reverse auctions are not new. Reverse auctions within private industry have been used for at least the past five years. One of the reverse auction companies, Freemarkets.com, has saved millions of dollars for companies such as Caterpillar, Proctor and Gamble, United Technologies, and Zenith during the past four years [Ref.10]. What makes sense in private industry may also make sense for Government.

Over the past year, both State and Federal Government agencies have entered the reverse auction arena and began several pilot programs to “test the waters” of reverse auctioning.

State of Pennsylvania

One major participant in the early stages of reverse auctioning has been the State of Pennsylvania. This state is the first in the nation to use online reverse auctions and it has reaped large savings. By using the services of Freemarkets.com, an auction enabler, they have bought items such as coal for heating, aluminum for making license plates, and rock salt for melting ice on the roads.

Freemarkets.com charges their clients various service fees per month and also receives a share of the cost savings from the auction process. Pennsylvania has realized over \$8.5 million in savings while paying out only \$1.3 million in fees. When the State

was purchasing a million tons of rock salt, the reverse auction allowed them to achieve a \$2.5 million savings from the \$30 million deal.

The State also participated in a recent reverse auction to procure computer furnishings for the State's Keystone building in the capital of Harrisburg. The catalog list price of the furnishings was \$12 million and the auction reached a final price of \$8 million. A savings of \$4 million or just over 33 percent was attained [Ref. 11].

General Services Administration (GSA)

The General Services Administration conducted its first reverse auction for the Department of Defense Finance and Accounting Service (DFAS). The auction procured of Information Technology (IT) products from a group of 15 pre-qualified IT suppliers. Three companies were awarded a contract that was broken up into four separate lots of 6,200 desktop computers, 200 laptops, 744 lightweight printers, and 729 heavyweight computers. The three winning companies were Gateway Computers, Micron Computers, and SR Tech (a small business) [Ref.12].

The reverse auction that was originally supposed to last an hour for simultaneous bidding on the four lots ended up lasting over four hours due to the descending bids. It is also the largest reverse auction to date by any Federal Government Agency and resulted in DFAS purchasing over \$7.6 million in products, with a savings of \$2 million over the originally estimated price [Ref. 12].

The Director of DFAS, Mr. Thomas R. Bloom, was very impressed with the results of the reverse auction and said, "I think that reverse auctions are a great vehicle to add to the competitive process. I think it has a great future in Government procurement" [Ref. 13].

Defense Energy Support Center (DESC)

The Defense Energy Support Center utilized a reverse auction to purchase a month's worth of natural gas for installations in the Washington Military District. The auction lasted 30 minutes and six suppliers were involved. Savings of an estimated \$432,000 were achieved [Ref. 13].

Naval Supply Systems Command (NAVSUP)

On May 5, 2000, NAVSUP conducted the first Department of Defense reverse auction. There were offers from three potential suppliers of components for ejection seats in the B-1, F-15, F-16, and F117 aircraft. Freemarkets.com orchestrated the reverse auction that was monitored simultaneously at all three supplier locations, Naval Inventory Control Point (NAVICP), Philadelphia (the actual purchasing authority), and high-level officials at the Pentagon. The Assistant Secretary of the Navy (RD&A), Dr. Buchanan, was in attendance and gave the reverse auction high marks.

The event lasted 51 minutes and the contract was awarded to Hi-Shear Technology Corporation of Torrance, California, within an hour of the reverse auction closing. An estimated savings of 28.9 percent was achieved. The original estimated unit price was \$4,375 and the components actually sold for \$3,141.53. The estimated total price was \$3,307,500 and was bid down to \$2,375,000 for a savings of \$932,500 [Ref. 13].

Impressed by the savings attained in their first auction, NAVSUP awarded a contract to Spec-Built Systems as a result of its second reverse auction on June 30, 2000. The auction lasted for 30 minutes and was again conducted by Freemarkets.com. Offers were made from two suppliers via the Internet for the rights to supply the Navy lightweight modular berthing. A savings of 22% over the Government estimate for the material was realized by NAVSUP.

“This is another significant milestone for us in our efforts to provide the best possible support to the war fighter, using the latest technology. Our goal is to use this tool where we can to make our procurement process more efficient and effective, to save tax dollars and to continually improve service to our customers,” said NAVSUP Commander Rear Admiral Keith W. Lippert [Ref. 14].

United States Army Communications-Electronics Command (CECOM)

On May 25, 2000, the US Army also began using reverse auctioning to procure items such as fax machines and laptop computers. Instead of using an online auctioning firm, CECOM utilized software that searches for more information and performs an analysis of each bidder. The software also determines the lowest bidder and conducts a value analysis of the suppliers, their prices, and past performance. Savings of 50% over historic purchases were realized [Ref. 13].

United States Air Force

The US Air Force has also been using reverse auctioning to make procurements. Utilizing the same software as the Army CECOM, the Air Force saved \$88,000 from an estimated price of \$325,000. The reverse auctions, each lasting approximately 35 minutes, saved the Air Force about 27 percent on the purchase of computer equipment. According to the deputy assistant to the secretary of the Air Force for Acquisition and Management, Darleen Druyun, the Air Force is exploring opportunities to use reverse auctions in the future [Ref. 15].

Buying Agency	Items Procured	Total Purchase Price	Total Savings
Pennsylvania 1 st	Rock Salt	\$30 Million	\$2.5 Million
Pennsylvania 2nd	IT Products	\$8 Million	\$4 Million
GSA (DFAS)	IT Products	\$7.6 Million	\$2 Million
DESC	Natural Gas	-----	\$452,000
NAVSUP 1 st	Ejection Seat Brains	\$3,307,500	\$932,500
NAVSUP 2 nd	Modular Berthing	\$9.8 Million	\$2.8 Million
US Army CECOM	IT Products	-----	50%
US Air Force	IT Products	\$325,000	\$88,000
		Total Savings=12.8M	Average Savings=29%

Table 2. Reverse Auctions Summary

I. FUTURE OF REVERSE AUCTIONS

Now that several Government agencies have “got their feet wet” in the world of reverse auctioning, what is the future? Due to the large savings by almost all test pilots, several federal agencies have signed long-term contracts to conduct reverse auctions well into the future. NAVSUP, after two extremely successful auctions, awarded two five-year contracts for on-line reverse and traditional forward auctioning services. The contract is valued at \$16.134 million and is split between two companies offering different services. EBreviate, Inc., a division of EDS of Plano, Texas, was awarded a \$13.884 million contract for providing full-service reverse and forward auctions from set-up to completion using their web-based software. Procuri.com of Atlanta, Georgia, was awarded a \$2.25 million contract for providing an unlimited subscription to their auction software product through the Internet, which will allow customers to conduct auction events directly from their prospective desktops. A 10-20 percent procurement savings is expected on average [Ref. 16].

The General Services Administration has also entered the reverse auction and ebusiness world with long-term intentions. They have created their own website called Buyers.Gov, the eGovernment Business and Auction exchange. Buyers.Gov is a new and innovative eGovernment exchange that implements auctioning and aggregates Government purchasing power for commonly purchased products [Ref. 15]. Aggregation can be an effective tool for purchasing small quantities of product by combining the individual small quantities into a group with substantive quantities for a specific product.

J. SUMMARY

This chapter gave a brief history of the auction and presented examples of the many different formats. The concept of online Reverse Auctions was then discussed and their use within the contracting world was detailed. In the following chapters the results from an online survey will be detailed and discussed. This researcher will then make recommendations as to the future use of Reverse Auctions within DoD.

III. THE MARKETPLACE'S PERCEPTIONS OF REVERSE AUCTIONS

A. INTRODUCTION

Several theses have been written at Naval Postgraduate School (NPS) detailing the use of Reverse Auctions within DoD. This thesis and particularly this chapter, study the Marketplace's Perception of Reverse Auctions. It presents the researcher's on-line Reverse Auction survey and gives the views of the historical DoD supplier and the non-traditional DoD supplier by summarizing the results of the Reverse Auction survey.

