Preface

My first introduction to the online reverse auction was at an organization’s professional development event. The two speakers were from a very large firm engaged in a private auction site. The speakers related the procurement of safety glasses—originally $300,000 in purchased safety glasses. The buying firm invited 24 suppliers—eight suppliers did not respond at all; eight suppliers signed in to the online auction at the designated time, but only submitted one bid; and the remaining eight signed in and bid multiple times until there was a “winner” of the auction. The speakers related that the firm saved 15% from the prior price. My mind went into overdrive. If this savings was 15%, what about the next set of bids on safety glasses? Who was the winner? Who was losing the profit on the transaction? How low could they go? Would this work on other products? Would small firms go out of business?

Auctions have long been a staple of business practices. Selling and buying goods has intrigued participants for many years. Auctions have been studied from many perspectives, particularly by economists in light of such traditional principles as game theory and auction theory.

TRADITIONAL AUCTIONS

The original idea of an auction is that one can procure goods and services through the use of a bidding mechanism. Traditional auctions are based on long-standing theoretical foundations and tested empirical work. Engelbrecht-Wiggans (1980) presented classifications for various types of auctions and bidding models based on the assumptions used in the models.

Others studying traditional auctions have attempted to link auction theory to everyday transactions. Rothkopf and Harstad (1994) presented an essay in Management Science that attempts to model the competitive bidding process. Since this work was done on a traditional auction, a fundamental issue of the advancement of knowledge in auctions is revealed: the lack of a large sample size. Gathering information on competitive bidding is difficult in the traditional auction arena.

Other issues have also been studied in traditional auction research. These include proposing a methodology for profit-maximized bidding (Swider & Weber, 2007), identifying the winner’s curse (Nee-man & Orosel, 1999; Parlour, Prasnikar, & Rajan, Shaffer, 1998), and behavior in the bidding process under a variety of scenarios (Linzert, Nautz, & Breitung, 2006; Neugebauer & Selten, 2006; Peters & Bodkin, 2007).

Traditional auctions, as stated previously, have some limitations. They are constrained by time, place, number of bidders, number of bids, and the bidding experience. The advent of the Internet has, frankly, given researchers an opportunity to study auction theory with much larger data sets. The Internet, as a
disruptive technology (Christiansen, 1997), has opened the door to not only a significantly different way
to do research but also a different way to do business.

ONLINE PROCUREMENT AUCTIONS

Auctions have long been a popular method for allocation and procurement of products and services.
With the advent of the Internet and the proliferation of Web users, auctions are moving online. Online
auctions have become popular in business because they reduce transaction costs, enable a larger number
and variety of bidders, and, of course, reduce costs along the supply chain. However, as noted earlier,
there is a cost that someone pays for the use of the auctions. There is the potential for a significant im-

pact on profitability of both the buyers and the sellers in the online procurement auction environment
(Klein, 1997; Van Heck, 1998).

Growth in online auctions reinforces the need for understanding the factors important in auctions and
the caveats that both researchers and practitioners need to know in order to effectively study and use the
auction tool. Although the basis for understanding traditional auctions are well known (see for example
Engelbrecht-Wiggans, 1980), research is still somewhat limited in online auctions (Van Heck, 1998).

It is with this in mind that Best Practices in Online Procurement Auctions was initiated.

ORGANIZATION OF THE BOOK

Best Practices is organized in five sections and nineteen chapters. The organization follows the concep-
tual framework of Parente, Venkataraman, Fizel, and Millet (2004) by using systems theory to frame
the study of auctions. In the model, the input, process, and output of auctions are examined. While each
chapter will be discussed in the section that follows, a high-level overview is given in the remainder of
this section.

The input side of the model is specifically focused on the participants in the auction and the product
characteristics. As such, this section has two subsections—one dealing with the buyers’ concerns, the
suppliers’ issues, and the buyer-supplier dyad; and one consisting of two papers addressing product
characteristics.

The process portion of the model, and the organization of the book, deals with how the auction is
conducted, specific issues related to technology, auction theory (i.e., winner’s curse), and issues sur-
rounding the auction in a business.

The output side of the model attends to performance metrics and success of auctions. This includes
addressing issues of collusion and ethics.

