(54) Title: EXPERT SYSTEM REVERSE AUCTION EXCHANGE

(57) Abstract: An expert system reverse auction exchange is provided that links buyers and vendors of commodity products through a wide area network connection to a system server. The system server includes a graphical user interface, a system database, and an expert system program. Using the graphical user interface, a buyer can enter a request for quotation (RFQ) on a particular product, and can then manage the reverse auction process and their vendor relationships. The expert system program selects the most likely vendors for a particular RFQ by applying a product filter based on the RFQ specifications entered by the buyer, and a geographic filter that compares the location of the likely vendors with the location of the buyer and ranks the vendors according to geographic proximity to the buyer. Using the graphical user interface and supplied login information, the selected vendors can then log into the system server and place bids against the RFQ.
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Expert System Reverse Auction Exchange

BACKGROUND OF THE INVENTION

1. Technical Field

The present invention is directed toward the field of electronic exchange systems for buying and selling products. More specifically, the invention provides a reverse auction exchange system operating over a wide-area network (WAN), such as the Internet, and includes an expert system program for identifying the most likely vendors for a particular buyer's request for quotation (RFQ).

2. Description of the Related Art

Electronic exchange systems are known in this art. Many of these exchange systems incorporate a reverse auction model in which buyers post their requirements to the system, and vendors bid on those postings. These known systems, however, typically provide either E-mail posting of requirements, or a bulletin board type of service. These systems suffer from many disadvantages. First, these systems typically do not provide the ability to actively manage and select the vendors who will receive the requirements posting. Instead, they simply broadcast the posting to any and all vendors assuming that the widest distribution will yield the best results. Second, these systems do not provide the ability to identify, for the buyer, the most likely vendors that are capable of responding to the posting. And third, these systems typically do not permit the buyer to control the mode of operation of the reverse auction process. These are just some of the many disadvantages in these presently known systems.

These known on-line exchange systems are also not well-suited for buyers who purchase a large number of commodity products, such as electronic parts buyers. Buyers of electronic components typically must deal with hundreds of vendors, each vendor having numerous branch offices that
can be contacted by the buyer in order to purchase electronic parts. This type of buyer must be able to quickly locate a source of products, negotiate the best pricing and delivery terms, and place orders. This process generally requires a great deal of time, research and experience. Known on-line exchange systems simply do not possess the intelligence or expertise necessary to assist the electronic parts buyer in quickly determining which vendors are the best candidates for a particular RFQ.

Therefore, there remains a general need in this field for an electronic exchange system that is particularly well suited for buyers of commodity parts, such as electronic components, and which provides the buyer with maximum flexibility in controlling the RFQ posting and reverse auction processes.

**SUMMARY OF THE INVENTION**

An expert system reverse auction exchange is provided that links buyers and vendors of commodity products through a wide area network connection to a system server. The system server includes a graphical user interface, a system database, and an expert system program. Using the graphical user interface, a buyer can enter a request for quotation (RFQ) on a particular product, and can then manage the reverse auction process and their vendor relationships. The expert system program selects the most likely vendors for a particular RFQ by applying a product filter based on the RFQ specifications entered by the buyer, and a geographic filter that compares the location of the likely vendors with the location of the buyer and ranks the vendors according to geographic proximity to the buyer. Using the graphical user interface and supplied login information, the selected vendors can then log into the system server and place bids against the RFQ.

According to one aspect of the invention, a method of conducting an on-line reverse auction over the Internet via a web site is provided. The
method includes the steps of: (1) a buyer connecting to the web site and
generating a request for quotation (RFQ) for a particular product sold via the
web site; (2) the buyer selecting a mode for the reverse auction, including
either an open bidding mode or a sealed bidding mode; (3) executing an expert
system program at the web site to select the most likely vendors for the RFQ;
(4) if the buyer selected the open bidding mode, then conducting an open
reverse auction process between the buyer and the selected vendors via the web
site; and (5) if the buyer selected the sealed bidding mode, then conducting a
sealed reverse auction process between the buyer and the selected vendors via
the web site.

