

Biographical Note

David C. Wyld currently serves as a Professor of Management at Southeastern Louisiana University, where he teaches business strategy and heads the College of Business & Technology's Strategic e-Commerce Initiative. He has been widely published in leading journals in business and management, and recently, he was named editor of the *Journal of the Academy of Strategic e-Commerce*. He has been awarded with the distinguished researcher award for Southeastern Louisiana University and has won several best paper awards at leading academic conferences. He has conducted graduate executive education courses and consulted with a wide variety of industrial and public sector clients. Dr. Wyld earned his doctorate in management from the University of Memphis.

The Electric Company: How the Supply Chain is Being Reinvented Through the Rapid Application of e-Procurement Processes in the Business-to-Business Arena

by David C. Wyld, Southeastern Louisiana University, Professor of Management and Director of the Strategic e-Commerce Initiative, College of Business and Technology, Department of Management, SLU Box 10350, Hammond, LA 70402-0350

Abstract

In this paper, the author examines the growth of B2B e-commerce, examining results from the ISM/Forrester *Reports on e-Business* conducted to date. Through this analysis, the researcher demonstrates that contrary to the generally-held perception that B2B has experienced a sharp downturn in the wake of the recession, e-procurement has taken hold and is rapidly expanding across the American landscape. Specifically, the *Reports on e-Business* are studied to look for trends in the overall use of e-procurement methods:

- to reduce paperwork and cycle times;
- to procure direct and indirect goods and services;
- to collaborate with suppliers; and
- to reduce the total cost of procurement.

The author concludes that overall, the analysis shows that the push towards e-procurement is being led by the largest firms. This and other key trends are discussed in the conclusion of this report, along with suggestions for future research.

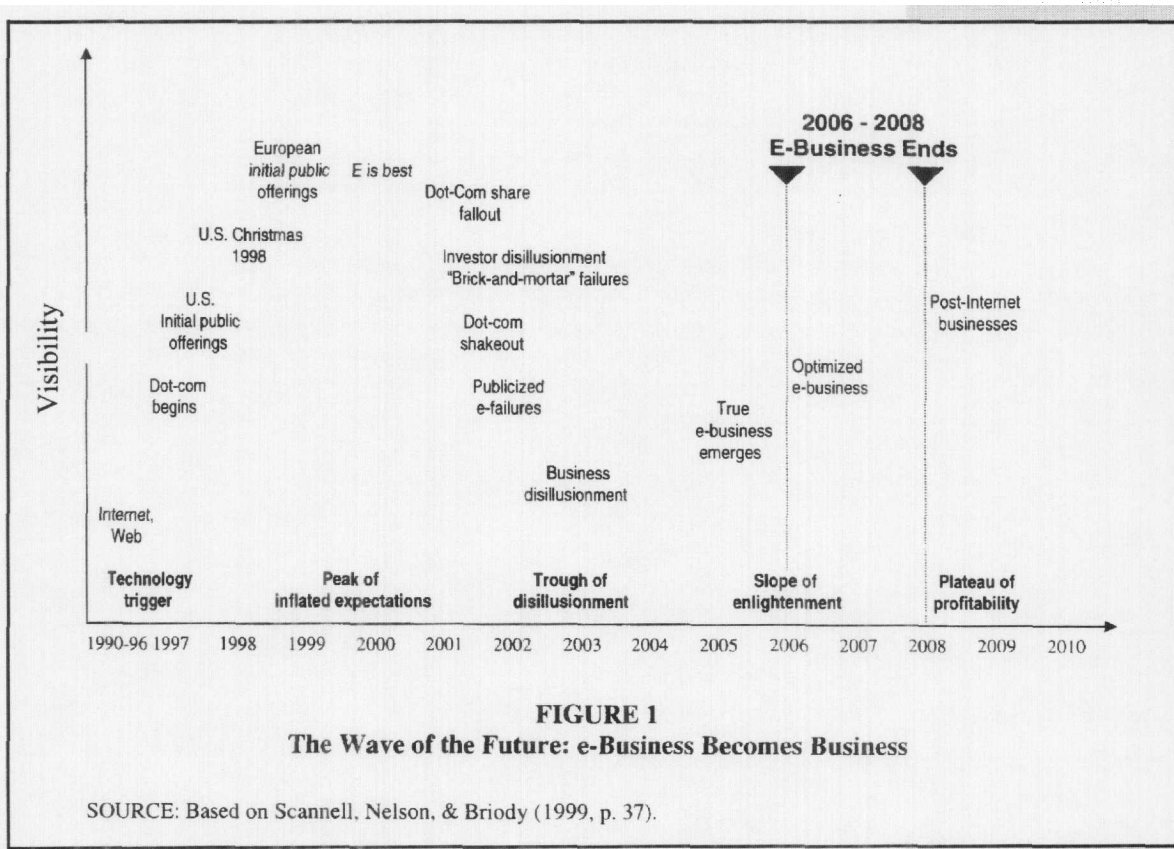
Introduction

At this point in time, it appears that we are collectively riding the unmistakable curve of a sweeping change of history. As can be seen in Figure 1, we are fast approaching the point – presciently projected by Scannell, Nelson, and Briody (1999) to be between 2006 and 2008, where e-business will end – just becoming simply the way things will work. The most likely scenario for this decade is that e-business will indeed become *business*. As Stewart Alsop (1999) declared:

The “e” in e-business will soon be irrelevant....e-business is not so much e-anything as it is figuring out how to use technology to move stuff around efficiently. In the next wave, in other words, businesses will make “e” such a core part of their business that the difference between “e” and everything else will be nonexistent. Or they won’t be businesses any more (pp. 86-87).

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Patricia Seybold (2000) forecast that we will likely see *almost all* business-to-business processes during this decade, as B2B e-commerce will become *the* dominant mode for both fixed and dynamically-priced transactions between businesses.



The Wave of the Future: e-Business Becomes Business

Hal Varian (2000), author of *Information Rules*, observed that in the long view of history, the “feeding frenzy” surrounding the development of the Internet is really nothing new. Even though it may be a mania unique to our own lifetimes, the Internet revolution is following – albeit at a faster pace perhaps – the same trajectory as have earlier technological revolutions, including the introduction of:

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- steam engines
- telegraph
- telephone
- radio
- television
- airplanes.

Varian (2000, p. 73) sees such technological revolutions as progressing through five stages, which he outlines as being:

1. Experimentation
2. Capitalization
3. Management
4. Hypercompetition
5. Consolidation.

There can be no disputing the Internet Revolution and the sweeping effect that it is having across business and society around the globe. Indeed, entirely new ways of doing business have rapidly emerged and totally new industries have been birthed. However, over the past two years, we have also witnessed a rapid decline in the value and numbers of firms in the so-called "New Economy." As Singh (1999) correctly observed, in a world of online commerce, characterized by hypercompetition and price transparency, there will be pressure on companies to be "perpetually cost-effective" in order to survive. Thus, we are entering the "end stages" of at least this phase of the Internet Revolution.

The Overall Growth of B2B e-Commerce

If only with a bit less thrust than it previously had, B2B (business-to-business) e-commerce still appears to be on what has been described as a "rocket-ship ride" trajectory (Sostrom, 2001). In Table 1, the growth projections for B2B e-commerce are compiled from:

- AMR Research
- Forrester Research
- Gartner, Inc.
- Jupiter Research

B2B Growth Forecasts

These leading research firms still project rapid growth in the B2B sector of the economy, from under half a trillion dollars in 2000 to anywhere between

approximately \$3 and \$6 trillion by 2005. As can be seen in Figure 1, the consensus estimates show that B2B e-commerce will approach \$5 trillion by 2005.

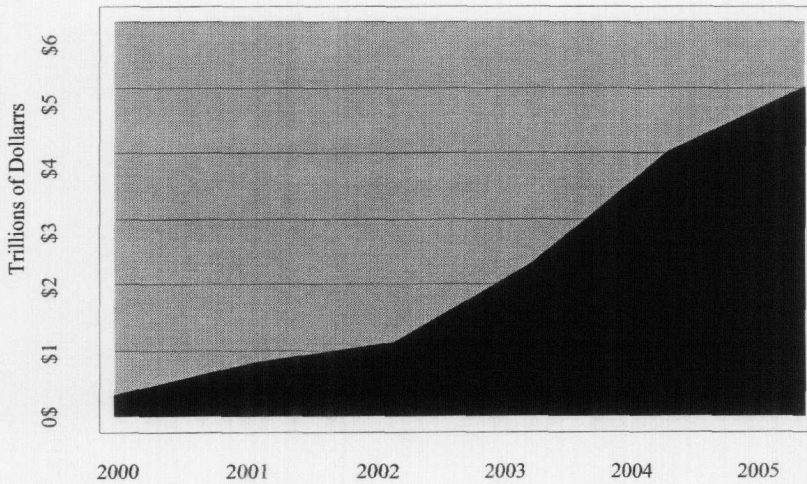
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**Table 1:
B2B Growth Forecasts**

	2000	2001	2002	2003	2004	2005
AMR Research	\$0.40	\$0.70	\$1.20	\$2.40	\$5.70	
Gartner, Inc.	\$0.20	\$0.50	\$0.90	\$1.80	\$2.70	\$3.70
Forrester Research	\$0.45	\$0.70	\$1.15	\$1.85	\$2.65	
Jupiter Research	\$0.30	\$0.90	\$1.50	\$3.00	\$4.70	\$6.25
Consensus Forecast	\$0.34	\$0.70	\$1.19	\$2.26	\$3.94	\$4.98

· expressed in *trillions* of dollars
Source: *The Wall Street Journal* – Totty (2001, p. R9).

**FIGURE 1
B2B Growth Forecast - Consensus Estimate**



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B2B Growth Forecast - Consensus Estimate

Gordon (2001) acknowledged that while *excessive optimism* fueled the growth of B2B markets, today's environment may be characterized as being *excessively pessimistic*. Thus, the forecasts – especially in today's environment - may understate how fast and pervasive the movement of B2B transactions online may occur. After all, as Charles E. Phillips, a Managing Director at Morgan Stanley Dean Witter, observed, the move toward e-commerce is not likely to be deterred by the downturn in the economy. As he stated: "Even in hard times, I don't think that a single big company is prepared to say, 'Paper is fine. Let's keep doing it the old way'" (quoted in Canabou, 2001, p. 90).

In this paper, we will track the "perfect storm" of B2B e-commerce, examining how firms in the United States are adapting to and taking advantage of the new, Internet-based e-procurement methods and practices. We will see how businesses of all sizes are making use of the Internet to streamline their sourcing processes, dramatically reducing paperwork and purchasing cycle times. We will also see how e-procurement is being using for the acquisition of both indirect *and* direct categories of goods *and* services. We will look at the increasing use of reverse auctioning as a pricing mechanism. We will examine how corporations are making use of these new techniques to move beyond purchasing and into collaboration with their suppliers. Finally, we will look at how the shift to e-procurement is impacting the total cost of sourcing for companies. In conclusion, we will spotlight key trends that emerge from this analysis of the evolution of e-procurement domestically in the United States and its impact on our overall competitiveness in the global economy.