B. PURPOSE OF SURVEY RESEARCH

The purpose of using a survey during this research was to explore of the supplier base with regards to their viewpoints concerning Reverse Auctions. It would have been very difficult to call each and every one of the recipients of the survey and ask them questions via telephone. The on-line survey made the research easier and less time consuming for both this researcher and the survey respondents.

C. THE SURVEY

The NPS office of Strategic Planning, Educational Assessment, and Institutional Research (SPEAR) published an article in the campus newspaper regarding the use of on-line surveys. The article detailed all the intricacies of starting the survey process. Once contacted, the personnel at SPEAR assisted this researcher in constructing the survey. The relatively new online survey software, entitled *SurveySaid*, was used and the resulting survey is shown below.

1. Please enter your company name. (Optional)

2. Please enter your name and company position. (Optional)

3. Please enter your phone number and e-mail address. (Optional)

4. Would your company be considered a historical DoD supplier or a non-traditional DoD supplier?

5. Has your company participated in a Reverse Auction with the Government?

☐ Yes

☐ No

6. If not, why hasn't your company participated in a Reverse Auction?

7. Will your company participate in Reverse Auctions with the Government in the future?

☐ Yes

☐ No

8. What types of items/products do you feel are suited for Reverse Auction procurement?

9. Do you think Reverse Auctions are the procurement method of the future?

☐ Yes

☐ No

10. List the advantages, from the Supplier's prospective, to using Reverse Auctions.

11. List the disadvantages, from the Supplier's prospective, to using Reverse Auctions.

12. How can Reverse Auctions be modified to better meet both Supplier and DoD needs?

13. Other comments? Thank you very much!

Figure 3 - Reverse Auction Survey

Once the questions for the survey were determined, the survey was constructed and downloaded to a stand-alone web site. The survey was then tested and a supplier database was created with the help of several major commands, including: NAVICP, Philadelphia, DESC, DLA, and CECOM. An e-mail was then distributed to 300 different companies that have supplied the Government in the past or were likely to in the future. An example of the e-mail is shown below.

Dear Business Partner,

My name is James Fabby. I am a Lieutenant Supply Corps Officer in the U.S. Navy who is currently pursuing a Masters of Science in Management degree, with a concentration in Acquisition and Contracting, at the Naval Postgraduate School in Monterey, California. As part of my degree work I am completing a research thesis titled:

“The Potential Impact of Reverse Auctions on the Department of Defense Supplier Base”.

The purpose of my research is to determine what impact, if any, the Department of Defense’s (DoD’s) new Reverse Auction pricing initiative may have on the DoD Supplier Base. I have attached an online survey that I am asking you to complete. Once you have completed the survey and included any additional comments, just hit the send button, it’s that easy! I have also included a link that will lead you to some background information on the Reverse Auction business concept. If you are not familiar with reverse auctions, I recommend you review this information prior to completing the survey.

All the information in the first 3 questions of the survey is purely optional and would be used solely for follow-up or confirmation purposes. Please feel free to contact me via e-mail with any questions or comments.

Survey: http://www.nps.navy.mil/spear/surveys/reverse_auctions.htm

Reverse Auctions: <http://www.abm.rda.hq.navy.mil/revauct.cfm>

Thank you in advance for your time and comments!

D. SURVEY RESULTS

The survey was completed by each supplier via the Internet and all responses were compiled by the SurveySaid software in the SPEAR office. On October 2, 2001, the survey was officially closed and all results were downloaded into an Excel spreadsheet. Out of the 300 e-mails sent out, 46 responses were received for a response rate of 15.3%. Several respondents also sent return e-mails with additional comments. Appendixes A-F show the responses to the five verbatim questions.

E. AN OVERVIEW OF SURVEY QUESTIONS AND RESPONSES

1. The first three questions of the survey were optional.

- Please enter your company name. (Optional)
- Please enter your name and company position. (Optional)
- Please enter your phone number and e-mail address. (Optional)

These questions were made optional because this researcher wanted to encourage the respondent's interests and ideas by protecting of their identity. There were two ways in which the respondent's protection was ensured: anonymity and confidentiality. By indicating that the first three questions were optional, the choice of anonymity was given to all respondents. It was each respondent's choice to include this information. Respondent confidentiality has been ensured and was noted in the e-mail statement "the use of information is solely for the purpose of follow-up or confirmation purposes".

Surprisingly, most of the respondents included their optional information. In fact, forty-two of forty-six respondents or 91.3% of all respondents chose to include their company name and contact information. In return e-mails, respondents were very helpful in giving information and welcomed the researcher's questions regarding this topic. There were also several respondents that sent additional e-mails detailing their experiences with Reverse Auctions. A representative sample of these e-mails is included in the last section of this chapter.

2. The fourth question of the survey was concerned with the prior history of the customer with the Government.

- Would your company be considered a historical DoD supplier or a non-traditional DoD supplier?

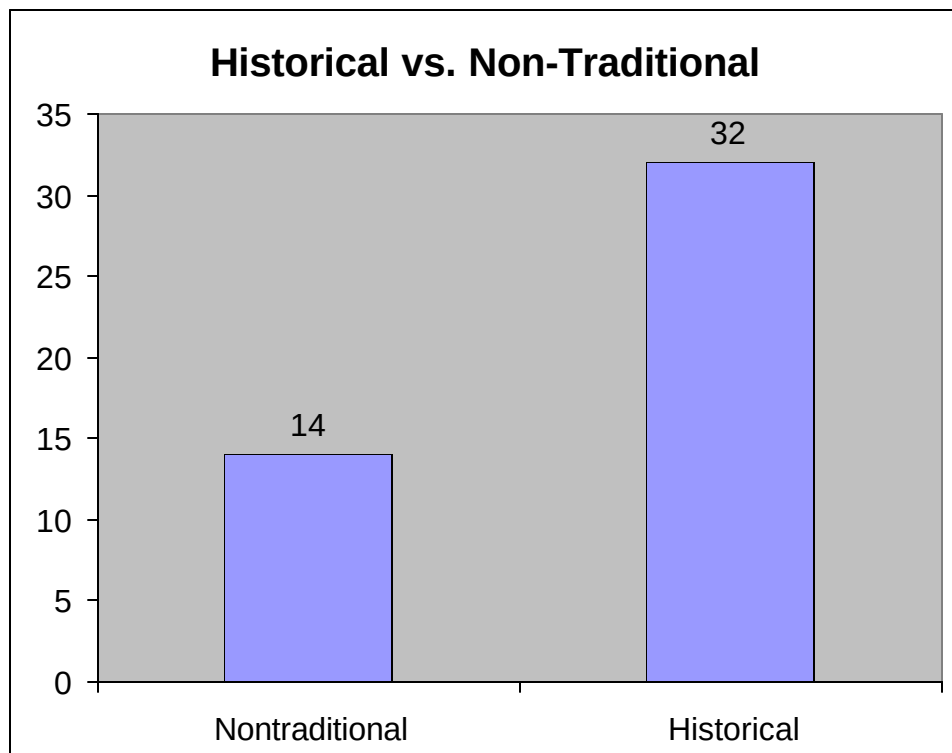


Figure 4 - Survey Results - Historical vs. Non-Traditional

The graph in figure 4 shows the breakdown of historical respondents to non-traditional respondents. Historical suppliers are defined as companies who have had in the past or currently have contracts with the Government. Conversely, non-traditional suppliers are defined as those companies who do not currently have contracts with the Government and have not contracted with the Government in the past. The reason behind this question was to indicate each supplier's knowledge concerning Government contract operations and how that knowledge affected their survey responses.