According to another aspect of the invention, a web site system for
conducting a reverse auction over the Internet is provided, including: a
graphical user interface for interacting with buyers and vendors of products to
be auctioned through the web site, wherein the buyers interact with the
graphical user interface by inputting product information and logistical
information in order to generate an request for quotation (RFQ), and wherein
the vendors interact with the graphical user interface by placing bids against
RFQs that the vendors were invited to bid upon by the system; a system
database for storing buyer information, vendor information and RFQ
information; and an expert system program for comparing the information
stored in the system database in order to select a sub-set of vendors that are
invited to bid upon a particular RFQ.

Still another aspect of the invention provides a method of conducting an
on-line reverse auction over the Internet, where buyers input requests for
quotation (RFQs) into the web site for a particular product, and a selected
group of vendors are invited to bid upon the RFQs. This method includes the
following steps: (A) providing a vendor data store, the vendor data store
including information about the vendors who are registered to sell products
through the web site; (B) providing a buyer data store, the buyer data store including information about the buyers who are registered to buy products through the web site; (C) applying a first filter to the information in the vendor data store to generate the selected group of vendors by comparing product data specified in the RFQ with product data associated with the vendors in the vendor data store; (D) applying a second filter to the information associated with the selected group of vendors to rank the vendors based upon their geographic proximity to the buyer; and (E) transmitting an invitation to bid on the RFQ to the top N ranked vendors as determined by the second filter.

It should be noted that these are just some of the many aspects of the present invention. Other aspects not specified will become apparent upon reading the detailed description set forth below.

The present invention overcomes the disadvantages of presently known on-line exchange systems, and also provides many advantages. Some of the advantages provided by the present invention include: (1) the expert system component of the invention selects the most probable vendors for a specific RFQ based first on their ability to meet the specifications in the RFQ, and then based on the geographic proximity of the vendor to the buyer; (2) allows the buyer to customize the contact name at a particular vendor and also manage other information associated with the vendor; (3) allows the buyer to construct a list of blocked vendors; (4) provides an archive capability for storing transactions on prior RFQs; (5) provides the buyer with the ability to conduct the reverse auction in either of two modes, an open bidding mode, or a sealed bidding mode; (6) saves time for the buyer; (7) provides competitive pricing advantages through the reverse auction model; (8) automatically notifies the buyer of each bid entered by the vendors; (9) operates in a secure environment; and (10) provides the buyer with the ability to add new vendors to the system.

These are just a few of the many advantages of the present invention, which is described in more detail below in terms of the preferred embodiments.
Not all of these advantages are required to practice the invention, and this listing is provided simply to illustrate the numerous advances provided by the invention. As will be appreciated, the invention is capable of other and different embodiments, and its several details are capable of modifications in various respects, all without departing from the spirit of the invention. Accordingly, the drawings and description of the preferred embodiments set forth below are to be regarded as illustrative in nature and not restrictive.

**BRIEF DESCRIPTION OF THE DRAWINGS**

The present invention satisfies the general need noted above and provides many advantages, as will become apparent from the following description when read in conjunction with the accompanying drawings, wherein:

FIG. 1 is a system diagram of an electronic exchange system according to a preferred embodiment of the present invention;

FIG. 2 is a flow diagram showing a preferred set of functions available to a buyer when interacting with the system shown in FIG. 1;

FIG. 3 is a flow diagram of a preferred RFQ generation process engaged by the buyer when interacting with the system shown in FIG. 1;

FIG. 4 is a flow diagram of a preferred process for viewing active RFQs for a particular buyer, and for subsequently selecting a winning bid posted against one of the active RFQs;

FIG. 5 is a flow diagram of a preferred process for managing vendors using the system shown in FIG. 1; and

FIG. 6 is a flow diagram of a preferred bidding process according to the present invention.

These drawing figures present one or more preferred embodiments of the present invention. The preferred embodiments, which are described in
detail below, are presented by way of example, and are not meant to limit the scope of the claimed invention.