TRACKING B2B'S EVOLUTION: ANALYZING THE ISM/FORRESTER REPORTS ON E-BUSINESS

Perhaps the best "tracking" source on the growth of the e-procurement aspect of e-business comes from the Institute for Supply Management (ISM; formerly the National Association of Purchasing Managers - NAPM). Along with Forrester Research, ISM began a quarterly *Report on e-Business* in January 2001. These reports lend perhaps the most credible insights into the current status of e-commerce in the B2B realm in the United States. Each quarter, NAPM and Forrester survey approximately 600-700 purchasing and supply management executives of both manufacturing and service industry firms. The surveyed firms, which are randomly selected each quarter, represent a broad cross-section of American business, as they are diversified according to:

· Geography

· Size

Industry – based on SIC (Standard Industrial Classification) Codes

The characteristics of the samples for each of the six quarterly surveys completed, as of the date of this paper in mid-2002, are as shown in Table 2.

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	Q1-2001	Q2-2001	Q3-2001	Q4-2001	Q1-2002	Q2-2002
Number of Respondents	368	407	390	418	361	350
Manufacturers	182	215	208	225	177	174
Non-Manufacturers	186	192	182	193	184	176
Buy \$100 Million Annually	146	152	156	168	123	129
Buy \$100 Million Annually	206	251	222	228	170	200
Median Annual Purchases	\$75	\$75	\$75	\$75	\$75	\$37
Median Annual Revenues	\$250	\$175	\$375	\$212	N.A.	N.A.

· purchase and revenue figures expressed in *millions* of dollars
 · some respondents declined to provide purchasing volume and revenue figures for their firms, and thus, the total of those respondents who bought more or less than \$100 million annually do not equal the total number of respondents.
 Source: ISM/Forrester Reports on e-Business (2001, 2002) (www.napm.org).

Sample Characteristics for the ISM/Forrester Reports on e-Business

This independent analysis of the ISM/Forrester Reports shows that across the board, the Internet is revolutionizing the purchasing process for organizations. In this paper, the *Reports on e-Business* are surveyed to look at the underlying currents driving this revolution. Specifically, we will examine the use of web-based methods:

- to identify new sources of supply
- to reduce paperwork and purchasing cycle times
- to purchase both direct *and* indirect materials
- to collaborate with suppliers
- to bring down the total cost of purchasing

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Use of the Internet to Identify New Supply Sources

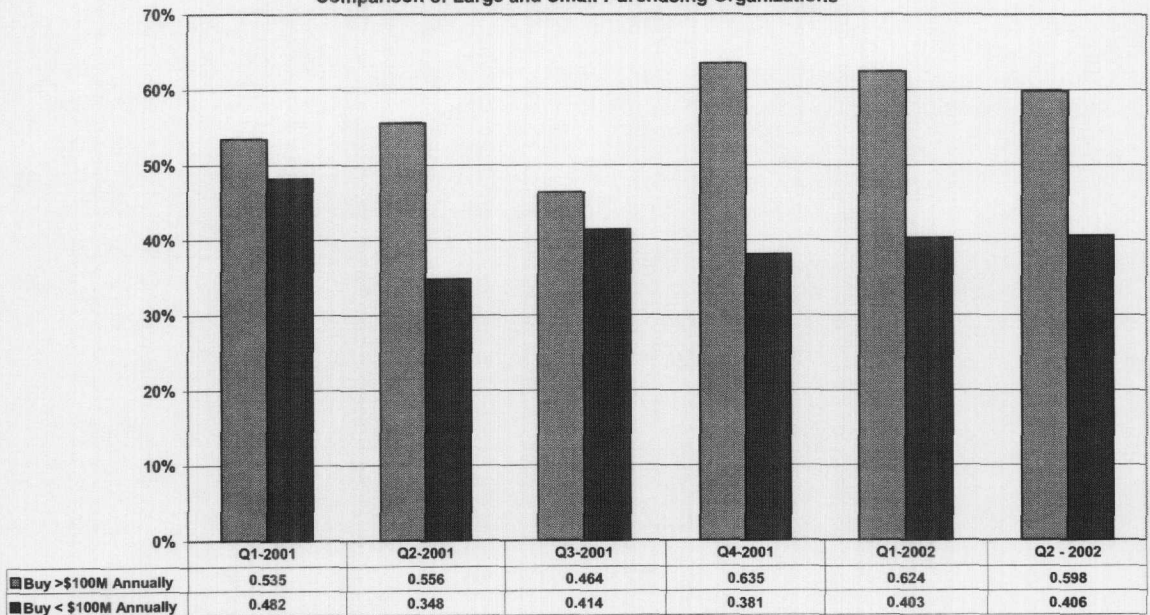
As can be seen in Figure 3, across the board, the web is increasingly being used to identify new suppliers. Whether through scouring the Internet themselves or making use of online directories and catalogues, over 80% of all surveyed purchasing executives say that their organizations are now making use of the Internet to locate new sources of supply. Figure 4 shows that there is no demonstrable difference between the propensity of manufacturing and service sector firms to do so. Likewise, Figure 5 reveals no significant difference between larger organizations (those who purchase more than \$100 million annually) and firms which have procurement outlays of less than this benchmark.

Use of the Internet to Reduce Paperwork and Purchasing Cycle Times

The Internet is increasingly being used to eliminate the cumbersome paper flow that has historically been part of the procurement process. In doing so, purchasing cycle times can be dramatically reduced – often from months to weeks or even days – and costs of the purchasing function can be likewise cut. Take for instance the simple act of issuing a purchase order, something that is done literally hundreds of thousands if times a day across America.

FIGURE 3

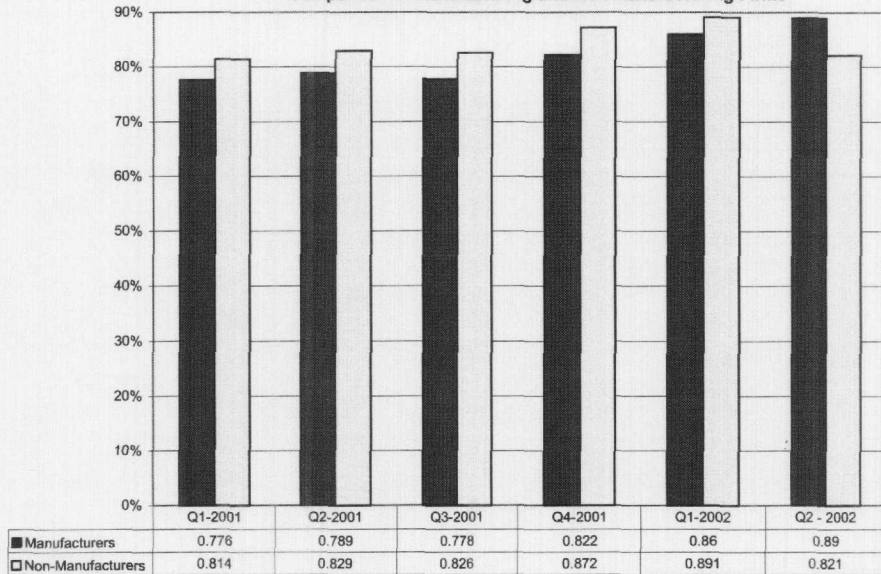
**Use of the Internet to Collaborate with Suppliers:
Comparison of Large and Small Purchasing Organizations**



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

FIGURE 4

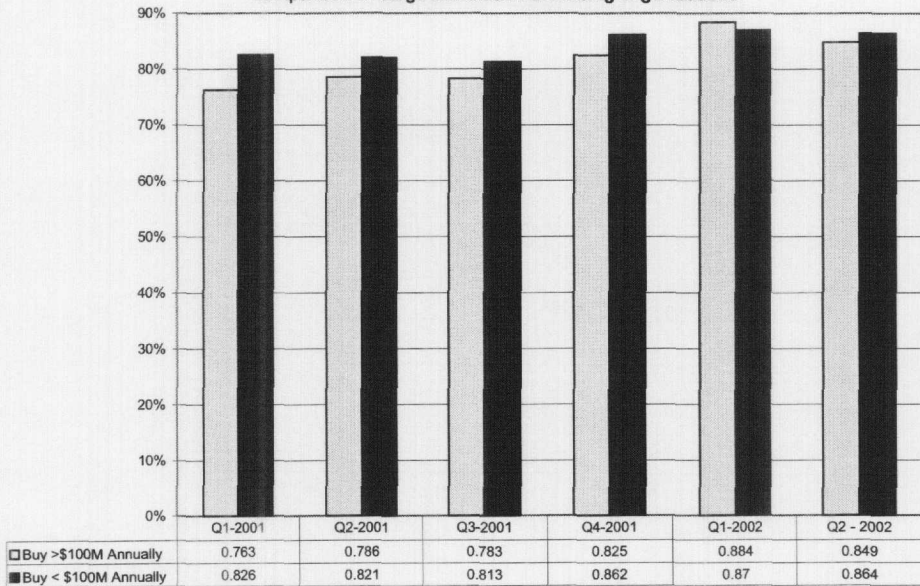
**Use of the Internet to Identify New Suppliers:
Comparison of Manufacturing and Non-Manufacturing Firms**



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

FIGURE 5

**Use of the Internet to Identify New Suppliers:
Comparison of Large and Small Purchasing Organizations**



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

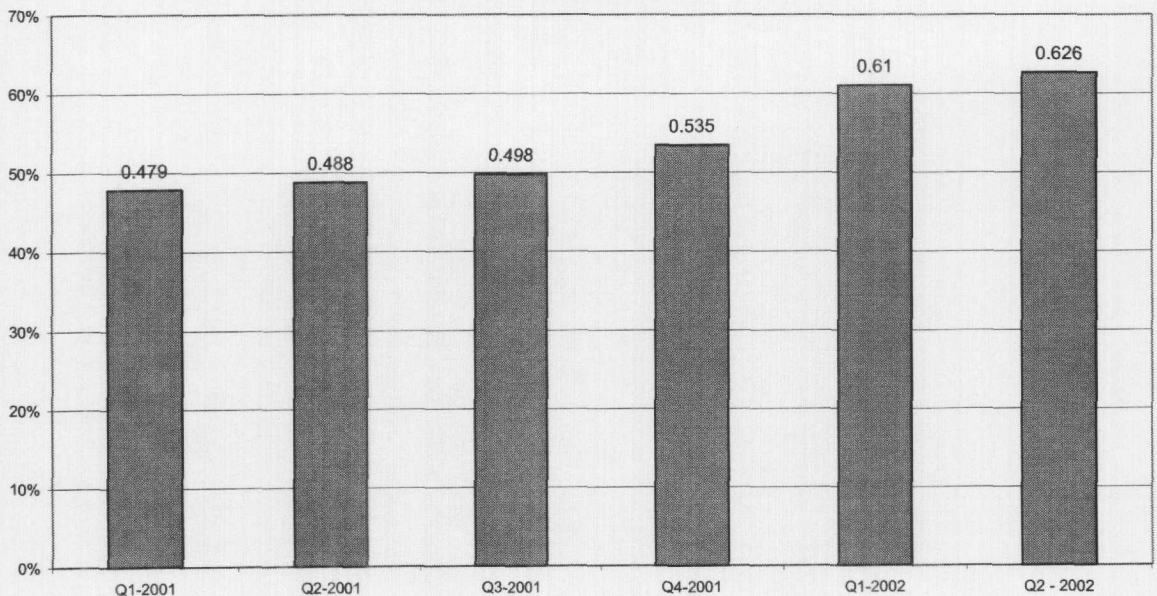
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According to both Dean Whitlock, a Vice President with ICL eBusiness Services Group (cited in McGarvey, 2000), and Bob Austrian, an analyst with Bank of America Securities (cited in Schwartz, 2000), purchasing via the Internet can reduce transaction costs by 90%. This can save billions in overhead costs annually for organizations. Chris Cogan, CEO of the Internet exchange, GoCo-op.com, provides evidence of the dramatic cost efficiencies brought about by using online purchasing. His firm estimates that the average cost to a business of issuing a purchase order is \$115, Yet, when companies buy via the Web, the cost can be driven down to as little as \$10 (cited in McGarvey, 2000). Indeed, analysts estimate that many firms may be able to shave between 25-50% off their direct and indirect procurement costs through conducting purchasing activities online (Henig, 2000).