Thirty-two of forty-six, or almost 70% of respondents, consider themselves Historical Government suppliers. However, there was not any evidence in the survey results that imply consistently like answers among either the historical or non-traditional suppliers. Overall, the history of the supplier with the Government had no bearing on the answers to other questions in the survey.

3. The fifth question of the survey deals with the company's history of Reverse Auctions with the Government.

- Has your company participated in a Reverse Auction with the Government?

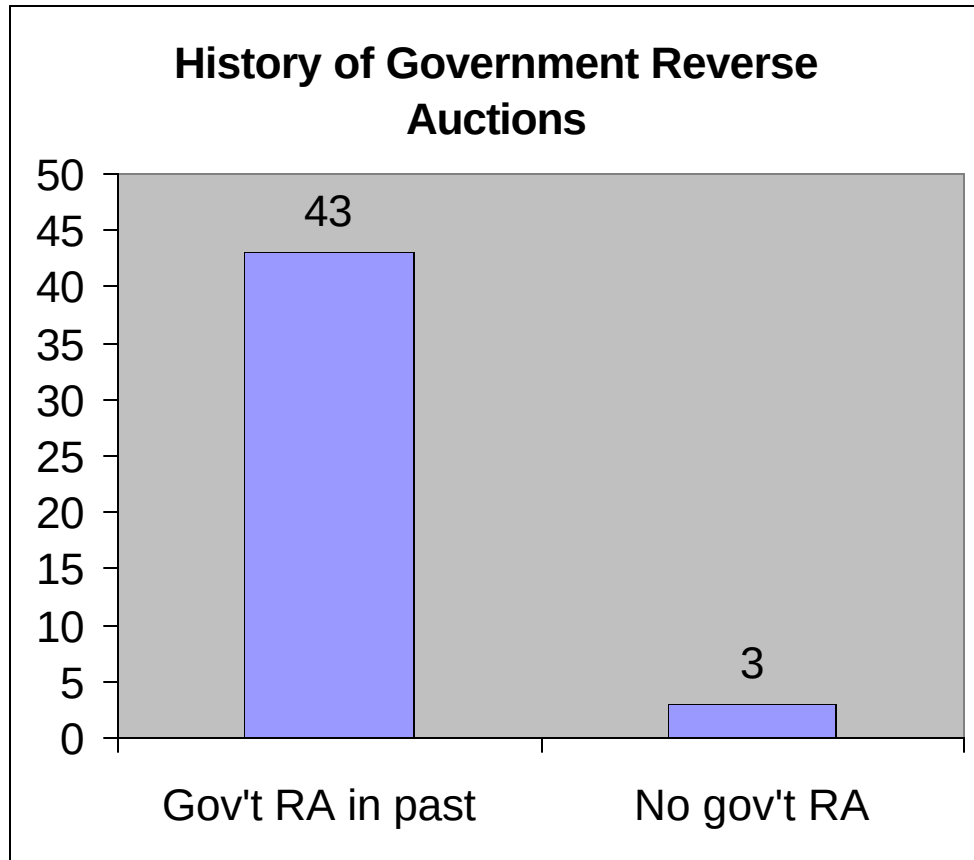


Figure 5 - Survey Results - History of Government Reverse Auctions

As shown in the graph in figure 5, the overwhelming majority of respondents had used the Government's new Reverse Auction process. Forty-three of forty-six, or 93.5% of suppliers who responded to the survey had participated in Reverse Auctions with the Government in the past. This researcher was elated to see a high percentage of positive responses to this question because the results of the respondent's answers to the rest of the survey become increasingly valid. This is due to the first hand knowledge most suppliers have regarding Reverse Auctioning.

4. **The sixth question of the survey dealt with the reasoning a company had for not participating in Reverse Auctions with the Government.**

- If not, why hasn't your company participated in a Reverse Auction?

There was only one response from the three companies that had not participated in the past. The one response was: “We are a manufacturer, not a reseller”. The answer from this single company makes sense in that it obviously makes products and sells them to a distributor. Normally, it would be the company’s distributor with whom the Government would be dealing in a Reverse Auction.

5. The seventh question inquires as to the future intentions each company with regards to participating in Reverse Auctions.

- Will your company participate in Reverse Auctions with the Government in the future?

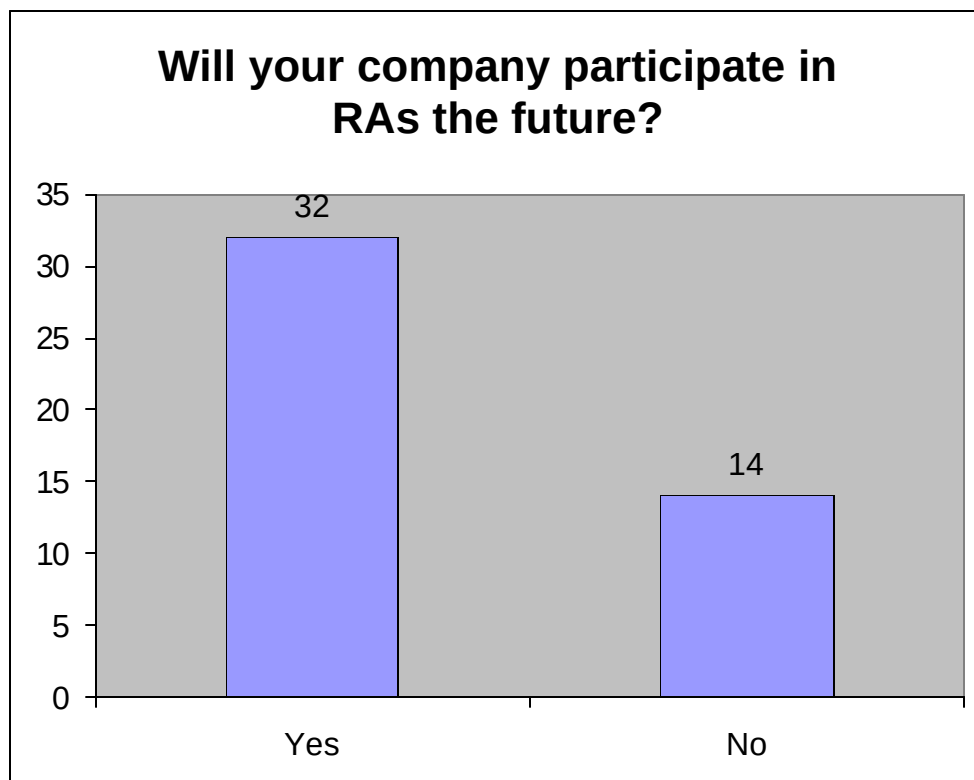


Figure 6 - Survey Results - Future Participation

The graph in figure 6 shows that most of the companies will participate in Reverse Auctions in the future. Thirty-two of forty-six, or 69.5% of the respondents to the survey said they would participate in a Government Reverse Auction in the future. It's interesting that many of the respondents that said they would participate in the future, also made several comments condemning them.

6. The eighth question was a verbatim question and dealt with the kinds of products each supplier felt would be best suited for Reverse Auctions.

- What types of items/products do you feel are suited for Reverse Auction procurement?

A few of the most common responses to question eight are listed below. A complete list is given in appendix A.

- Any item with a large quantity
- Office and computer supplies
- Cooking and refrigeration equipment
- Natural gas, energy commodities
- Any item that has an established pricing history
- None-companies cannot be profitable

7. The ninth question in the survey deals with whether or not the supplier thinks the Reverse Auction is the procurement method of the future.

- Do you think Reverse Auctions are the procurement method of the future?