Finally, the chapters are book-ended with an introductory chapter that is a debate on online procure-
ment auctions and an ending chapter that is an extensive literature review that results in a typology of
online reverse auctions.

THE CHAPTERS

The first section of the book, Online Reverse Auctions Today, addresses the ongoing controversy of the
online procurement auction. Chapter I, Point Counterpoint: The Online Reverse Auction Controversy,
frames the remainder of the volume.
Online reverse auctions have been extensively used in business since the early 1990s. However, there is reason to believe, on one hand, that the reverse auction is gaining in popularity. Buyers are able to increase their supplier pool and obtain lower prices. However, this is not necessarily the case. Some would argue that the reverse auction has outlived its usefulness and is merely a cost-cutting, nonstrategic, and actually detrimental way of doing business.

In this chapter, Thomas F. Gattiker of Boise State and M. L. Emiliani of Central Connecticut State square off in an eleven-point debate on the usefulness of online procurement auctions.

The next section deals with the **Input Side of Online Reverse Auctions**. Clearly, this is a popular area of research, as six chapters are devoted to the buyers, suppliers, and the buyer-supplier dyad, while another two chapters focus on the product part of the auction equation.

In Chapter II, Peter B. Southard discusses **Reverse Auctions and Supplier Consortia**. The notion of a supplier consortium is introduced. The supplier consortium is an alternative buyer-supplier relationship and is examined within the dimensions of the Parente et al. framework (Parente et al., 2004). The chapter addresses various consortia and the potential impact on the reverse auction. Southard concludes with a prescriptive decision process to help managers better analyze the most appropriate form of buyer-supplier relationship for their firm and their supply chain.

Chapter III, by Peggy D. Lee, is an empirical study that views the reverse auction from the perspective of the purchasing agent. **The Purchasing Agent’s View of Online Reverse Auctions** surveys purchasing agents in multiple businesses on their use and satisfaction with online reverse auctions. Lee found that purchasing agents with a high level of buying experience will perceive that online reverse auctions have a negative impact on the trust and cooperation in supplier relationships. Purchasing agents did not see a negative impact of online reverse auctions on long-term viability of suppliers. By understanding the lens through which purchasing agents view online reverse auctions, managers can do a better job in sourcing strategies and the decision to use online reverse auctions.

**Internet Reverse Auctions: Listening to the Voices of Non-adopters** is written by Thomas F. Gattiker. He targets non-adopters of auctions and challenges us to understand the reason for the lack of use of the online reverse auction in a specific business. The focus is on factors that impact the fit between the Internet reverse auction technology and the characteristics of the particular purchasing task that the buyer must carry out (i.e., characteristics of the material or service to be purchased in the market that it is to be purchased from). Gattiker presents an empirical study with links to the literature and advice for practitioners.

Chapter V, **Economic Effects of Electronic Reverse Auctions: A Procurement Perspective**, describes the economic effects caused by the use of electronic reverse auctions along the procurement process. The authors, Ulli Arnold and Martin Schnabel, argue that the economic effects must be viewed from a holistic perspective. The whole transaction process must be considered. The approach of the new institutional economics provides a theoretical foundation for the analysis. The second part of the chapter deals with the single steps of an auction-integrated procurement process. Through this holistic view of the procurement process, the authors emphasize the additional benefits and the danger caused by auctions. The development of better procurement process awareness enables better decisions concerning the choice of benefits which are worth to be pursued.

Janet M. Duck moves the reader into some of the more organizational issues of auctions, in **Developing Trust-Based Relationships in Online Procurement Auctions**. Chapter VI revolves around the challenges involved with developing trust and commitment in online procurement auctions. While many
studies suggest that the success rate for e-auctions is down, Duck proposes that absence of trust between the buyer and seller in this virtual arena is a critical issue in online reverse auctions. Viewpoints of the buyer and seller are presented. Common issues are identified and the challenges associated with creating trust and fairness in the e-auction environment are revealed. Duck suggests proactive strategies in order for stakeholders to maintain trust in this environment and to gain benefits from this virtual supply chain process.