The reduction in paper flow is demonstrated in Figure 6, as the ISM/Forrester survey shows that the web is being utilized by over half of all the responding organizations in the RFP (Request for Proposal) process. This graphic reveals that this shift to web-based methods of communication has experienced consistent growth since the beginning of the survey period

FIGURE 6

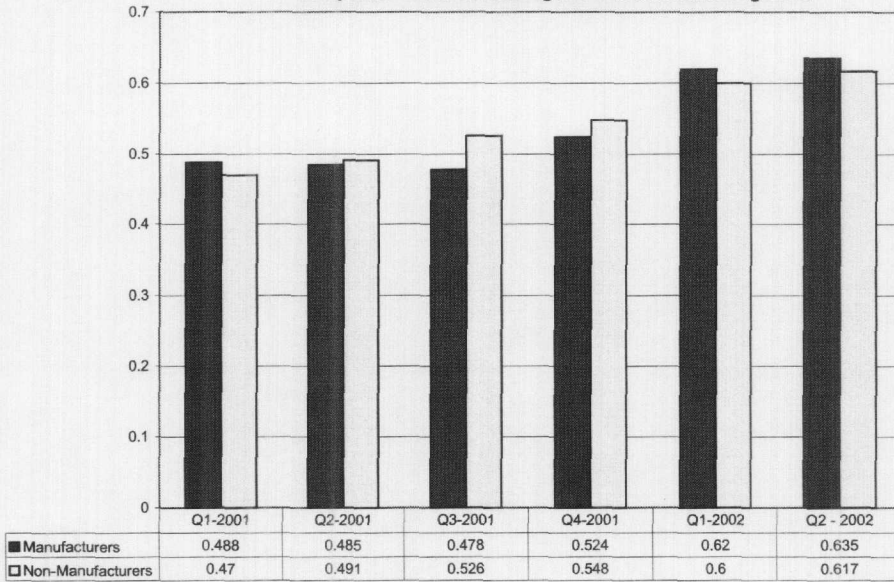
Use of the Internet as Part of the RFP (Request for Proposal) Process:
All Respondents



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

FIGURE 7

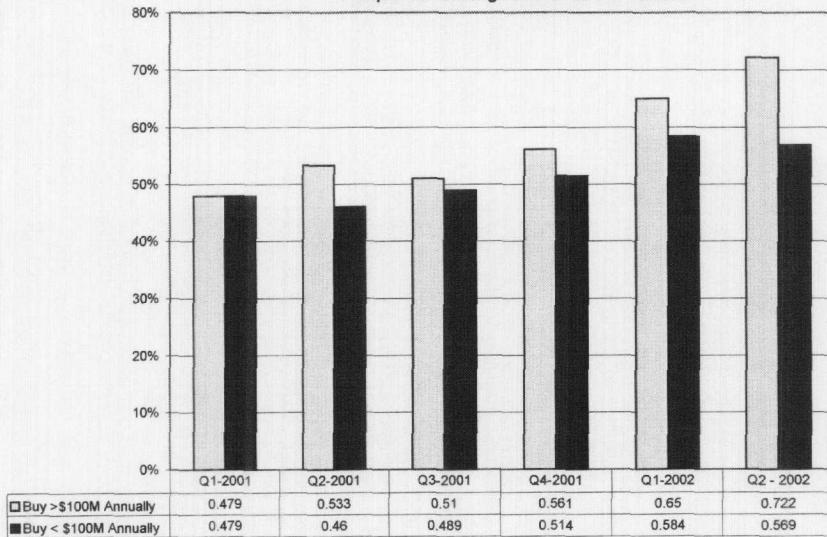
**Use of the Internet as Part of the RFP (Request for Proposal) Process:
Comparison of Manufacturing and Non-Manufacturing Firms**



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

FIGURE 8

**Use of the Internet as Part of the RFP (Request for Proposal) Process:
Comparison of Large and Small Purchasers**



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

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in January 2001. As Figure 7 reveals, we see very little disparity between manufacturing and non-manufacturing firms in their propensity to use this web-based method to cut the paper flow which has often characterized corporate procurement in the past. However, as can be viewed in Figure 8, larger corporate purchasers – companies sourcing more than the \$100 million benchmark used by ISM/Forrester to categorize the procurement executives – have consistently proven more likely to use the Internet for RFP issuance and communications. This trend is only accelerating over time, and it is one that we will see, for the most part, throughout this data analysis.

Use of the Internet for Purchasing Both Direct *and* Indirect Materials

In procurement circles, the line is often drawn between *direct* and *indirect* materials. Yet, what is the difference? A good breakdown between direct and indirect materials was provided in Thomas Eisenmann’s *Internet Business Models* (2002). His model is shown in Table 3. *Indirect materials* constitute what are typically referred to as MRO (maintenance, repair, and operating) goods, whereas *direct materials* are those that are closely linked to production or service delivery. This analogy can even be extended to services provided to the company, whereby services such as janitorial and cafeteria help can be categorized as being indirect in nature. In contrast, for an airline, maintenance would be a prime example of a direct service.

**Table 3:
Attributes of Direct vs. Indirect Purchases**

	Direct Purchases	Indirect Purchases
<i>Purchase Predictability</i>	Volatile	Internally-driven
<i>Order Size</i>	Large lots	Often small
<i>Collaboration with Suppliers</i>	Varies, usually high, but low for commodities	Varies, low for MRO supplies, high for equipment and services
<i>Percentage of Total Dollars Spent</i>	80%	20%
<i>Percentage of Total Number of Purchase Orders</i>	20%	80%
<i>End Customer</i>	External customer	Internal employees

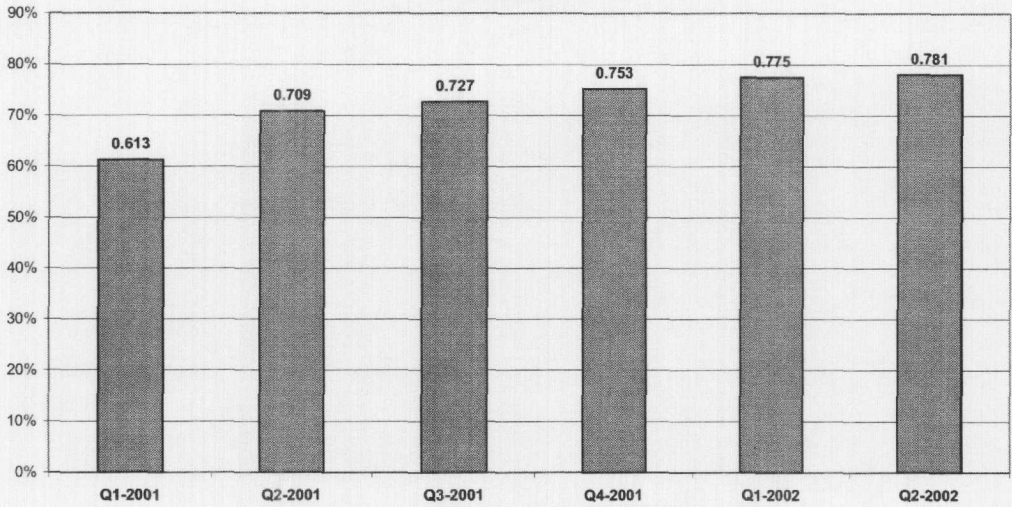
Source: Adapted from Eisenmann, *Internet Business Models* (2002) – p. 479.

Attributes of Direct vs. Indirect Purchases

The ISM/Forrester *Reports on e-Business* (2001, 2002) have shown consistent growth in the adoption of web-based methods for indirect purchases. As can be seen in Figure 9, the overall penetration rate for web-based sourcing of indirect materials and assistance in the U.S. is fast approaching 80 percent of *all* purchasing organizations. Much of this is due to the fact that firms – both in the service and manufacturing sectors (as depicted in Figure 10) - are

FIGURE 9

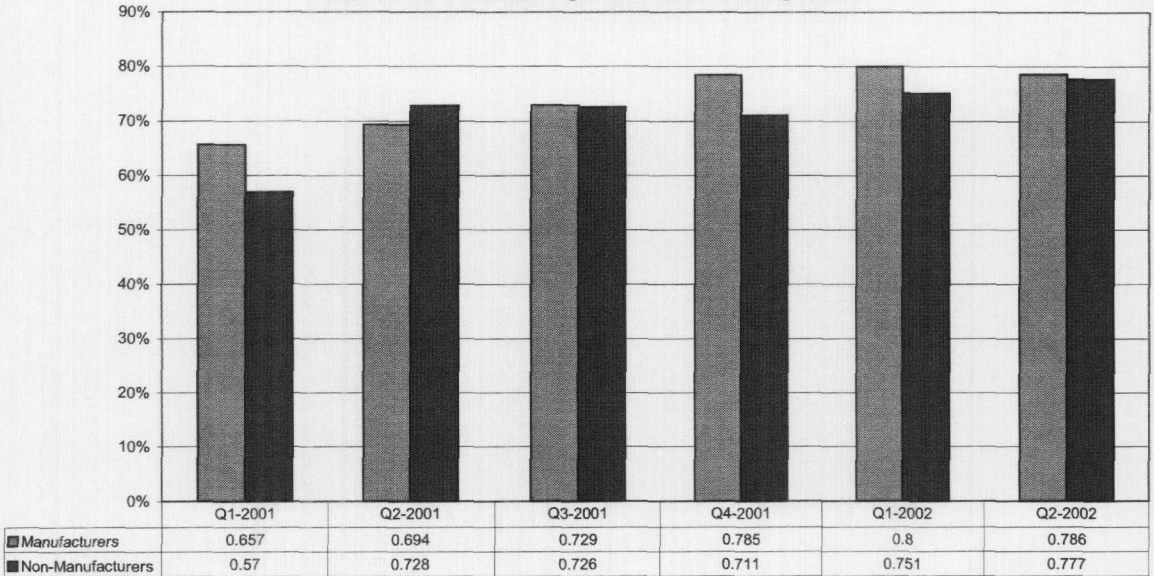
Use of the Internet for Purchasing Indirect Goods & Services:
All Respondents



Source: *ISM/Forrester Research Reports on e-Business* (2001,2002) (www.napm.org/ismreport/forrester/)