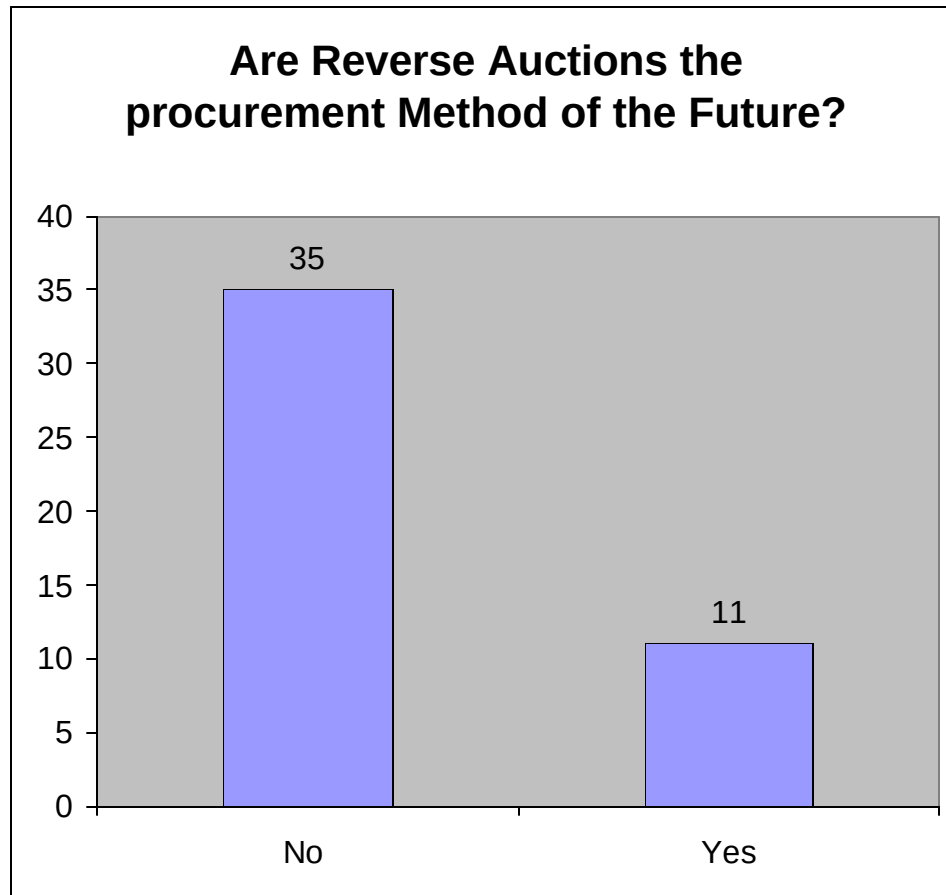


Figure 7 - Survey Results - Procurement Method of the Future

The majority of respondents believe that Reverse Auctions are not the procurement method of the future. Thirty-five of forty-six, or 76% of suppliers that responded to the survey do not agree with some experts as to the future of Reverse Auctions. Most respondents believe that Reverse Auctions should only be used sparingly and for items like commodities.

8. In the tenth question of the survey suppliers were asked what advantages there are to participating in Reverse Auctions. Survey respondents replied with the following list:

- There are none
- Can see the competition
- Instant win/loss status
- No advantages for small businesses
- Ease of use
- Lack of proposal costs

9. The eleventh survey question asked respondents what they felt some of the disadvantages were to using Reverse Auctions. The following list provides a few of the responses from suppliers:

- Reduces profits
- Very time consuming
- Only focuses on price, not best value
- Cannot negotiate service terms
- May lose quality contractors
- Not an even playing field

10. The final question of the survey asked respondents for their recommendations for modifications to the Reverse Auction that would

satisfy both the Government and suppliers. There were many responses and a few are listed below:

- They cannot be modified, it's the nature of the beast
- Use same size businesses, small vs. small
- Use only commodity items
- Discontinue them
- Limit automatic extensions to two (2) five minute periods
- Give points for value added
- Best value needs to come into play
- Shorten the time period, currently too long
- Have better specs on needs

11. The survey concluded with a comments section and several respondents chose to write in opinions and thoughts. Most of the comments were anti-Reverse Auction and a few of them are listed below:

- This system will crush small businesses
- Need T1 line or can't defeat competitor at end.
- I don't think the Reverse Auctions should be used.
- This will ruin the dealer base that deals with DOD
- I think that this is a way to bid in the future

F. SEPARATE RESPONDENT E-MAILS

Several respondents sent e-mails along with their survey responses to give real world examples of their Reverse Auction concerns. Various e-mails are listed below and a few will be used in the following chapter to support the analysis. The names and companies have been deleted from the e-mails to protect the respondent identity.

Respondent E-mails

Hi, I responded to your survey after I had participated in a reverse auction. The Reverse Auction was for the supply of rental washers & dryers. Only two contractors participated in the auction and all the prices were significantly lower than the paper bid I had submitted prior to the auction. I am not sure if this system will work effectively for all items or a complicated contract. Hope all goes well with your paper.

Dear LT Fabby,

I have only been in business a little over one year and have only participated in one reverse auction. It was a new experience. I am a 100% woman-owned business and I feel it would be difficult for the Government to meet their 5% goal to purchase from women-owned businesses unless they only conducted woman-owned reverse auctions. I market my business as a woman-owned business and I have the only woman-owned secured electronic component and equipment shopping cart on the Internet. Please let me know if I can be of further assistance.

LT Fabby,

I will be more than happy to provide information for your survey. I recently participated in a reverse auction and it had it's pro's and con's.

Pros

1. Real-time results
2. You get to see what the competition is doing

3. At the end of the session you will know if you have the K or not.

Cons

1. Small-disadvantaged companies cannot compete with larger companies.
 2. Manufactures or whole-sellers profit margin is greater than smaller companies.
 3. There is no advantage/price consideration for woman owned/HUBZone companies.
-

LT,

I am against this method. I as a dealer will go out to a Military site, recommend, lay-out, design, demo product and do all of the things that a dealer and GSA Contract holder should do and then you put it on the reverse auction. Then some desk bound computer person with no overhead, or company personnel that get paid, bids on the project at some ridiculous low price, I loose, and the Government is stuck with his product. Please feel free to call me at any time and talk. I have been doing business with the Government for over 35 years and I will not participate in this way of doing business. Just a note, there was one yesterday that went for \$200, under my cost. These people will not be in business very long and the DOD customer will have no one to go to for help. Thanks.

Mr. Fabby,

Our company has participated in reverse auctions in the past and probably will again. However we don't feel as if this is a good way to do business. The good thing for the suppliers is that it levels the playing field and results in quick decisions (awards) from the customer.

The disadvantages are as follows: It reduces the buying decision to a basis on price only. It eliminates any other factors (i.e. quality, service, etc.) from the buying decision. From the supplier's point of view, it normally means selling product at below cost to win, resulting of course in a net monetary loss.

Many suppliers do this to gain market share, to show Wall Street top line revenue growth, or to simply prevent a competitor from getting the business. If the pricing pressure were to continue, something has to give, namely product quality or service.

Regarding your question on what can be done to improve reverse auctions, I would say the best thing would be to eliminate them. Reverse auctions reduce the relationship to that of a supplier or vendor instead of being partners with a company looking after the needs of the buyer.

Dear LT Fabby,

Having just taken part in a reverse auction for the Navy I do have some strong options to express. The auction was the first one done by the Puget Sound base and I also believe the last. I know it was the last we care to take part in. I would think it was a good deal for the Navy, in that it would get the end cost to a level where it might not have been on a normal RFQ. However, from a distributors point of view, it was less than enjoyable! When the bidding started there were four companies bidding on the 10 line items in the package. At the end of the one-hour time we were low bidder on 6 of those 10 items and would have been able to see a profit margin of about 9%. Not a profit margin to get excited about, but one we could live with. Then we were notified that it was going to start over, as some people did not get their extensions.