DETAILLED DESCRIPTION OF THE DRAWINGS

Turning now to the drawing figures, FIG. 1 is a system diagram of an electronic exchange system 10 according to a preferred embodiment of the present invention. This system 10 links a plurality of buyers 12 with a plurality of vendors 14 through a reverse auction exchange system 16. Preferably, the buyers 12, vendors 14 and the reverse auction exchange system 16 are linked together through a WAN 18, which is preferably operating the Transmission Control Protocol/Internet Protocol (TCP/IP) that characterizes a connection as an Internet connection. The buyers 12 and vendors 14 are typically coupled to the Internet 18 via connections 40, which may be dial-up modem connections, xDSL connections, cable modem connections, fractional T1 or full T1 connections, wireless connections, etc. The reverse auction exchange system 16 is coupled to the Internet 18 via a high-bandwidth connection 42, such as a full T1 or T3 connection, although other types of high-bandwidth connections are also possible. The vendors 14 (and/or buyers 12) may also be coupled to the reverse auction exchange system 16 through a telephone/fax connection 20 via telephone lines 44.

The reverse auction exchange system 16 is preferably a web site operating on the World Wide Web (WWW) portion of the Internet 18. This system 16 includes a web server coupled to several elements, a web page graphical user interface element 24, a system database element 22, and an expert system program element 26. The web page graphical user interface element 24 provides a user interface for operation by the buyers 12 and vendors 14 when interacting with the system 16. Preferably, this graphical user interface 24 is programmed using standard web-page authoring tools and languages, such as HTML, XML, CGI, Java, Javascript, ActiveX, etc. The
buyers 12 and vendors 14 utilize web browser software on their computers, such as Microsoft's Internet Explorer, or Netscape's Communicator, in order to navigate to the web site 24, and then interact with the system 16.

The system database element 22 includes several sub-stores for storing information relevant to the system. These sub-stores include a vendor data store 28, a manufacturer data store 30, a buyer data store 32, an RFQ archive store 34, and an active RFQ store 36. The vendor data store 28 stores data that describes the particular vendors 14 participating in the system 10, such as vendor name, branch office information, location information, phone numbers, default contacts, manufacturers represented, etc. The manufacturer data store 30 stores data that describes the particular commodities (or products) that can be purchased through the electronic exchange system 10, such as manufacturer name, part numbers, part descriptions, qualified vendors, etc. The buyer data store 32 stores data that describes a particular buyer, such as company name, buyer name, location information, phone numbers, username/password data, blocked vendor lists, contact information at particular vendors, links to active RFQs, etc. The RFQ archive store 34 stores executed transactions that have been carried out using the reverse auction process described below. And the active RFQs store 36 stores pending RFQs that are active in the system 10.

The expert system program element 26 is coupled between the system database 22 and the web page graphical user interface 24. The primary function of the expert system program 26 is to take the RFQ information provided by the buyer 12 when generating an RFQ and match this information against the data stored in the system database 22 in order to identify the most probable vendors for the specified product. The expert system program 26 preferably includes two filters, an RFQ filter and a geographic filter. The RFQ filter filters the probable vendors 14 using information specified in the RFQ. This information may include manufacturer name, part number, part type, etc. Having narrowed the list of probable vendors 14 based on the RFQ filter, the
expert system program 26 then performs a geographic filtering process by comparing the location information for each of the probable vendors 14 with the location information of the buyer 12. The expert system program 26 then presents a list of the most probable vendors 14 to the buyer 12 based on these filtering steps. As described in more detail below in connection with FIG. 3, the buyer 12 then uses this expert system-derived information to generate and broadcast the RFQ.

FIG. 2 is a flow diagram 50 showing a preferred set of functions available to a buyer 12 when interacting with the electronic exchange system 10 shown in FIG. 1. Specifically, these functions are provided to the buyer 12 through the web page graphical user interface 24, which is coupled to the system database 22. Beginning at step 52, a new buyer 12 must first register with the reverse auction web site 16 by supplying information required in a buyer profile. The buyer profile information is then stored in the buyer data store 32. Having registered, the new buyer 12 may then log into the web site 16 at step 54 by supplying a designated username/password that the buyer 12 selected during the registration process 52. If the buyer 12 enters a proper username/password combination, the reverse auction exchange system 16 then enters a secure mode at step 56, such as by shifting to S-HTTP, SSL, or some other encrypted data communication protocol in order to ensure that the buyer's 12 interactions with the web site 16 are secure.

At step 58, the reverse auction exchange system 16, through the web page graphical user interface 24, then displays the "home" page for this particular buyer 12, including a display of active RFQs by vendor type, and, optionally, at step 60, a display of the number of unread bids for the active RFQs. This information is retrieved from the active RFQ store 36 and displayed to the buyer 12.