FIGURE 10

Use of the Internet for Purchasing Indirect Goods & Services:
Comparison of Manufacturing and Non-Manufacturing Firms



Source: *ISM/Forrester Research Reports on e-Business* (2001,2002) (www.napm.org/ismreport/forrester/)

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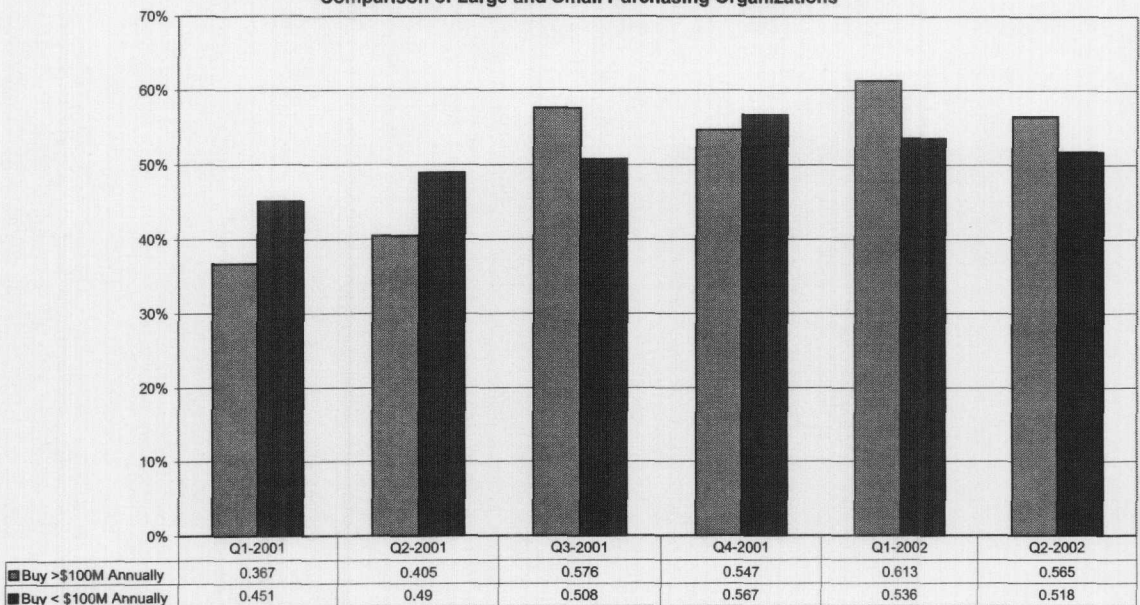
increasingly making routine purchases for operating and office supplies through online sites, either independently or as part of hosted catalogs, such as:

- Staples (www.staples.com)
- OfficeMax (www.officemax.com)
- Office Depot (www.officedepot.com)
- W.W. Grainger (www.grainger.com)
- FindMRO (www.findmro.com)

However, when the ISM/Forrester results are looked at more closely, it can be seen that *the* driving force behind this overall shift to sourcing indirect goods and services via the Internet is the largest purchasing organizations. Indeed, as seen in Figure 11, the gap between companies procuring more than \$100 million annually and those purchasing less than this threshold has grown rather consistently over the past 18 months during the time of the survey. Indeed, over the last nine months, a double-digit disparity can be seen as emerging between the larger corporate purchasers and their smaller brethren.

FIGURE 11

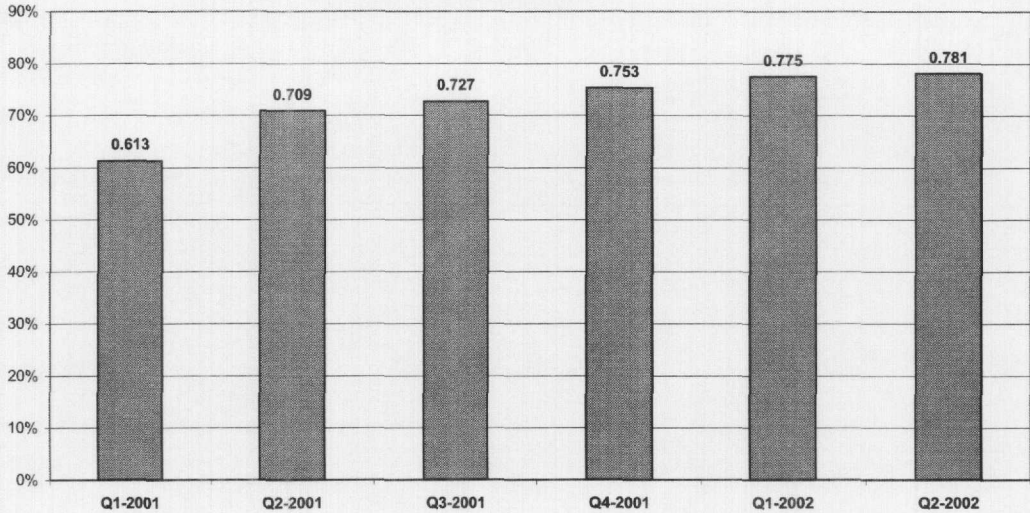
**Use of the Internet for Purchasing Direct Goods & Services:
Comparison of Large and Small Purchasing Organizations**



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

FIGURE 12

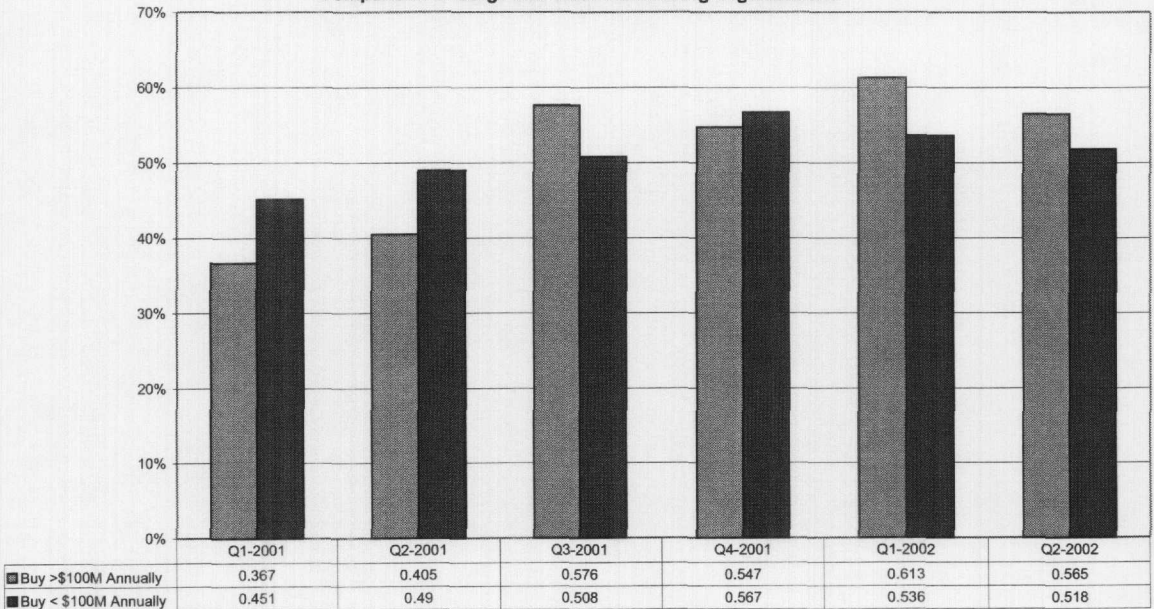
Use of the Internet for Purchasing Indirect Goods & Services:
All Respondents



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

FIGURE 13

Use of the Internet for Purchasing Direct Goods & Services:
Comparison of Large and Small Purchasing Organizations



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

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they have been overtaken by the rapid adoption of such methods by those organizations with annual procurements of over \$100 million. This shift is depicted in Figure 13.

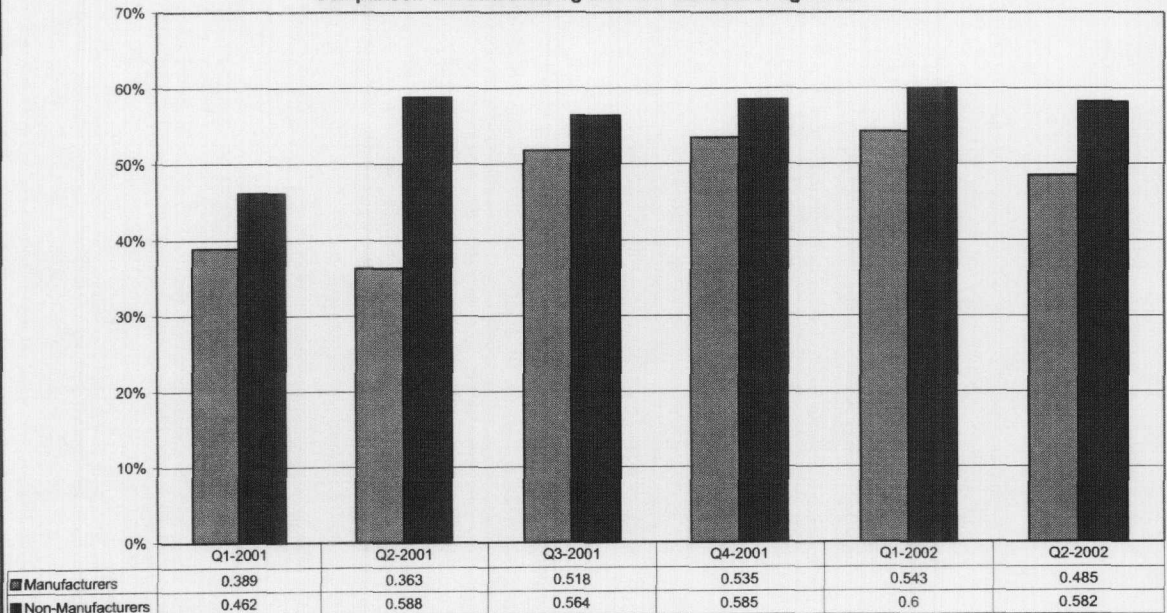
Figure 14 reveals an interesting countertrend in the ISM/Forrester data. This is the fact that in contrast to the earlier findings regarding purchases of indirect goods, the trend is for non-manufacturing firms to be significantly more likely to purchase their direct goods and services via web-based procurement methods. Perhaps this is due to quality concerns for manufacturing operations, as there is a straighter line between direct material procurement and products in fabrication or processing than in service delivery. However, this is one area where the ISM/Forester data unmistakably uncovers an area where service sector firms are leading the way in terms of e-procurement.

From an overall perspective, if you contrast the ISM/Forrester findings on indirect and direct sourcing via the Internet, comparing Figures 9 and 12, there is a twenty-point gap between the likelihood of companies purchasing their indirect goods and services over their more strategic, direct procurements. It must be remembered, however, that the *exact* breakdown on what is a direct purchase and what is an indirect one varies even within companies – and even depending upon the timing and circumstances of the

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FIGURE 14

**Use of the Internet for Purchasing Direct Goods & Services:
Comparison of Manufacturing and Non-Manufacturing Firms**



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

urchase. Although purchases of indirect goods may often outpace spend on direct materials, acquisition of MRO goods has heretofore not been looked upon as a strategic issue (Wendin, 2001). Yet, this should be an area of attention for not only procurement executives, but for top officials of all organizations – and not purely based on the dollars involved. As R. Gene Richter, former Chief Procurement Officer at IBM, astutely acknowledged: “Everything is strategic to somebody. Talk about ballpoint pens. A secretary has spots all over her brand new blouse because the pen you bought for a cent and half is leaking” (quoted in Anonymous, “E-Auction Playbook: What Top Supply Execs Say About Auctions,” 2001, p. S2).