At the start of the second hour, there were five bidders. The new fifth bidder then took all the prices in the dirt. At the end of that hour, our profit margin was in the 4% range. As it turned out they awarded the entire package to the fifth bidder because he had a lower price overall on all 10 items and on 4 of the 10 I was unable to bid on. I have no problems with that, in fact, I was quite pleased that we did not get the order. The numbers look good on paper, but we have to live off the profit margins. I know that I will not partake in another reverse auction and I know of another distributor that was also in the same auction and he will not be in another one either. I think the concept is good for the Government, but not

for the distributors or manufacturers. If this should become the wave of the future, I will no longer be quoting Government bids. It is currently hard enough as it is, without adding more problems and less profit to the mix.

As my own personal point of view, I find the Government purchasing to be somewhat flawed as it is. As a Woman Owned Small Business, it is almost impossible to deal with the Government on bids today.

An example of this would be, we are an Electrical Wholesale company, so I bid on all of the fuses, electrical connectors, wire and such. When the Government requests a quote on fuses, they may ask for 1,500 of them. These would normally come in a box of 10 pieces. The bid will state that they must be packaged in units of 1 piece. The manufacturer will not do this, so I have to bring it into my stock, put each one in a paper bag, put a barcode label on each back, put all of them in boxes to each location and ship them back out at my expense. Under normal conditions I would have sold that fuse for \$.50 each, but because of all the special work that has to be done, the price is now \$1.35. Where is the savings to the Government here? I have seen bids go out for two (2) rolls of electrical tape. This is a \$1.00 item! I now have to send back a quote for \$3.00 a roll to package it and barcode it, as the Government needs. Give some electrician \$2.00 and send him down the street to Home Depot.

The requirements of the Government are making it so hard that we are looking at no longer quoting. The little guy still doesn't stand much chance with the Government. Even the Small Business size standard is 500 people: we have 13. How do you compete? Well, I have now told you much more information than you need, but maybe some day you will be in charge of the military purchasing and you will remember me. Have a great day and should you need any additional information please feel free to let me know.

G. SUMMARY

As this researcher studied the results of the survey several major concerns surfaced. A large percentage of the survey respondents do not like Reverse Auctions and

there were several comments asking to discontinue them. Most of the negative comments surrounded the ideas of “lowered or no profit” and “too much time involved”. Several of these concerns warrant further discussion and analysis in Chapter IV.

IV. ANALYSIS

A. INTRODUCTION

The focus for this analysis is to determine what impact, if any, the Department of Defense's (DoD's) new Reverse Auction pricing initiative may have on the DoD Supplier Base. This impact is verified by the results of the survey presented in the previous chapter. The survey results identified several concerns about the Reverse Auction process as related by survey respondents. Those concerns are examined and analyzed below.

B. PROFIT

The most frequent concern of the suppliers that responded to the survey was that of diminishing profits brought on by the use of Reverse Auctions. In, fact, more than half of the respondents mentioned the loss of profit as one of the major disadvantages to participating in a Reverse Auction. The DoD's policy on profit is detailed below.

DEPARTMENT OF DEFENSE PROFIT OBJECTIVES:

It is in the Government's interest to offer contractors opportunities for financial rewards sufficient to stimulate efficient contract performance, attract the best capabilities of qualified large and small business concerns to Government contracts, and maintain a viable industrial base. Both the Government and contractors should be concerned with profit as a motivator of efficient and effective contract performance. Negotiations aimed merely at reducing prices by reducing profit, without proper recognition of the function of profit, are not in the Government's interest. The underlying assumption behind Government structured approaches to profit/fee analysis is the belief that contractors are motivated by profit/fee. Negotiation of extremely low profits, use of historical averages, or automatic application of predetermined

percentages to total estimated costs do not provide proper motivation for optimum contract performance [Ref. 17].

Reverse Auctions may or may not conform to the DOD's policy on profit. If the Government is to use profit/fee to motivate contractor performance, then using Reverse Auctions that reduce profit/fee by allowing contractors to bid against one another may not be in the Government's best interest. When a reverse auction begins, each contractor has an idea of the price that ensures an adequate profit margin. Unfortunately, the availability of information and the opportunity to change bids increases competitive pressure. This pressure forces the bidding downward. When the bids begin to spiral downward, profits are consumed.

Another major factor in the above policy is "maintain a viable industrial base" [Ref. 18]. The United States Government, and especially the Defense Department, has a specific industrial base that provides the planes, ships, missiles, tanks, parts, supplies, and systems to the war fighter. Research and development (R&D) within this industry produces the high-tech weapons that equip our soldiers, airmen and sailors. In order to fund billions of dollars worth of R&D, companies within this industrial base must make a significant profit. By using reverse auctions, procurement officials are slowly taking a portion of that profit away, and thus eliminating the funding for certain amounts of R&D. Thus, there may be certain industries in which Reverse Auctioning should be prohibited.

An important part of a Contracting Officer's (KO's) job is conducting the price analysis necessary to ensure the Government purchases supplies and services from responsible sources at fair and reasonable prices [Ref. 18]. Fair to the Government is a fair market value that is provided by an efficient and economical firm. Contractors, on the other hand, are in business to cover costs and to contribute to attaining corporate operational objectives (profit). To attain its operational objectives, a firm must cover its costs and earn an overall profit. Some products may sell for less than cost, but if they do, other products must make sufficient profit to compensate for those losses. Profits are essential for:

- Investment;

- Product Development;
- Productivity Improvement;
- Retirement of Debt Principal; and
- Rewarding Investors [Ref. 17].

Thus, a reasonable price is what a prudent business person would be willing to pay/receive given market conditions, economic conditions, and competition. It seems that Reverse Auctions may not allow either the Government or the contractor to achieve their goals.

C. SMALL AND DISADVANTAGED BUSINESSES

The second most frequent concern of survey respondents was the fact that Small and Disadvantaged Businesses are being “crowded out” by Reverse Auctions. Larger corporations that produce larger amounts of “widgets” will be able to bid prices down and still make a profit. Because profit decreases with each RA bid, larger businesses will have a distinct advantage over small businesses in a Reverse Auction setting. A small business owner wrote the following e-mail detailing this problem:

LT Fabby,

In general, the reverse auction process, although it saves time and money for the Government, will cause small disadvantaged companies to loose out. As a small company we have to purchase our supplies and equipment from a wholesaler who has a mark-up on the items. We then have to add a % mark-up on our price to the Government in order make a profit. The same individual we are getting our products from can participate in the bid and underbid us 100% of the time. Unless the bid process is a set-aside or special price consideration is given to small disadvantage companies, there is no way the playing field of a reverse bid process will ever benefit a small company. I will be more than happy to discuss these issues and any others with you in detail. Thanks for the opportunity.

Large businesses also have many other contracts and do not necessarily need to make max profit on all items they contract out for. On the other hand, small businesses may not be able to compete with the low prices a large business may offer. They may be counting on a single contract to constitute the company's profit margin. In a sealed bid format small businesses can compete because bids aren't lowered continually after opening and there is no information about how low the competing bids are going.

D. COMPETITION

Another respondent concern was the assumption that Reverse Auctions reduced competition within the DoD supplier base. Several survey respondents mentioned that they would not participate in a Reverse Auction in the future. Is the DoD effectively reducing competition by using Reverse Auctions? Without competition there is little opportunity for monetary savings.

DOD COMPETITION POLICY

Contracting officers shall provide for full and open competition through the use of competitive procedure(s) . . . that are best suited to the circumstances of the contract action and consistent with the need to fulfill the Government's needs efficiently. Competition is important to contract pricing in three ways:

- Competition is widely acknowledged as the best way to encourage firms to offer a quality product at a reasonable price.*
- Competitive prices are one of the best bases to use in evaluating the reasonableness of an offered price.*
- Adequate price competition is the most common basis for excepting offerors from the requirement to submit cost or pricing data [Ref. 18].*

Government policy on competition and market pricing is designed to encourage sellers to establish prices using market-competition pricing. If firms are reluctant to compete in a market where success is achieved by low price alone, then Reverse Auctions may not conform to the DoD's policy on competition. To maximize price competition, a buyer must attract competitive offers from the best contractors (in terms of their track records for pricing, quality, timeliness, and integrity) and Reverse Auctions tend to exclude contractors that do not choose to participate.