The electronic exchange system 10 supports a plurality of vendor types. For example, the web site system 16 may group vendors 14 as distributors or
brokers. Other vendor types are also possible, and one of skill in the art would recognize that the system described herein could be modified to work with any number of vendor types. In step 58, then, the web site 16 displays the number of active RFQs for distributors and the number of active RFQs for brokers. At step 60, the web site 16 displays an indication of whether, for each vendor type, there are unread bids, and how many unread bids are stored in the reverse auction exchange system 16.

From the buyer's home page, the buyer 12 then selects a buyer action at step 62. Preferably, the web page graphical user interface 24 includes a menu bar that describes in text and/or graphics the available actions for a buyer 12. In the preferred reverse auction exchange system 16, the buyer may select from four main actions: (1) display distributor actions 64; (2) display broker actions 74; (3) go to manufacturers 84; and (4) update buyer profile data 86. Within the display distributor actions 64 and display broker actions 74 menu functions, the buyer 12 can further select the sub-menu functions: (i) enter RFQ 66, 76; (ii) view active RFQs 68, 78; (iii) view RFQ archive 70, 80; and (iv) manage vendors 72, 82. As shown in FIG. 2, each of the example vendor types -- distributors and brokers -- includes a separate menu selection. Of course, this could be reduced to just one vendor type, or expanded to include other types of vendors depending on the system’s implementation and application.

If the buyer 12 selects to generate a new RFQ 66, 76, then the process set forth in FIG. 3 will be engaged by the reverse auction exchange system 16. The process set forth in FIG. 3 details the steps of generating a single RFQ. This new RFQ is then posted in the active RFQ store 36. If the buyer 12 selects to view active RFQs 68, 78, then the process set forth in FIG. 4 will be engaged. Here, the active RFQ store 36 supplies the information needed to view the active RFQ information for this particular buyer 12. In steps 70, 80, the buyer 12 can select to view their RFQ archive, in which case the stored transaction information for prior RFQs is retrieved from the RFQ archive store.
34 and displayed. If the buyer 12 selects to manage their vendors 72, 82 (either distributors or brokers, for example), then the process set forth in FIG. 5 will be engaged.

If the buyer 12 selects "go to manufacturers" at step 84, then the website 16 will provide a search page for the buyer 12 to interact with. From here, the buyer 12 can search the manufacturer data store 30 to retrieve information about certain manufacturers and their products that may be purchased via the reverse auction exchange system 16. If the buyer 12 selects update buyer profile 86, then a web page will be displayed that lists the current information stored in the buyer data store 32 for this particular buyer 12. The buyer 12 can then edit and re-store their profile information into the buyer data store 32.

FIG. 3 is a flow diagram 90 of a preferred RFQ generation process engaged by the buyer 12 when interacting with the electronic exchange system 10 shown in FIG. 1. The process starts at 92. From here, the reverse auction web site 16 displays a new RFQ entry page at step 94 where the buyer 12 enters the specifics on the new RFQ. Information that may be entered at this step 94 includes part number, manufacturer, part type, quantity, target price, delivery specifications, and bid time (i.e., the date on which bidding will be closed). Other information fields on this page may include internal part number, other manufacturers, date code restrictions on particular parts, and an additional comment area where free text or other documents can be appended to the RFQ. Alternatively, the system 16 may provide a bulk uploading process where the buyer 12 uploads a file containing numerous specifications for RFQs, and the system 16 automatically parses the file and completes the portions of the RFQ that are supplied in the upload file.

At step 96, the buyer 12 selects the reverse auction mode. In the preferred embodiment of the invention, the reverse auction can be configured as either an "open" auction or a "sealed" auction. Other modes are also possible, and are within the scope of the invention. In the open auction process
(described in more detail below), each of the vendor-bidders 14 can see the specifics on the other bids that have been placed on the particular RFQ, and can thus adjust their bids accordingly to be more competitive. In the sealed auction process (also described below), the vendors 14 cannot see the specifics on the other bids that have been placed, although they may be able to see whether or not other bids exist.