Chapter VII is a reprint of a previously published article by Steve New, *Innovation and B2B E-Commerce: Explaining What Did Not Happen*. I have added the Implications for Practitioners for consistency throughout the volume. This chapter deals with the massive wave of enthusiasm for B2B e-commerce. The issue of Internet-driven trading is paramount in this work. The author talks about the “wired” world of commerce that leads to real-time, Internet-driven trading and the significant implications for the nature of buyer-supplier relationships, pricing, and the management of industrial capacity. Drawing on a multistranded empirical study, this chapter seeks to explain the divergence between the expected and realized degrees of innovation in Internet-driven trading.

The next subsection of the volume relates to issues concerning the product in the online reverse auction equation. Chapter VIII, *Bundling for Online Reverse Auctions: Approaches and Experiences*, was written by Tobias Schoenherr and Vincent A. Mabert. The authors provide insight into bundling practices for online reverse auctions by exploring approaches and reporting experiences of 252 companies in the U.S. manufacturing industry. Within the context of Parente et al.’s (2004) conceptual framework for the analysis of online auctions, aspects of the “Product Characteristics” component were explored. Bundling issues investigated include content, goals, structure, and performance.

Differences and similarities in bundling behavior and outcomes between small and large enterprises are emphasized, highlighting the impact of firm size and the resulting strategies explored. As such, this chapter provides managerial insights, especially useful to smaller companies, for successfully employing bundles in reverse auctions.

Chapter IX, *Multi-Attribute Auctions: Research Challenges and Opportunities*, is by Kholekile L. Gwebu and Jing Wang. This chapter highlights the promise and importance of reverse multi-attribute auctions (RMAA). It outlines the major benefits of RMAAs over other traditional auction mechanisms, such as reverse single attribute auctions, and then presents a structured and critical assessment of the current state of RMAA research.

Section III deals with the auction process itself. How do auctions run? What are the issues? *Competition and the Winner’s Curse in B2B Reverse Auctions*, is an empirical study using data from industry. Indranil K. Ghosh, John L. Fizel, Ido Millet, and Diane H. Parente, authors of Chapter X, use the data provided by a major multinational corporation on online procurement auctions. They specify the relationship that the prevalence of the Winner’s Curse would have on the success of such procurement auctions. They show that the presence of the Winner’s Curse and the subsequent need for bidders to show caution in the presence of the Winner’s Curse could lead to lower auction success for the firm. They identify specific cases in which this phenomenon holds true. Further, they identify implications for firms wishing to conduct procurement auctions online.

*Novel Business-Oriented Auctions*, by Tracy Mullen, introduces the reader to the concept of “agents” in the auction process. Chapter XI demonstrates that with the advent of the Internet, traditional auction forms have evolved to fit into a plethora of business niches, either integrating into traditional approaches or simply creating new opportunities. This chapter examines two novel uses for auctions in a business
context, namely sponsored search auctions and prediction markets. Understanding the potential auction benefits and limitations can hopefully provide practitioners with a more informed and successful approach when employing these auction-based tools in their businesses.

Chapter XII, by Eric C. Jackson, deals with the reverse auction in the context of the supply chain. Implications for Reverse Auctions from a Supply Chain Management Perspective considers reverse auctions in the context of the supply chain and the type of end-user product being produced. Jackson contends that in order to successfully utilize a reverse auction without alienating their suppliers, buyers need to classify their product as innovative or standardized. He also argues that the buyer must consider whether its supply chain is responsive or efficient. Firms with an understanding of this relationship will allow buyers to better evaluate their use of reverse auctions as a purchasing tool in the context of buyer supplier relations.

Chapter XIII is another reprint for Best Practices: Multi-Agent Patterns for Deploying Online Auctions, by Ivan Jureta, Manuel Kolp, and Stéphane Faulkner. In this chapter, they discuss the high volume of goods and services that is being traded using online auction systems. They also note the growth in size and complexity of architectures to support online auctions. They also discuss the agent software development paradigm and its appropriateness for modeling, development, and implementation. This article proposes an agent-oriented pattern analysis of best practices for online auctions. The patterns are intended to help both IT managers and software engineers during the requirement specification of an online auction system while integrating benefits of agent software engineering. I have written the section on Implications for Practitioners for this chapter.