E. BEST VALUE

Another disadvantage proposed by some respondents is that price is normally emphasized with a Reverse Auction, even when the cheapest item is not necessarily what the organization needs. At the end of the Reverse Auction, even when best value is needed, the Contacting Officer may be pressured in to accepting the lowest bidder. Because of this lowest price mentality, Reverse Auctions may be best suited for the kind of items that are straightforward, non-complex, and have well-defined requirements that do not require follow-on servicing.

Government and contractors should also be concerned with profit as a motivator of efficient and effective contract performance. Because of the decrease in profits due to the downward bidding in Reverse Auctions, buying agencies may be concerned about the possibility of ending up with substandard goods from a company. With a decrease in profits, contractors may be less concerned with contract performance, which results in a more harmful relationship in the long run.

Consequently, it is possible that buyers may not yet feel comfortable with the process. Price, from the buyers prospective, is the money paid a seller to deliver a product or perform a service. The FAR defines price as "Cost plus any fee or profit applicable to the contact type" [Ref. 18]. It is important to remember that if prices don't cover supplier costs and provide a profit, losses will result, which could lead to unsatisfactory performance and contractor default.

When a contract is priced below cost due to the downward spiraling of prices in a Reverse Auction, performance risk increases. The contractor must finance contract

performance with funds from other sources (e.g., profits from other contracts, financial reserves, or overpriced contract modifications). If contractor efforts to control costs result in unsatisfactory performance, contractor default is a real possibility.

F. TIME

Another major concern of the suppliers that responded to the survey was the amount of time spent on each Reverse Auction. First of all, there is the time it takes to train potential suppliers on the Reverse Auction process. Then, there is the actual dynamic period of price determination. This was the period that caused so much concern among respondents. A respondent e-mail detailing this concern is presented below:

LT Fabby,

I find that the time to run a reverse auction eliminates any possible profit from any transaction using this method. You start with an RFQ, which has to have a cost to produce, you convert to an 1149 and solicit it. The buyer doesn't just go to 3 businesses for competition; they go to several to accumulate the lowest price. After all is accumulated, it is sorted by realistic value and dependability, I assume also applied is the RYG program for performance. Large, small and disadvantaged submit.

The lowest price is then posted as the entry level to participate. All of the effort to get it to this level must have a cost to the Government, because buyers and clerks do not work for free. We quote our best price that will meet all performance requirements. Now as the re-bid process comes alive, we see that we are usually either too high, or we may just be breaking even, and we have not even considered freight yet. Now we go back to our manufacturers and hammer them for better pricing. In some instances the prices do drop significantly, so we start over again, but keep in mind, all the suppliers are doing the same. So now it is a matter of how cheap you can go and how well can you play on the send button.

The Reverse Auction bidding environment means that the most critical time is the close, and the close is endless. The last quote took over 7 hours of activity to close. I got nothing done all day. Combine this with the 5 to 6 hours already spent accumulating qualified prices and products to meet all specs, and we have spent 2 days for a bid that we have very little chance of getting the contract. It also makes you wonder how it looks to start at \$75.00 and end up at \$25.00. We do not control the price base, the manufacturer does. We feel that this price fluxation is a bad reflection on us as a supplier, regardless of the price savings, who wouldn't think they were being robbed with such drastic differences? In all instances we had to recall the MFG. and get another price change, no time to get it in writing, just get verbal quotes. This leaves a lot of risk to be had.

Another problem is the split orders. If a manufacturer says all or nothing we can't change that. The Government always reserves the right to split awards, and they state that as terms before the bid. If you are active and on target, it sometimes may mean loosing on some items to get the package, or possibly loosing the chance of any award because of the all or nothing situation. Either way, it means that you can loose on these bids even if awarded

Now let's go to the bid review, the buyer again has to evaluate. Let us say bidder one can't accept because of split, it's off to bidder 2, or 3 or 4. This is more time the Buyer must take to award and evaluate. Is time not money? Has anyone considered the time it takes, or the price of the counter-productivity incurred by this process? It leaves the small business in a quandary, and it only shows more conflict in value.

The reverse auction works for Boeing, but the taxpayer does not fund Boeing. The Government has FAR clauses to help small business participate and this counteracts the standard practice. We always quote fair and reasonable prices, and this pricing method is as far from reasonable as you can get.

Leave it to manufacturers who control the base, not suppliers that are subject to the manufacturer's prices. We know competition, and we remain competitive, but we all have to stay in business.

Normally, Reverse Auction's are allotted thirty minutes with five-minute extensions. The five-minute extension is an adaptation that will prevent any last second bid submission game play. The intent for a time period is to allow all bidders the opportunity to participate in a timely manner. The extension ensures each bidder has the opportunity to assess the previous bid and determine whether or not they want to submit a new bid. This also represents the evolution of the Reverse Auction from an electronic bulletin board type media where bids were posted over the course of days, to a compacted and dynamic period of time hopefully measured in minutes. Unfortunately, like the example from the above respondent, RAs aren't always completed in less than an hour.

G. SUMMARY

This chapter served to analyze several of the concerns brought up by survey respondents in their survey responses and follow-on e-mails. The following chapter will discuss these concerns and will make recommendations to procurement officials within DoD. The future use of Reverse Auctions will also be visited in the final chapter and further research topics will be outlined. One thing to keep in mind is that Reverse Auctions can and will have a role in Federal Procurement in the future. The major challenge for the Government is to determine what exactly that role is and to promulgate guidelines.

V. CONCLUSIONS AND RECOMMENDATIONS

A. INTRODUCTION

This chapter presents conclusions derived from the data presented in Chapter III and the analysis from Chapter IV. The conclusions represent inferences and deductions made from extensive research as well as comments made by survey respondents. This chapter will also include recommendations concerning the future of Reverse Auctions. Chapter V concludes with recommended topics for further research on this subject of Reverse Auctions.

B. CONCLUSIONS

The Reverse Auction represents a change to the way acquisitions are priced. A dynamic pricing model replaces the static model. After extensive research, this researcher has concluded that there are definite advantages to using the Reverse Auction pricing process. Reverse Auctions have already produced real monetary savings within DoD. Conversely, the research also concludes that there are many concerns about the use of Reverse Auctions, mainly from suppliers. These concerns have been analyzed in the previous chapter and conclusions and recommendations are made below.

1. Savings vs. Profits

There are two sides to the Reverse Auction argument. On one side, the Government has positioned themselves as a strong proponent of this process. In fact, the most convincing data reviewed during the research was the reported savings realized by the Government agencies using the Reverse Auction pricing strategy. Without a doubt, Reverse Auctions have provided significant savings in the completed acquisitions. On the other hand, what the research has also presented is the fact that these savings are achieved at the expense of "lost profits" from suppliers. Suppliers may not be producing at a loss (in most cases), but there is a definite reduction in profit. This "loss of profits" has forced the DoD supplier base to take a stance on the other side of the argument, against the use of Reverse auctions.

Another concern to investigate is where are the savings from the Reverse Auctions going. In most cases, a portion of the savings achieved from the use of a Reverse Auctions went to an auction "enabler" such as FreeMarkets.com. These auction enablers make their money by charging a flat percentage of the anticipated savings. In FreeMarkets.com's case, this is normally around 18%, or as in the case of their special GSA Buyers.gov contract they charge \$69,000 per month per agency. The Government is saving significant dollar amounts, but portions of the savings are going to the Reverse Auction enabler instead of directly to the taxpayer. There are also Government agencies that are buying the necessary software and conducting their own auctions. A cost-benefit analysis should be performed to determine which method, "buying or leasing," is most beneficial to the Government.