At step 98, the expert system program 26 applies the RFQ filter, which matches one or more aspects of the RFQ with data stored in the vendor database 28 in order to filter out the vendors 14 most likely to respond to the RFQ. For example, the expert program 26 may filter the vendor data 28 based on the specified manufacturer in the RFQ. The output of the RFQ filter would be only those vendors 14 that are qualified to carry the specified manufacturer’s parts. Alternatively, the filter could filter based on other aspects of the RFQ, such as part number, type of part, etc. At step 100, the expert system program 26 then applies the geographical filter, which compares the geographic locations of the vendors 14 from step 98 with the geographic location of the buyer 12, and ranks the vendors 14 based on their geographic proximity to the buyer 12. For example, a vendor such as a franchised distributor will have multiple branch locations, and the expert system 26 in step 100 will locate the branch office that is closest in geographic proximity to the buyer 12. Typically this is done by comparing the zip codes of the vendors 14 and the buyer 12. The output of step 100 is a listing of the 10 (or some other value) vendors 14 that meet the criteria set in step 98, and which are in closest geographic proximity to the buyer 12.

At this point in the "enter RFQ process", the buyer 12 may decide to immediately submit the RFQ for broadcast to the most probable vendors as determined by the expert system program 26 (step 102), or the buyer 12 may decide to view and/or modify the vendor list returned from step 100. If the buyer 12 decides to view and/or modify the vendor list at step 106, then at step
108 a detailed listing of the selected vendors is displayed for the buyer 12. This listing will include information from the vendor data store 38, such as vendor name, city/state, E-mail address, phone number, fax number, and contact name. From here, the buyer 12 can choose to block a particular vendor 14 from receiving this or any future RFQs at step 110 (i.e., add this vendor to the buyer’s blocked vendor list), the buyer 12 can select or de-select this particular vendor 14 from receiving this particular RFQ at step 112, the buyer 12 can immediately link to the vendor’s 14 web site (if one is available) at step 114, the buyer 12 can choose to customize the vendor’s 14 contact information at step 116, or the buyer 12 can choose to add a new vendor 14 to the RFQ list, which also adds this new vendor 14 to the vendor data store 28 for subsequent RFQs. Having viewed and/or modified the RFQ list via steps 106-118, the buyer 12 then returns to step 102, and the RFQ may then be submitted for broadcast to the selected vendors 14. At the same time that the RFQ is broadcast to the selected vendors 14, it is also provided with an RFQ Number for tracking purposes, and the relevant data is then saved to the active RFQ data store 36. Control then returns to FIG. 3 at 104.

FIG. 4 is a flow diagram of a preferred process 130 for viewing active RFQs for a particular buyer 12, and for subsequently selecting a winning bid posted against one of the active RFQs. This process begins at 132. At step 134, the web site system 16 displays the active RFQs for the particular buyer 12 by retrieving the associated data from the active RFQ data store 36. This data may include RFQ Number, date posted, bid closing date, part number, internal part number, total bids, and whether or not there are any unread bids. From this display screen, the buyer 12 can then select one of the active RFQs at step 136, which then displays all of the detailed information regarding the selected RFQ. At step 138, the buyer 12 can select to update the RFQ by, for example, changing one or more of the product specifications, the target pricing, etc. At step 140, the buyer 12 can select to view the current bidding data for
the RFQ, and at step 142, the buyer 12 can determine that one of the bids is the winning bid, and thereby proceed to complete the transaction. Control then reverts to FIG. 2 at 144.

FIG. 5 is a flow diagram of a preferred process 150 for managing vendors 14 using the electronic exchange system 10 shown in FIG. 1. The process begins at 152. From here, the buyer 12 can either display their blocked vendor list at step 154, or customize vendor contacts at step 160. If the buyer 12 selects step 154, then a list of the vendors 14 on this buyer’s blocked vendor list is displayed. From here, the buyer 12 can either add another vendor to the blocked vendor list at 156, or the buyer 12 can delete a vendor from the blocked vendor list at 158, and thereby enable the expert system program 26 to subsequently retrieve that vendor if the vendor matches the expert system filter properties. If the buyer selects step 160, then at step 162 a list of this buyer’s vendor contacts is displayed. From here, the buyer 12 can then modify their vendor contacts at step 164. From any of these steps, the buyer 12 can return to the main buyer control process depicted in FIG. 2.