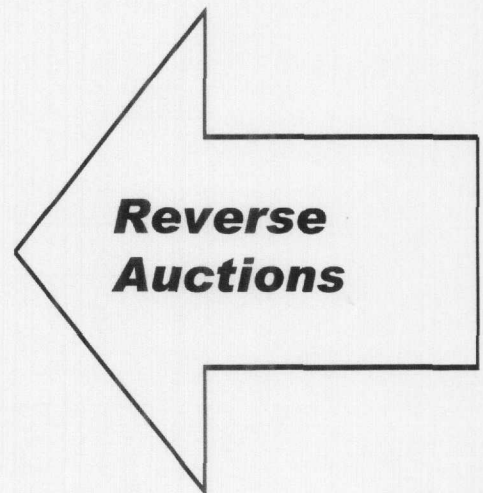
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Use of Online Reverse Auctions

Historically, traditional auctions have brought buyers and sellers together for centuries (Miller, 2000). Today, *reverse auctions* are being employed in new ways in the electronic supply chain for e-procurement. Formally, a reverse auction can be defined as “a supply-aggregating event that lowers the price of goods for a buyer” (Mattick and Brousseau, 2001, p. 133). Through the pre-qualification process, all issues are generally settled between the procuring organization and potential suppliers before the time of the auction, with the only remaining issue to be settled being the *price* (Marinello and Daher, 2001). In most, but not necessarily all reverse auctions, the buying organization is not bound – under the terms of the auction – to necessarily choose the lowest bidder (Kalin, 2001). Thus, reverse auctioning can be thought of as a negotiation tool or alternate pricing mechanism.

FIGURE 15 - Characteristics of Reverse Auctions

- ✓ One Buyer, Many Sellers
- ✓ Decending Prices
- ✓ Identities of bidders *unknown* to all
- ✓ Bid prices are immediately *known* to all participants
- ✓ Suitable for Procurement



Specifically, as can be seen in Figure 15, reverse auctions have certain key characteristics.

Characteristics of Reverse Auctions

Regardless of whether the auction is conducted by the purchasing organization in-house, through an independent exchange, or through an auction service provider, the process is generally the same. In a reverse auction, qualified suppliers, after being trained in how to use the software used for the bidding process, are given an appointed time for the process to be conducted. The auction process generally is open only for a short period of time – ranging from thirty minutes to an hour. By supplier's bidding down the price at which they would be willing to provide the specified goods or services in the particular event, the event takes on the form of a "ski slope." The bidding can continue past the scheduled end time of the auction, if interested suppliers continue to drive the pricing down. In the end, the reverse auctioning process has been aptly termed by one writer as "accelerated Darwinism," in that they enable organizations to "find out much more quickly who are the most competitive suppliers and who is going to win your business" (Waxer, 2001, p. 34).

What are the benefits and risks of using reverse auctions? According to Marinello and Daher (2001), the chief benefits of reverse auctions are:

- Increased numbers of potential suppliers
- Reduced procurement cycle time
- Lowered purchase prices.

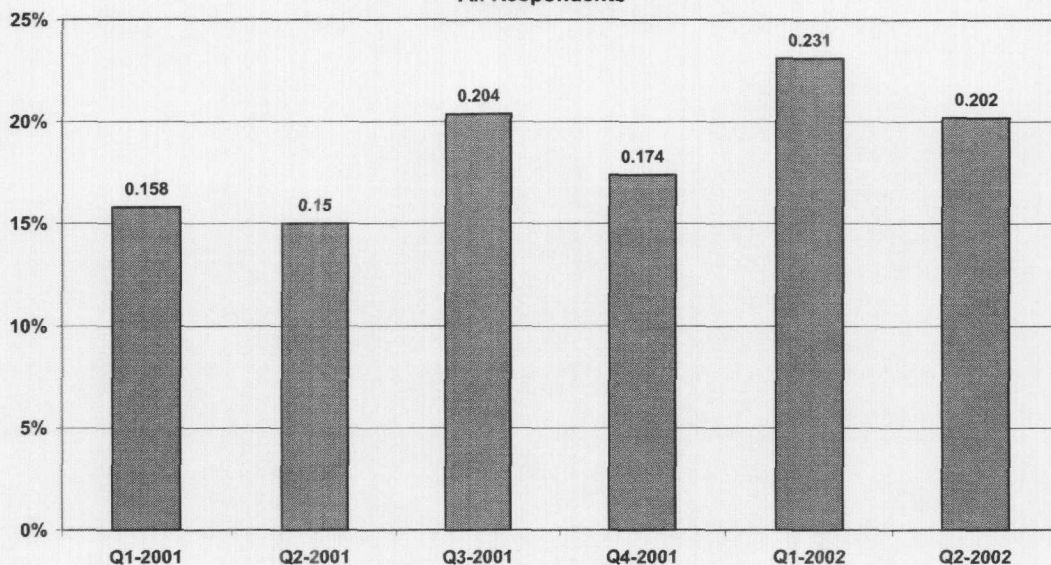
With respect to reverse auctions in the private sector, perhaps no one event has gained more attention or produced more savings than one held by Covisint, the marketplace established by the major automakers. In May 2001, Covisint hosted the largest online auction to date for DaimlerChrysler, in which the automaker procured \$3 billion in parts in a single transaction, saving an estimated tens of millions of dollars in this event (Barlas, 2001).

From analysis of the data on the use of reverse auctions in the ISM/Forrester *Reports on e-Business*, across the American private sector, there is a trend towards using reverse auctioning as a pricing mechanism in the acquisition of both goods and services, with the current penetration rate being approximately 20 percent of all purchasing organizations. As Figure 16 shows, however, the push for reverse auctioning has not been as consistent or fast-growing as we have seen for e-procurement in general in the preceding analyses of indirect and direct purchases.

In no other area of the analysis conducted for this paper do we see the power of large manufacturing organizations being exerted through the adoption of e-procurement. As Figure 17 demonstrates, while there has

FIGURE 16

**Purchasing through Online Auctions:
All Respondents**



Source: *ISM/Forrester Research Reports on e-Business* (2001,2002) (www.napm.org/ismreport/forrester/)

been general growth amongst organizations in the service sector, they still lag manufacturers (by double-digit percentages) in the adoption of the reverse auction method. However, Figure 18 quite clearly shows that this overall trend is being driven by – once again – the largest, blue-chip buyers of over \$100 million annually. In fact, smaller purchasing organizations have really established no pattern in auctioning and trail significantly in the use of this e-procurement tool. Thus, it is clear that the largest buyers in American business are leading the way in utilizing the auction model and using this as a means to electronically force their suppliers to lower their prices through forced competition.

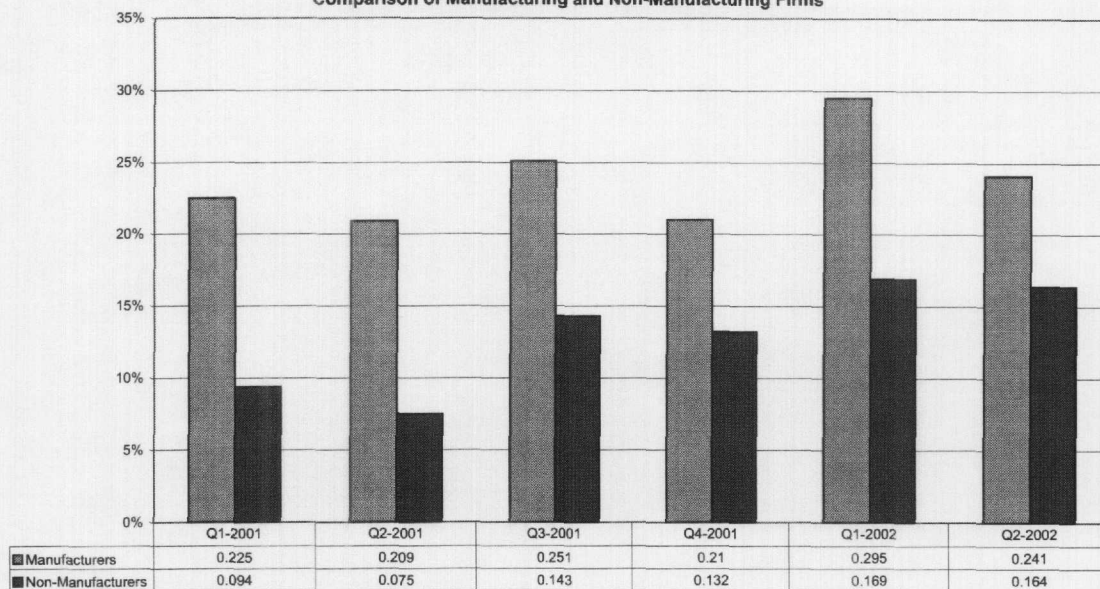
CONCLUSIONS FROM ANALYSIS OF THE ISM/FORRESTER REPORTS ON E-BUSINESS

In this paper, we have examined the quarterly “snapshots” of e-business in the United States found in the *ISM/Forrester Reports on e-Business* and have seen, in the long view – since January 2001 – the development of trends in the area of B2B e-commerce, specifically in the area of e-procurement. In this section of the analysis, we will look at three questions:

1. Are purchasing executives satisfied with the online capabilities of their supplier base?

FIGURE 17

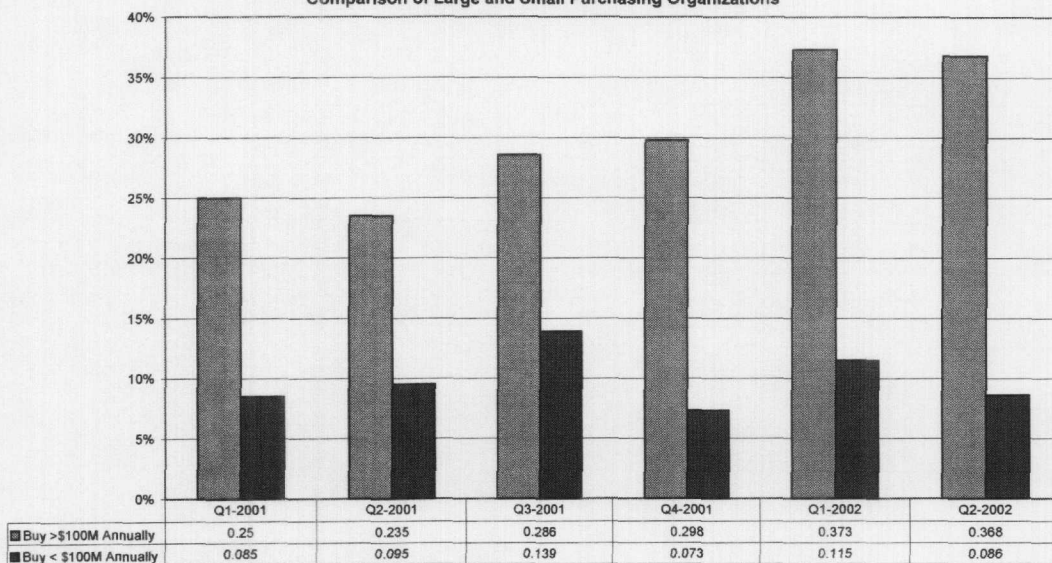
**Purchasing through Online Auctions:
Comparison of Manufacturing and Non-Manufacturing Firms**



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

FIGURE 18

**Purchasing through Online Auctions:
Comparison of Large and Small Purchasing Organizations**



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

2. Is online purchasing moving towards online collaboration between buying organizations and their suppliers?
3. Does the shift to e-procurement produce overall cost savings?