Suppliers in e-mails sent to this researcher stated several concerns. One of these concerns was that the profit margins on some products are already so low that Reverse Auctions would decrease this margin even further. Government procurement officials can alleviate this concern by making sure the items to be bought via Reverse Auctions have a significant profit margin built into the price. Not every item has a profit margin, and thus, market research should be conducted to determine applicability as a Reverse Auction candidate. The Government should be concerned with maintaining a viable DoD supplier base. If price margins are reduced too much further, suppliers may not be able to invest for the future.

On the other hand, there may be situations where the use of Reverse Auctions is actually beneficial to suppliers. There may be instances where it's profitable for sellers to bid below the acceptable profit margin. An example would be if a company has excess inventory of a product, participates in a Reverse Auction, and sells at what seems to be a loss by other competitors. Just because a price is below acceptable profit for some, doesn't mean that it does not make good business sense to others. Reverse Auctions could be a very good thing for the vendor if he is unloading surplus or obsolete stock.

Because of these two contrasting arguments, this researcher believes that the Government should only use Reverse Auctions where "it makes good business sense" from both the buyers and sellers prospective. Commodities and items that have large profit margins should still be excellent candidates for Reverse Auctions. Conversely,

long-term contracts or buys that require significant amounts of R&D costs should be taken out of consideration.

2. Time Concern

There also seems to be two sides of the argument with regards to time and the Reverse Auction process. On one hand, the suppliers are concerned with the time spent in the process and have mentioned that it takes too long. Several of the survey respondents in this thesis have described many situations where the Reverse Auction process took longer than the traditional sealed bid method.

Conversely, the Government has raved about the timesaving associated with Reverse Auctions. Several Government officials say that one of the driving forces behind Reverse Auctions is the time efficiency you achieve from using them. These same officials also state that Reverse Auctions can reduce the pricing process from months to a few days. These officials are possibly ignoring the multiple price decisions that the suppliers have to make and the time and money they take to complete.

Auctions in the commercial sector have different rules for ending the bidding process. The Internet company eBay.com has a scheduled end-time or "hard close" that completes the auction. Amazon.com also has a scheduled end-time, but it is automatically extended for ten minutes each time a new bid is received. Once a period of ten minutes has passed with no bidding, the auction is closed. Because of these rules, auction participants on eBay have an increased incentive to bid late and try to "game" the system. Conversely, Amazon's rules may allow an auction to be extended for an indefinite period, thus losing any time savings associated with the use of the auction process.

In this researcher's opinion, Reverse Auctions need to have a firm time limit set at the beginning of each auction. These limits should still include room for overtime periods, but the overtime periods should be limited to a reasonable time decided upon by each organization. Both buyer and potential suppliers should be aware of this time limit and agree to abide by the final bid. The time limit will allow both the Government and suppliers to reap the benefits of time efficiency in the pricing process.

There is also a pattern of thinking that believes if you have a predetermined number of overtimes, all you are doing is pushing the “hard deadline” down the road. As a result, you will not get the “best offers” at the conclusion of the first round. Auction participants will just wait to the end of the “final” round to submit their best price. Taking this way of thinking into account, another possible alternative for ending a Government Reverse Auction may be to detail a stipulation at the beginning of the process that details the Government's intentions. The auction participants will be informed that the Government intends to award the contract based upon final prices at the conclusion of the first round, however, they also reserve the right to extend the bidding if it is in the "best interest" of the Government.” This way offerors couldn’t hold back and wait for the overtimes to get serious.

3. Small/Small Disadvantaged/Women Owned Companies "Crowded Out"

Yet another point of argument between the Government and the DoD supplier base is the effects of Reverse Auctions on the Small, Small Disadvantaged, and Women/Minority Owned businesses. The argument made by the supplier base is that larger corporations will be able to bid prices down below what a Small Business could and still make a profit. Larger businesses will have a distinct advantage because they normally have many other contracts, while Small Businesses may be counting on a single contract to constitute the company’s profit margin.

Conversely, Government proponents believe that Reverse Auctions actually benefit Small Businesses by leveling the playing field when it comes to bidding on contracts. Small businesses should be able to use reverse auctions to learn about the negotiation process and how to be competitive on the buying end. The Reverse Auction process allows Small Businesses to make more educated pricing decisions with the added knowledge of their competitor's pricing.

The Government should remain wary of this concern. The Reverse Auction process is flexible enough to limit the acquisitions to small businesses (mandatory "set aside" with two small businesses) in order to meet each command's socio-economic goals

or open the competition to the full spectrum of vendors. The ability to introduce innovation into the acquisition process without inhibiting small business interests is a key aspect of the success of on-line Reverse Auctioning. In fact, there have been instances where the Government has not seen the kinds of results exhibited by the survey respondents in this thesis. During Naval Supply System Command's pilot program, they had four out of the five awards go to small businesses, with only one being a small-business set aside. Government procurement officials must keep profit as a concern when conducting a Reverse Auction and Small Businesses are participating.

4. Competition

Another major concern is whether Reverse Auctions are reducing competition. The concern is not competition during a Reverse Auction, but whether vendors will choose not to participate because the procurement uses a Reverse Auction. Suppliers are very concerned about the "price shootout" that takes place within a Reverse Auction. Many of the respondents of the survey said they would not participate in Reverse Auctions in the future, citing low profits as their main complaint. In fact, it is quite possibly this emphasis on low price that may discourage suppliers doing business with the Government. The Government should be concerned with the loss of vendors due to the price pressures brought about by the use of this pricing strategy. The candidate for Reverse Auctioning should also be analyzed to be sure that competition is not being reduced because contractors do not want to participate in the Reverse Auction. If there is the possibility of increased competition with another pricing strategy, then the potential savings from a Reverse Auction should be compared to the potential savings from increased competition.

5. Types and Number of Items

In this researcher's opinion there are certain situations when Reverse Auctions should and should not be used. The perfect situations for using Reverse Auctions are straightforward, commodities, or non-complex items with well-defined requirements. The availability and demand of a product can also determine if a product is a viable

Reverse Auction candidate. Items with many suppliers and relatively mature requirements may be ideal for this pricing process.

In the Government Reverse Auctions conducted to date, the number of items acquired ranges from one to hundreds. Success in the form of savings was achieved through both small and large acquisitions. One main theory is that by procuring higher quantities, or by combining requirements (bundling), the Government may be able to take advantage of Economic Order Quantities (EOQ). High dollar acquisitions provide the opportunity for high dollar savings and the true power of the Reverse Auction would be realized if requirements were combined into single auctions. Generic acquisitions, such as computers and commodities, provide greater opportunity for combining requirements.

6. Best Value

The last major concern raised by respondents to the survey was the idea of the Government procuring based on price alone and getting away from "best value" buys. Vendors feel like the Government has regressed into the days before procurement reform and before the change to "best value" purchasing. They believe Reverse Auctions that award based purely on price don't permit differing technical evaluations and don't take into account how well a company performed in other contracts.

The Government should be sure to qualify and approve each vendor prior to Reverse Auction participation. Each Reverse Auction should be conducted within the guidelines of Federal Acquisition Regulation and a competitive range should be established based on a review of offerors' written technical, price and past performance proposals.

Initial price proposals should still be required and at the conclusion of the Reverse Auction, the contracting officer should still conduct the same analysis required in any other negotiated procurement. Contracting officers should not be required to award the contract to the lowest bidder, but should award to the vendor who offers the best value to the Government. The Government should also consider past performance as well as a supplier's record for service and warranty compliance. On the other hand, if price isn't the deciding factor does the Reverse Auction have any use?

C. ANSWERS TO RESEARCH QUESTIONS

1. Primary Research Question

What are the potential impacts of Reverse Auctions on the DoD supplier base?

The potential impacts are the reduction of the supplier base due to vendors choosing not to do business with the Government in response to the use of the Reverse Auction pricing tool. Another potential impact is the possibility of suppliers losing profits as a direct result of the Reverse Auction process. The Small Business community may also be affected by this pricing strategy.