FIG. 6 is a flow diagram of a preferred bidding process 170 according to the present invention. The process begins at 172. At step 174, a buyer 12 generates an RFQ according to the steps set forth in FIG. 3, above. The web site system 16 then broadcasts certain information regarding the RFQ to the vendors 14 selected by the expert system program 26 in step 176 along with vendor-specific login information, such as a vendor-specific username/password combination. This broadcasting step (176) is preferably accomplished through an E-mail transmission over the TCP/IP network 18, but it could, alternatively, be sent through the telephone/fax connection 20, or by any other type of electronic communication. Preferably, the broadcast information does not detail the specifics of the RFQ, but simply indicates to the vendor 14 that the buyer 12 desires to have them bid on a particular RFQ, and invites them to log into the web site system 16 in order to place their bid. The
vendor-specific login information is subsequently used by the reverse auction exchange system 16 to control access to the RFQ information stored in the system database 22 by making certain that only those vendors 14 selected by the expert system 26 (and the buyer 12) may gain access to the bidding process.

If the RFQ was designated as an open bidding auction, then the process flow progresses from step 178 to steps 180-190. If, however, the RFQ was designated as a sealed bidding auction, then the process flow progresses from step 178 to steps 192-198. The open bidding auction begins at step 180, where the selected vendors 14 that received the broadcast RFQ in step 176 may log into the website system 16 using the provided login information. Having input the correct login information at step 180, the website 16 then immediately displays the detailed information regarding the RFQ to the vendor 14, including the information input at step 94 in FIG. 3, as well as any bidding activity that has already taken place on this particular RFQ. At step 184, the vendor 14 can determine whether to place a bid on this RFQ, and if so, the bid can be immediately entered into the reverse auction exchange system 16. At step 186, the website system 16 sends a notification message, preferably by E-mail, to the buyer 12 indicating that a new bid has been placed on the RFQ. At step 188, the system 16 then sends a similar notification message to the other vendors 14 that have already placed a bid on this RFQ indicating that another bid has been placed. Then, at step 190, and in response to receiving the notification messages, the other vendors 14 may log back into the system 16 and submit new bids. Control then reverts to step 180 as long as the specified bid time has not expired. In this manner, the electronic exchange system 10 of the present invention provides an open bidding reverse auction process that stimulates a competitive environment among the probable vendors 14 in order to drive the price down for the buyer 12.
The sealed bidding process begins at step 192, where the vendors 14 may log into the system using the provided login information 10. At step 194, the web site system 16 displays the specifics for the RFQ. Here, however, the bidding information of other vendors 14 is not supplied. Thus, each vendor 14 does not know what other vendors 14 have bid on this particular RFQ, although the system 16 may indicate whether other bids have been placed or not. At step 196, the vendor 14 inputs a new bid, and at step 198, the web site system 16 notifies the buyer 12 that a new bid has been placed. Note, however, that the new bid information is not provided to the other vendors 14 as in the open bidding process.

At step 200, the bidding time specified by the buyer 12 expires, and at step 202 the buyer 12 may or may not select a winning bid. If the buyer 12 is dissatisfied with the posted bids, then the process simply ends and no transaction is generated. If, however, the buyer 12 decides to select a winning bid at step 202, then at step 204 the reverse auction exchange system 16 generates a purchase order (PO) that matches the RFQ specifications and the winning bid price and terms. The system 16 generates the PO as an electronic form, and automatically fills in the winning vendor's data, the buyer's data, and the necessary information from the RFQ. The buyer 12 may then edit the PO, as required, add their own PO number, and then select to either E-mail, fax or print the form. Finally, at step 206, the system 16 archives the transaction to the archive RFQ data store 34. The process ends at 208.

The preferred embodiments described with reference to the attached drawing figures are presented only to demonstrate certain examples of the invention. Other elements, steps, methods and techniques that are insubstantially different from those described above and/or in the appended claims are also intended to be within the scope of the invention.
What is claimed:

1. A method of conducting an on-line reverse auction over the Internet via a web site, comprising the steps of:
   a buyer connecting to the web site and generating a request for quotation (RFQ) for a particular product sold via the web site;
   the buyer selecting a mode for the reverse auction, including either an open bidding mode or a sealed bidding mode;
   executing an expert system program at the web site to select the most likely vendors for the RFQ;
   if the buyer selected the open bidding mode, then conducting an open reverse auction process between the buyer and the selected vendors via the web site; and
   if the buyer selected the sealed bidding mode, then conducting a sealed reverse auction process between the buyer and the selected vendors via the web site.