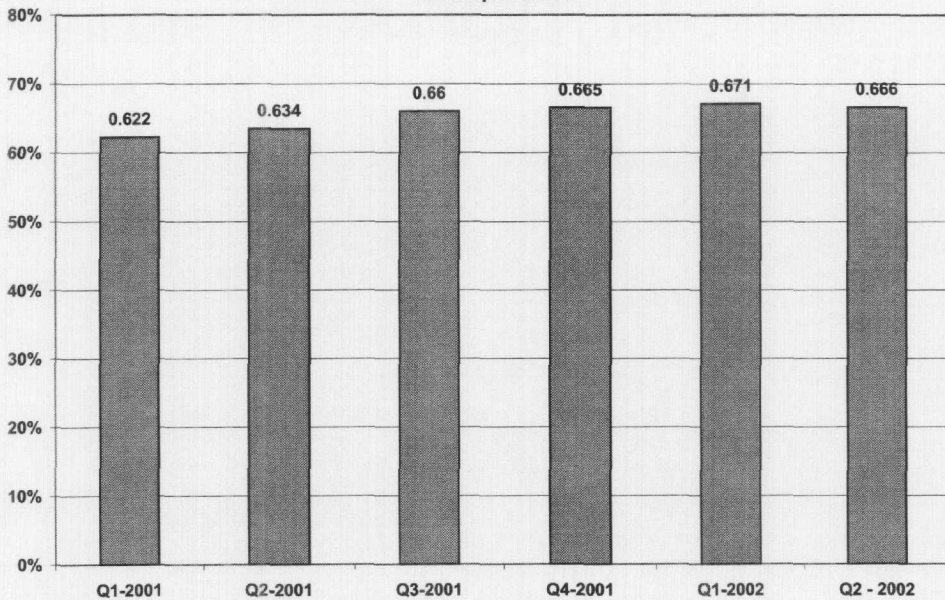
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Satisfaction with Suppliers' Online Capabilities

Overall, as can be seen in Figure 19, the majority of purchasing executives surveyed in the ISM/Forrester research are satisfied with the online capabilities of their supplier base. This would simply indicate that in the procurement realm, suppliers would seem – by and large – to possess the computing assets and savvy necessary for succeeding in an online business world. It would also point to suppliers having sufficient levels of online access for smooth interactions to take place between buyers and sellers in the B2B environment. As can be seen in Figures 19 and 20, overall satisfaction rates hover in the sixty percent range both for large and small purchasing organizations and for manufacturing firms, with slight growth demonstrated over the past eighteen months. The only significant disparity can be found between non-manufacturing and manufacturing firms. In this case, service sector firms appear to be increasingly more willing than their manufacturing

FIGURE 19

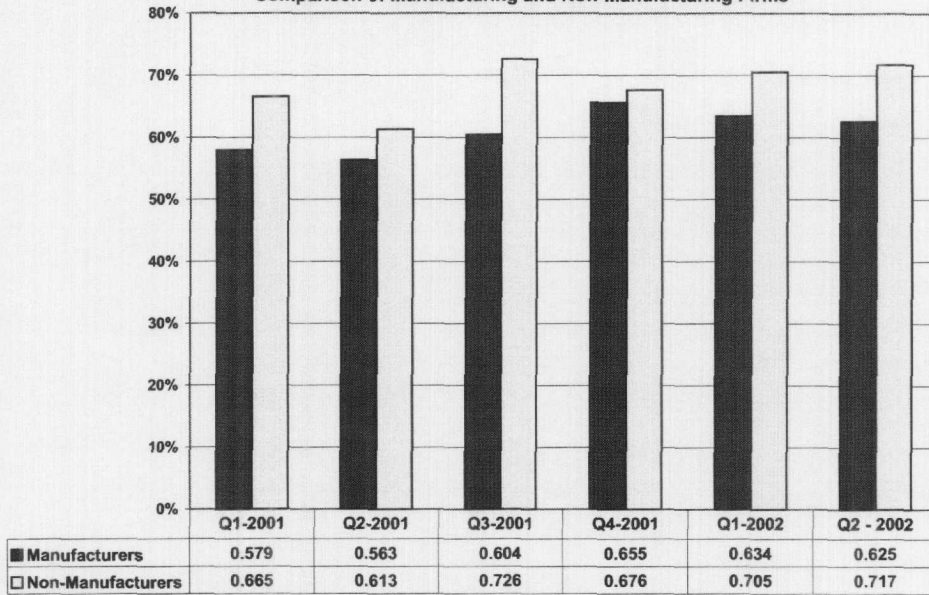
Satisfaction with Suppliers' Online Capabilities:
All Respondents



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

FIGURE 20

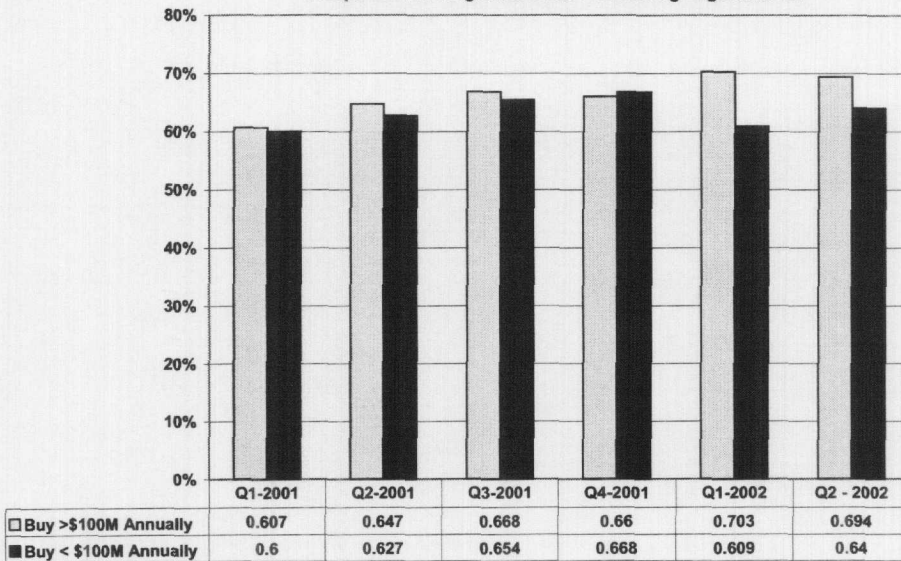
**Satisfaction with Suppliers' Online Capabilities:
Comparison of Manufacturing and Non-Manufacturing Firms**



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

FIGURE 21

**Satisfaction with Suppliers' Online Capabilities:
Comparison of Large and Small Purchasing Organizations**



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

counterparts to collaborate with their suppliers. One can only surmise that this is due to the need for greater information sharing and coordination in service delivery.

Looking into the future, with the overall downturn in the economy and in technology spending specifically, this is an area where improvements will be unlikely to occur over the next year at least. In fact, according to leading market analyst eMarketer (2002), corporate IT outlays will rise by only 1% for the balance of 2002 and be far below the norms of recent years into 2003. Thus, supplier computing capabilities can only be expected to remain at the status quo in the near-term, and therefore, improvements in this area will be incremental at best.

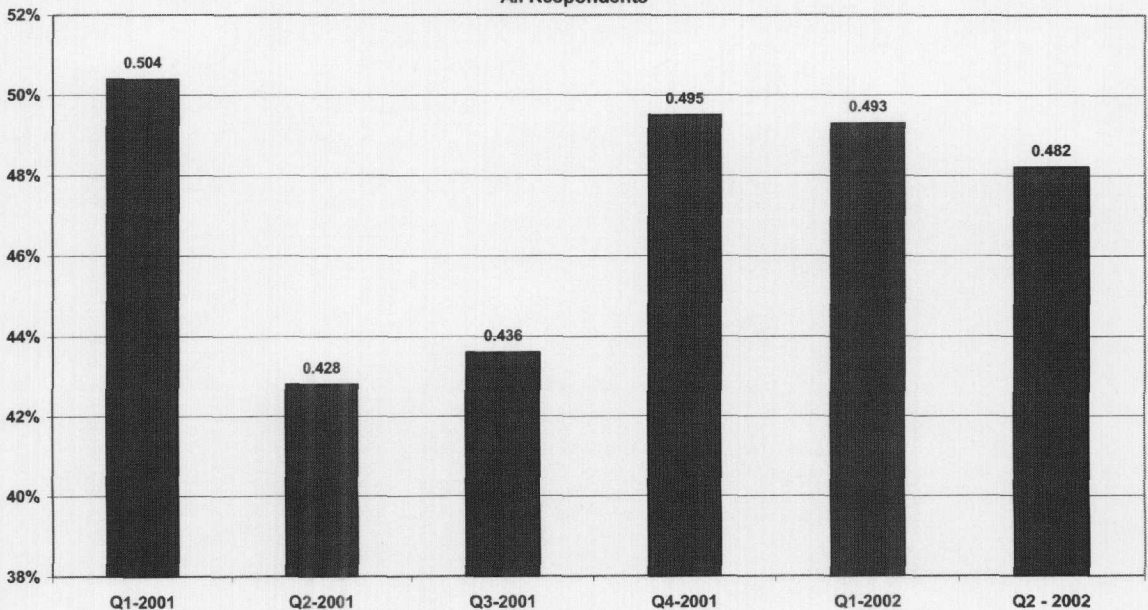
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e-Procurement as a Collaborative Tool

Much has been made of the potential for the Internet to serve as a collaborative tool between purchasing organizations and their suppliers. By doing so, procuring organizations could move beyond order issuance and suppliers could go beyond simply order fulfillment into areas such as product design, supply chain and logistical management, and demand aggregation.