2. Secondary Research Questions

How is Reverse Auctioning being employed within DoD?

Reverse Auctioning is being employed throughout DoD with vigor and excitement. Many DoD components have conducted Reverse Auctions and in response to the cited large savings by almost all test pilots, several of them have signed long-term contracts to conduct reverse auctions well into the future.

How is the commercial marketplace, both historical DoD suppliers and non-traditional DoD suppliers, responding to the use of Reverse Auctions?

Neither historical nor non-traditional DoD suppliers seem to like the Reverse Auction pricing strategy. Many have stated that they will not participate in future Government Reverse Auctions.

What is a Reverse Auction?

Essentially, a Reverse Auction is the opposite of an auction. Instead of many buyers bidding the price of something up, there are many sellers bidding the price down. In a Reverse Auction, one buyer is offering to purchase an item and numerous sellers bid to provide the item. The sellers successively bid the price down until no one is willing to offer a lower bid. Additionally, technology has allowed this process to be conducted on-line via a web-based interface in real time.

D. RECOMMENDATIONS

1. The Government Needs to Establish Reverse Auction Guidelines

The Federal Acquisition Regulation Council (FARC) needs to step in and provide some definitive guidance on the use and conduct of Reverse Auctions. By providing written guidance on when Reverse Auctions should be used, Government agencies can better determine what items are good candidates for this pricing process. Any such guidelines should be written and promulgated quickly. Each command should also develop its own users guide to Reverse Auctions. This guidance will serve to help educate the DoD supplier base to better understand the process.

2. Provide Training for both the Government Procurement Officials and the DoD Supplier Base on the use of Reverse Auctions

Training of both buyers and sellers is essential, not only to achieve technical understanding, but also to develop trust and commitment to the Reverse Auction process. With the addition of extensive training, the buyer-seller relationship should grow and foster an appreciation for the concerns about Reverse Auctions from both sides. Each organization should find out how Reverse Auctions work best for them and ensure their suppliers get the benefits from this new pricing strategy.

E. AREAS FOR FURTHER RESEARCH

This thesis has analyzed several important issues with regards to Reverse Auctions, but substantial research and analysis remains to be completed. Building upon the conclusions made within this thesis, areas for future research are outlined below:

1. Reverse Auctions and "Best Value"

Future research in this area should attempt to discover if Reverse Auctions are providing "best value" procurements to the Government. As well, research should analyze how best value, past performance, technical evaluations, service, and warranty information can be incorporated into the Reverse Auction process.

2. Analysis of the Reverse Auction Process

Future research should analyze the process of performing an on-line Reverse Auction in order to identify potential improvements. The research would include dissecting the current process and determining where inefficiencies exist.

3. Small and Disadvantaged Businesses

Future research should also analyze the effect of Reverse Auctions specifically on the Small and Disadvantaged business community.

4. Enabler Lease vs. Buy Question

Enablers such as Freemarkets.com can be contracted to conduct Reverse Auctions, or the Government can purchase the software and conduct Reverse Auctions themselves. A cost-benefit analysis needs to be conducted to determine which option is most efficient for the Government.

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APPENDIX A

Question #8 - What types of items should be used for RAs?

1. Subsistence items -where inventories are huge
2. Any item w/ large quantity
3. Large Purchase items, \$50,000+
4. Office Furniture was ours, but most should work!
5. Bulk orders in office and computer supplies
6. To supply exactly the same items
7. Any item, large purchases
8. Any items that are in the national stock system
9. Any 1 line item
10. All cooking and refrigeration equipment
11. Most anything
12. Products with short full descriptions
13. Large quantity capital goods
14. Items that are very much alike from all suppliers.
15. Any consumer commodity
16. None
17. Commodity
18. None, they're are too time consuming
19. Natural Gas
20. Energy commodities
21. Paper products, trash liners, tapes
22. Desktop computers, portables and servers
23. Unrestricted mfg. supplied only
24. Any item that has an established pricing history
25. General commodities
26. Service support on-site and warranties
27. None
28. Standard products that are commercially available
29. Standard Items, Computers/Furniture
30. Large expensive items
31. All items
32. Supply items (i.e., paper, pencils) not services
33. Unsure. It depends upon what's required
34. ADP equipment, autos, airplanes
35. High volume manufactured items
36. Pre-packaged Items only
37. Only absolutely definable commodities
38. None-companies can not be profitable
39. Staple items; nothing involving technology
40. Products with short full descriptions

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APPENDIX B

Question #10 - Advantages of Reverse Auctions?

1. There are none
2. Gives last chance to bid lower
3. As far as I am concerned, there are no advantages
4. It's fun, you know when to quit
5. Can see the competition, instant order acceptance
6. None
7. The initial quote was higher
8. Can see what pricing of other bidders is.
9. None
10. Can't think of any.
11. Instant win/loss status and price
12. Heads up on pricing, opportunity to leave less on
13. Quick, easy
14. None
15. Open bidding process, quick confirmation of award
16. Knowledge right away on bid, ease
17. The practice is hurting the small business sector
18. There are no advantages for small business
19. None at all
20. There are none
21. Lower sales acquisition costs, access to gov't bid
22. Lower cost
23. 1. Real-time results. 2. Ease of use
24. Opportunity to change bid
25. None known.
26. Immediate order
27. Immediate knowledge of competitive pricing.
28. See what the competition is bidding
29. Lack of proposal costs
30. None
31. Quicker procurement
32. Can see what pricing of other bidders is
33. None

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APPENDIX C

Question #11 - Disadvantages of Reverse Auctions?

1. Unfair competition -unknown quality-bad delivery-
2. Reduces profits
3. The time it takes to participate, fairness
4. Make sure bidding apples to apples
5. Can see the competition, slimmer margins =bankrupt
6. Very time consuming, profit reduced to near zero
7. Low profit margins, not true quote
8. Lower profits, specific bid time, ISP problems
9. Limited duration for bid process.
10. No profit
11. No profit
12. Price give away
13. Only focuses on price, not best value
14. Too much time involved, problems with the system
15. The product being auctioned becomes commoditized
16. Subject to current market conditions
17. You need enough \$ to "buy" the order
18. Time to bid, unqualified verbal pricemods from mfg
19. I have no faith in the bidding process
20. Time required, scheduling difficulties
21. Watching profits shrink
22. Too much time, prices too low, no profit
23. No Profit, you set start price, no dealer advantage
24. Can't negotiate service terms or other differentia
25. Lower quality, Loss of "Best Value", monopolies
26. Small companies can't compete
27. More work

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APPENDIX D

Question #12 - How can RAs be modified to meet both Supplier and Buyer needs?

1. They can't it's the nature of the beast
2. Use the same size businesses, Small vs. Small
3. The one I was in worked well
4. Target a portion to local small business per SBA
5. Use only on commodity items
6. Discontinue them
7. Unknown
8. Limit automatic extensions to (2) five minute periods
9. Do not like them as a former Chief of Contracts
10. Give points for value added
11. Eliminate them
12. Provide for more contract terms or services
13. Timing of auctions needs to coordinate with market
14. Best value needs to come into play
15. Limit them to large mfg who sell direct
16. Provide the means to know who is bidding
17. Shorten amount of time and get it over with
18. Banning factories from bidding through distributor
19. Impossible to correct-they're a bad idea
20. Get rid of them
21. Stick to products that work
22. Limit use to standard off-the-shelf items
23. Disadvantaged companies need to be recognized
24. Not sure yet
25. I don't know that they can
26. Make sure configurations are current with industry
27. Use only as best and final process
28. Have better specs on needs
29. Difficult to utilize in non-commodity IT environment
30. Be selective on who is bidding
31. Better understanding of what is being ordered/required
32. Scheduled closing should not be extended
33. Adjust the time period currently too long

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