Haiying Qiao, Hui Jie, and Dong-Qing Yao produced a previously published paper that appeared to be a good fit for Chapter XIV. An Internet Trading Platform for Testing Auction and Exchange Mechanisms discusses a generic electronic market platform that is designed to run different kinds of auctions and exchanges. This is particularly important to practitioners. Knowledge of the existence of such tools in academia can present wonderful options for practitioners. Different auctions, including combinatorial auctions, multiple-round reverse auctions, and multiple homogeneous good auctions, have been built and run successfully on the platform.

Section IV, Online Reverse Auction Success, focuses on the performance or results of the auction. Sbrana Gupta, Indranil Ghosh, and Ido Millet wrote An Empirical Study of Collusion Potential Metrics and their Impact on Online Reverse Auction Success. In Chapter XIII, they study the effect of bidder conduct on auction success by examining a business to business (B2B) online procurement auction market. In particular, they investigate whether collaborative bidding is more likely when suppliers compete with each other on multiple auctions and/or over a longer period of time. The analysis confirms that in online reverse auctions, winning bids are higher or auction success is lower when the same set of suppliers bid against each other regularly. In a supply chain framework, existence of such collaborative bidder behavior would reduce the cost savings for the buyer. It is therefore important for the practitioners to be alert to such activities and introduce measures that curtail the resulting costly outcomes.

Auction success, as an issue, has its share of caveats. Joseph R. Muscatello and Susan Emens present a discussion of the popular topic of ethics. Chapter XVI is entitled Do Reverse Auctions Violate Professional Standards and Codes of Conduct? Muscatello and Emens discuss the debate as to the ethical considerations inherent in the new business processes of online reverse auctions. The chapter examines some of the professional standards/codes of ethics available including the Institute of Supply
Chain Management (ISM) and a selected number of organizations, including Dell and GE. Further, the chapter presents a framework that can help an organization determine whether reverse auctions, and the way they are run, are ethical.

Chapter XVII is a reprint of a previously published work by Radoslav Delina and Anton Lavrin. Reverse Auction Impact on a Mining Company is a case study that describes the initial implementation and evaluation of an e-procurement system, using reverse auctions, for a large manufacturer of brown coal in the Slovak Republic. They address one of the biggest problems when making decisions on e-business investments. The issue is one of defining return on investment (ROI) and uncertainty about what method should be used for measuring the results. They provide a wonderful outline of the reverse auction process and present metrics to evaluate the current performance of the system versus intended future performance matrix. The case results proved that the investment into the e-commerce solution is highly effective in reducing input costs. The editor has provided a section for Implications for Managers, consistent with other chapters in the body of the volume.

Chapter XVIII, A Reverse Auction Case Study: The Final Chapter, is a reprint of a previously published article by Andrew Stein, Paul Hawking, and David C. Wyld. The authors present a review of a reverse auction event and discuss the impact that the reverse auction format had on all participants involved in the auction. The previous supplier was not successful in retaining its contract position. This chapter looks at the reverse auction and its business impacts two years after the initial auction. The case study is viewed through the eyes of the winning supplier, losing supplier, auction vendor, and buyer. This is a good assessment for anyone looking to get into—or out of—the reverse auction procurement strategy. The main outcomes show that the reverse auction struggles to adapt to fluid business conditions and is limited if it is used as only a price fixing mechanism.

Finally, in the last section, the single chapter deals with the review of the literature. In Chapter XIX, Barbara Sherman and Joseph R. Muscatello did an extensive literature review that results in Reverse Auctions: A Topology and Synopsis of Current Research Efforts. This chapter is a topological classification of the current literature on e-procurement auctions with the intent of organizing current and future research in online procurement auctions. Over 200 articles have been abstracted and reviewed. The authors develop three classification frames: content, theory, and methodology. Nineteen content areas are populated, including significant reference to the impact of auctions on the supply chain.

In summary, this chapter seeks to increase the topic clarity of current research. The quality of each individual reverse auction paper is not evaluated. However, the classification should stimulate academics to pursue current and new avenues of reverse auction research.

THE CONTRIBUTION

Best Practices in Online Procurement Auctions is unique in that it attempts to transfer academic research to the practitioner. At the end of Chapters II-XVII, a section entitled Implications for Practitioners briefly summarizes the substance of the paper, findings, recommendations for practitioners, and the limitations of the study or theoretical proposal. It is my intent to provide practitioners with a window to the rich world of academia and an easy tool with which to use the research in practice.
REFERENCES