FIGURE 22

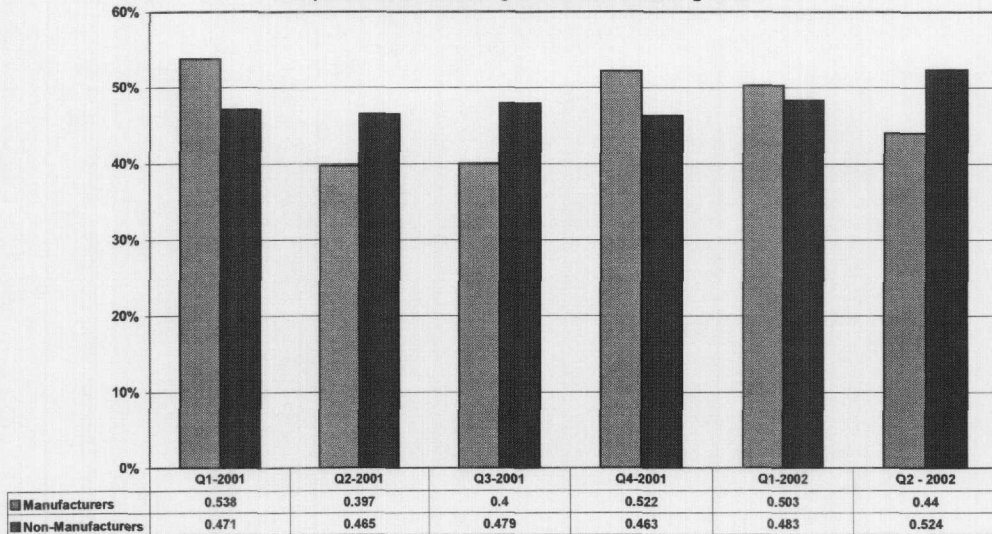
Use of the Internet to Collaborate with Suppliers:
All Respondents



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

FIGURE 23

Use of the Internet to Collaborate with New Suppliers:
Comparison of Manufacturing and Non-Manufacturing Firms



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

The ISM/Forrester *Reports on e-Business* (2001,2002) show that the rate at which procurement and sourcing professionals see this happening with their own organization's suppliers is hovering at around fifty percent overall (as shown in Figure 22). Again, Figure 23 illustrates that there is no "rush" towards achieving this capability amongst either service or manufacturing sector firms. However, large purchasing organizations have demonstrated a far greater propensity to engage – or "push" – their suppliers into collaboration. As can be seen in Figure 24, the disparity between those corporations that have annual procurement budgets above \$100 million has been consistently greater than twenty percentage points since the last quarter of 2001. This significant trend bears watching, as it further demonstrates the power of larger corporations in an electronic marketplace.

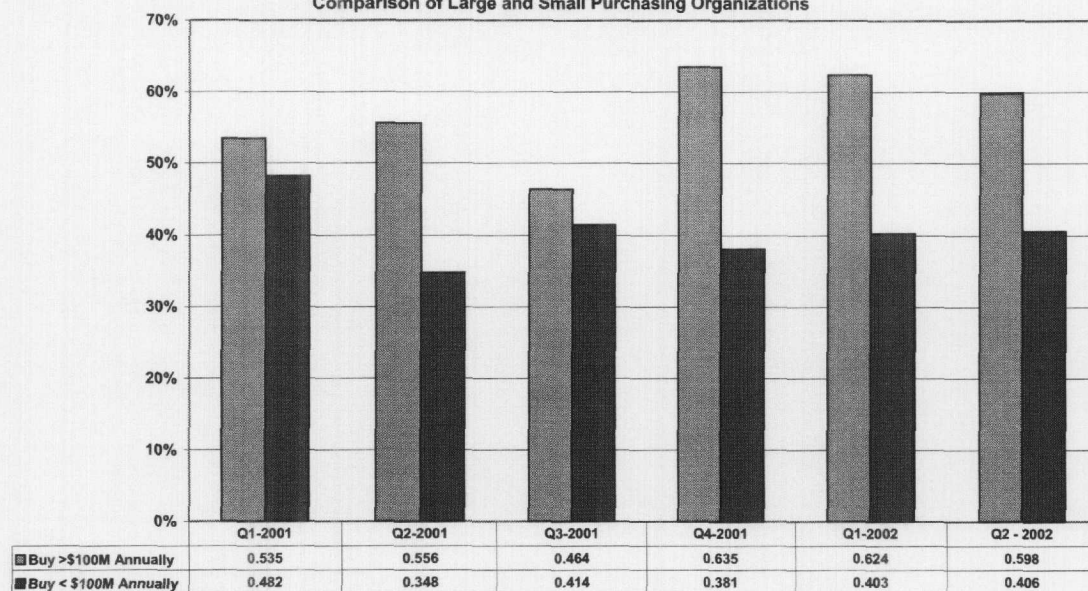
The Bottom Line: e-Procurement and the Total Cost of Purchasing

In the end, does the shift to e-procurement mean that companies can experience savings in their purchasing function? This is perhaps the key question facing corporate executives today as they look at the various ways to make their own sourcing more electronic and look at participating as suppliers in the e-procurement efforts of *their* customers, all of which involve the need for investment outlays.

ROI (return on investment) and metrics have become huge issues in the area of e-business today. With so much money having already been expended on e-commerce projects and a tightening of funds available today

FIGURE 24

Use of the Internet to Collaborate with Suppliers:
Comparison of Large and Small Purchasing Organizations



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

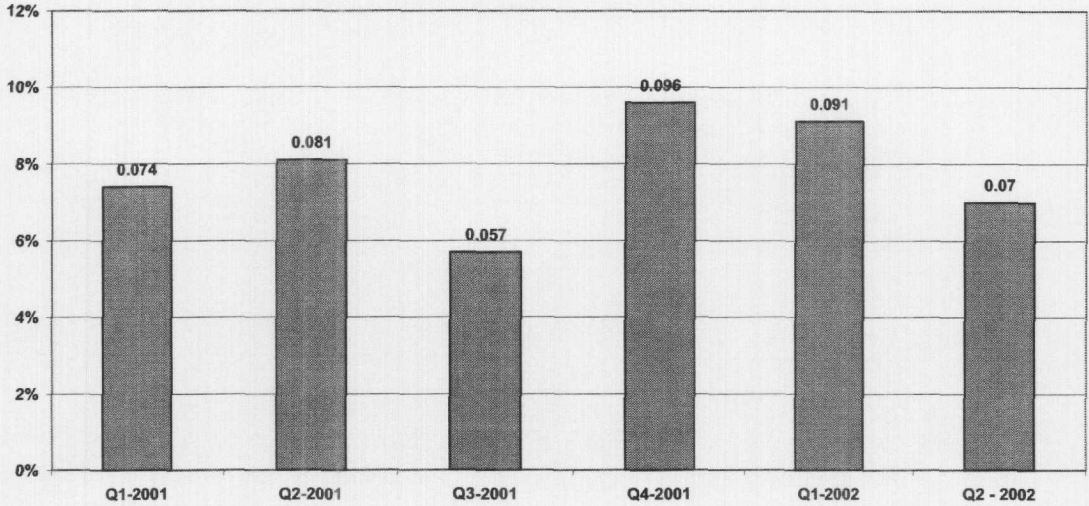
for such initiatives, there is a need to assess the worth of these investments. As Cutler and Sterne (2000) framed the issue: “The traditional management adage is that you cannot manage what you do not measure. The e-Business addendum is that you cannot measure what you do not define” (p. 1). Yet, as Heath (2001) commented: “Traditional methods for calculating return on investment have been, for the most part, ill suited to measuring the strategic impact of e-business” (p. 1). Indeed, gauging the return on investment for e-commerce projects and applications, in the view of Goldberg (2001) presents decision makers with a “Gordian knot,” as “the benefits are the new processes they bring. Yet, because the processes are new, existing measurement tools may miss those benefits” (p. 1).

In the ISM/Forrester research, respondents in each of the six quarterly surveys carried out to date were asked both if their organizations had experienced cost savings or increases due to the implementation of e-procurement. As can be seen in the contrast between the findings presented in Figures 25 and 26, sourcing executives overall have consistently responded that e-procurement efforts produce decreases more often in the total cost of purchasing than increases. The magnitude of these findings is on the order of three or four to one.

Figures 27 and 28 report similar order of magnitude findings for manufacturing and non-manufacturing firms, and Figures 29 and 30 pres-

FIGURE 25

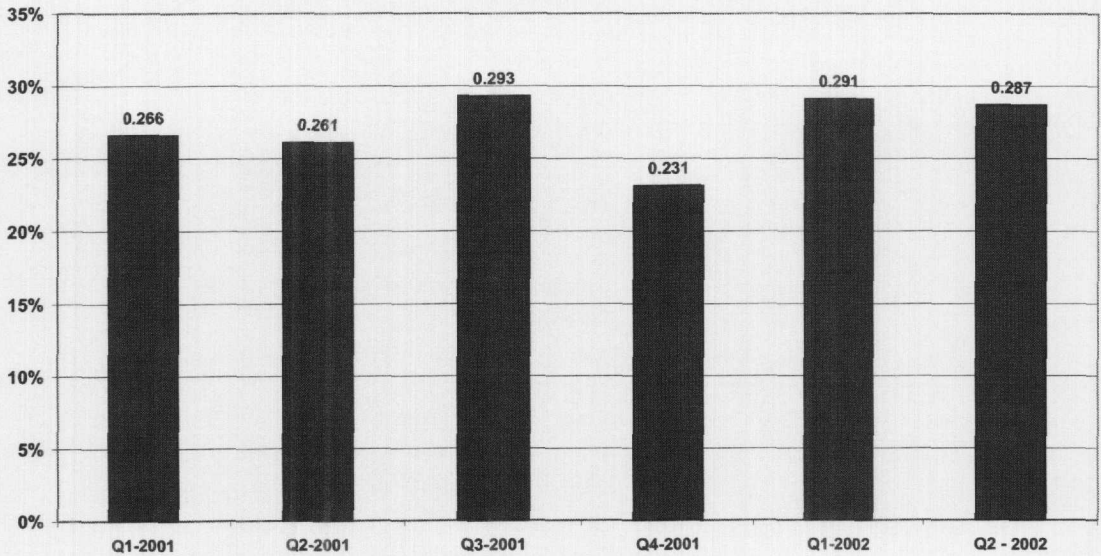
**Does e-Procurement Increase the Total Cost of Purchasing?:
All Respondents**



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

FIGURE 26

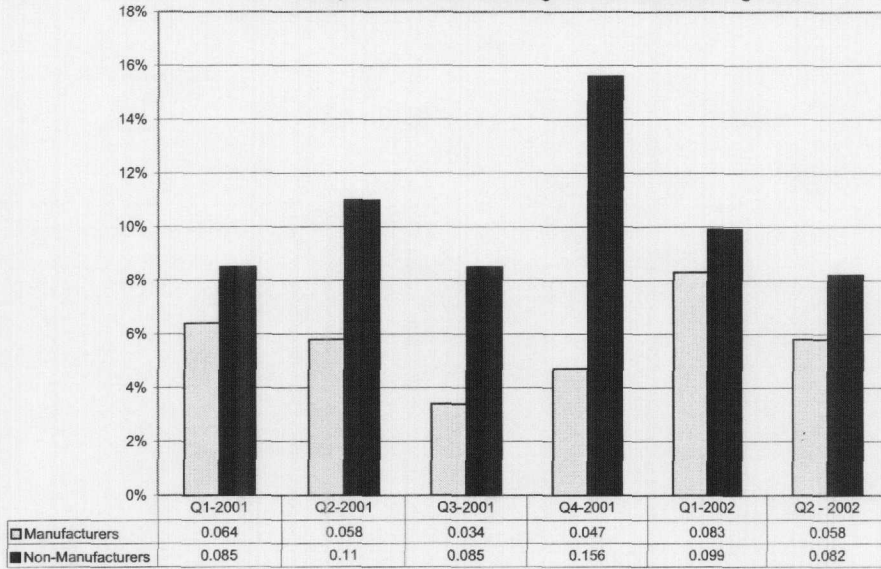
**Does e-Procurement Decrease the Total Cost of Purchasing?:
All Respondents**



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

FIGURE 27

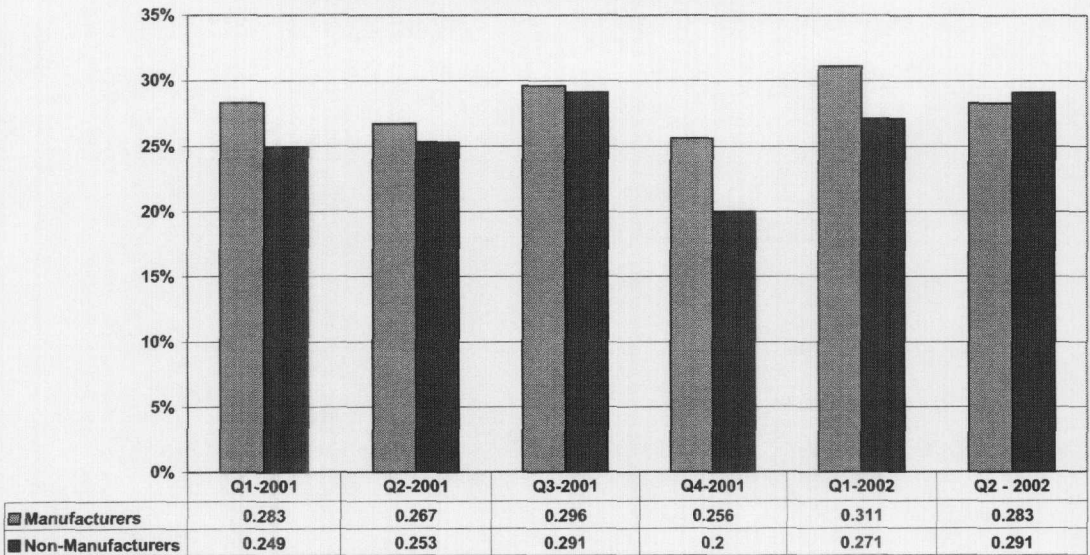
**Does e-Procurement Increase the Total Cost of Purchasing?:
Comparison of Manufacturing and Non-Manufacturing Firms**



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

FIGURE 28

**Does e-Procurement Decrease the Total Cost of Purchasing?:
Comparison of Manufacturing and Non-Manufacturing Firms**



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

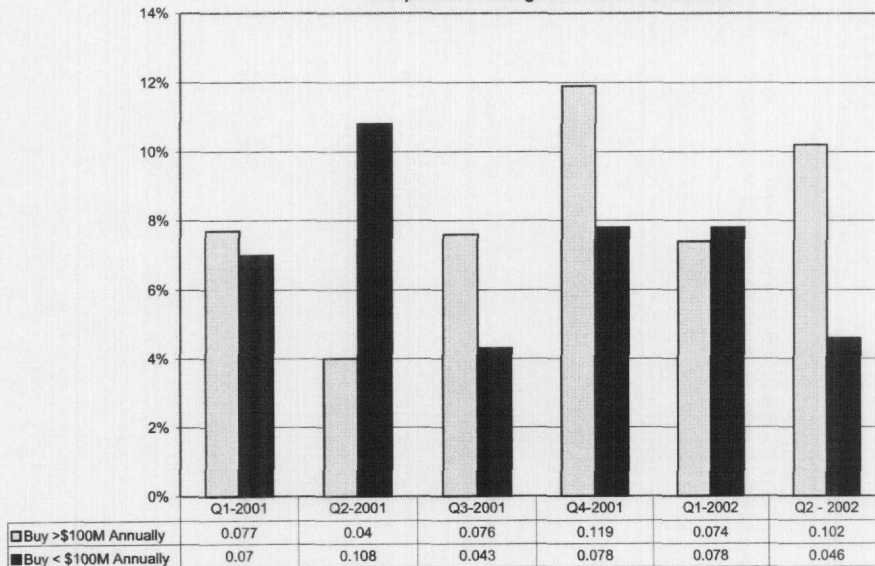
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ents the results of the final analysis, contrasting larger and smaller purchasing organizations, again defined by the \$100 million benchmark. Two substantial findings can be gleaned from these analyses. First, while firms in the service sector and manufacturing area reported similar levels of e-procurement savings, executives in the former category steadily reported seeing cost increases from their firm's shift to e-procurement. This could be due to the scale of purchases and the upfront costs involved. However, it will be critical to monitor if service firms continue to see markedly higher cost and operational problems from moving towards e-sourcing, as the touted benefits of such a strategy are exactly the opposite. Finally, while the ISM/Forrester findings regarding cost increases from e-procurement implementation for firms above and below the \$100 million benchmark, presented in Figure 29, can be viewed as rather erratic over the six periods under review, an analysis of Figure 30 are unmistakable. This is the fact that larger purchasing organizations seem to be deriving the lion's share of the cost savings from the move to e-procurement. As has been demonstrated several times in this study, larger corporations – whether they be service or manufacturing in nature – seem to be more able to take advantage of this shift in the way business will be done in the 21st Century.

In the concluding section of this work, the author will discuss future directions for both e-procurement and for continuing research on the ISM/Forrester Reports on e-Business.

FIGURE 29

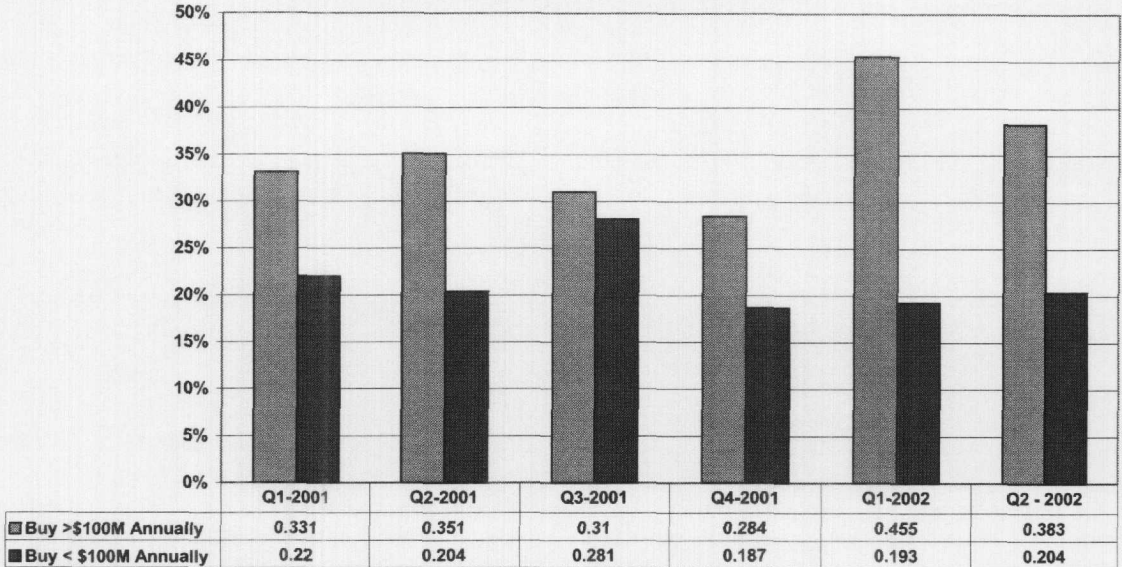
Does e-Procurement Increase the Total Cost of Purchasing?:
Comparison of Large and Small Purchasers



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

FIGURE 30

**Does e-Procurement Decrease the Total Cost of Purchasing?:
Comparison of Large and Small Purchasing Organizations**



Source: ISM/Forrester Research Reports on e-Business (2001,2002) (www.napm.org/ismreport/forrester/)

THE DENOUEMENT

In this paper, the author has examined the state of e-procurement in the United States through an extensive analysis of data from the *ISM/Forrester Reports on e-Business*. We have seen that the drive to e-sourcing is being led by the largest, “blue-chip” buyers. Across the economy, from the largest Fortune 500 firms to small suppliers, companies are trying to make sense of how these historical changes in the way business-to-business commerce is transacted and how it will be conducted in the future. More than ever before, procurement is becoming increasingly strategic in nature, and thus, it is vital for organizations, both large and small, to develop strategies for how they can take cost-effective advantage of these developments, perhaps creating new competencies and strategic advantages in the process. Indeed, the competitiveness of firms in then global economy will be increasingly dependent on making informed investments in this area and having the strategic vision and leadership to develop and implement effective e-sourcing strategies.

This paper began by putting the Internet and the e-Business Revolution in historical context. It is important as we conclude to reiterate that while the markets may rise and fall and e-business companies may come and go, the methods and protocols and tools of e-business are fast-becoming simply the way business is done. Thus, in like fashion, e-procurement will simply become *procurement* – the way companies source the products and services

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they need. Whether it is office supplies or jet engines, compressors or grease, or even cleaning or legal services, the processes involved in sourcing these items and services will become electronic over time.

As this historical change takes place over the long-term, it is important to remember how disruptive the change may seem in the short-term. Entire categories of jobs in purchasing, logistics, distribution, and sales will change. New and different relationships between companies and the people who lead and represent them will be built, and old, existing ties will be challenged, and in many cases, broken. The “perfect storm” of the Internet will leave no part of business untouched, and certainly, purchasing - at the edge of all organizations and in a boundary spanning role - will be among the most affected groups in any company.

As these changes occur, it will be important for researchers to chart this evolution - or revolution - in the way sourcing is done. The ISM/Forrester *Reports on e-Business* are the best barometer we have - at present - for doing so. This analyst believes that since these quarterly reports are issued by two highly respected organizations, the database they have formed since the issuance of the first report in January 2001 will be invaluable in tracking this profound change in B2B e-commerce. In short order, the *Reports on e-Business* could well join the ranks of other benchmark studies that are widely anticipated by business observers and the investment community in informing us of the current state of business affairs and the economy. Each of the ISM/Forrester surveys is a “snapshot” of the e-Commerce Revolution, and it will be important to track longitudinal changes in the practice of B2B e-commerce through this vehicle.

In this decade and beyond, it will be interesting to track future changes in e-sourcing through the *Reports on e-Business*. Certainly, this independent researcher would suggest that other organizations - supply chain councils, universities, market analysts, etc. - conduct their own surveys of e-procurement activity on a regular basis in order to provide insights into the changes being brought about by the electronification of the procurement process. In particular, an examination of the impact of extremely specific e-procurement methods and applications (such as wireless technologies, EDT, CRM, RFID tracking, etc.) would be particularly useful. As the e-Business Revolution is indeed a global one, it would also be desirable to have research conducted internationally in this area for comparative purposes. However, the ISM/Forrester *Reports on e-Business* have a “first mover” advantage in this realm of research, for while it would be interesting to have tracked e-procurement from the start, say in the mid-1990s, their methodologies and reputation portend to make this a key database for future research on the art and science of managing the supply chain of the 21st Century.

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