2. The method of claim 1, further comprising the step of:
   broadcasting the RFQ to the selected vendors by sending an E-mail message notifying the selected vendors of the RFQ and providing them with login information for accessing the web site.

3. The method of claim 1, further comprising the steps of:
   displaying a list of the selected vendors to the buyer; and
   the buyer determining whether each of the selected vendors should receive the RFQ.

4. The method of claim 3, further comprising the step of:
adding one or more of the selected vendors to a blocked vendor list associated with the buyer in order to restrict the one or more vendors from being selected by the expert system program in response to additional RFQs.

5. The method of claim 3, further comprising the step of:
   customizing contact information associated with one of the selected vendors.

6. The method of claim 3, further comprising the step of:
   adding a vendor to the list of vendors selected by the expert system program.

7. The method of claim 6, further comprising the step of storing information regarding the added vendor at the web site.

8. The method of claim 1, wherein the generating step further comprises the steps of:
   inputting product data specifications, including part number and manufacturer for the particular product; and
   inputting logistical specifications, including quantity, target price, delivery specifications and bid time.

9. The method of claim 1, wherein the generating step further comprises the step of inputting the manufacturer name of the particular product.

10. The method of claim 9, wherein the executing step further comprises the step of comparing the manufacturer name of the particular product with vendor data stored at the web site to select those vendors that are able to sell the particular manufacturer’s products.
11. The method of claim 1, further comprising the steps of:
   providing buyer data at the web site, the buyer data including the
   geographic location of the buyer; and
   providing vendor data at the web site, the vendor data including the
   geographic locations of the vendors.

12. The method of claim 11, wherein the executing step further comprises the
    step of comparing the geographic location of the buyer with the geographic
    locations of the vendors to select those vendors that are in closest geographic
    proximity to the buyer.

13. The method of claim 11, wherein the generating step further comprises the
    step of inputting the manufacturer name of the particular product, and wherein
    the executing step further comprises the steps of comparing the manufacturer
    name of the particular product with vendor data stored at the web site to select
    those vendors that are able to sell the particular manufacturer’s products, and
    then comparing the geographic location of the buyer with the geographic
    locations of the vendors from the first comparing step to select those vendors
    that are in closest geographic proximity to the buyer.

14. The method of claim 2, further comprising the step of:
    the selected vendors receiving the broadcast information and using the
    login information to access the web site.

15. The method of claim 14, further comprising the step of:
    displaying information regarding the RFQ to the vendor.

16. The method of claim 15, wherein the information includes product
    specifications.
17. The method of claim 15, wherein the information includes logistical specifications.

18. The method of claim 16, wherein the product specifications include part number and manufacturer.

19. The method of claim 17, wherein the logistical specifications include bid time.

20. The method of claim 17, wherein the logistical specifications include quantity, target price, delivery specifications and bid time.

21. The method of claim 15, wherein the information includes a listing of the bids placed on this RFQ by other vendors if the buyer selected the open bidding mode.

22. The method of claim 15, further comprising the step of inputting a new bid on the RFQ.

23. The method of claim 22, further comprising the step of notifying the buyer that a new bid has been input on the RFQ.

24. The method of claim 22, further comprising the step of notifying the other vendors that a new bid has been input on the RFQ if the buyer selected the open bidding mode.

25. The method of claim 23, further comprising the steps of: the buyer selecting a winning bid on the RFQ; and
the web site generating a purchase order which is sent to the vendor
and the buyer.

26. The method of claim 25, further comprising the step of storing the RFQ in
an archive at the web site.

27. The method of claim 1, further compriseing the step of providing a graphical
user interface at the web site for interaction with the buyer, the graphical user
interface including a menu selection where the buyer can select from a plurality
of buyer functions, including: generate an RFQ and view active RFQs.

28. The method of claim 27, wherein the buyer functions include: view RFQ
archive and manage vendors.

29. The method of claim 1, wherein the connecting step further comprises the
steps of:
   the buyer inputting login information to gain access to the web site; and
   in response to the buyer inputting login information, the web site
   entering a secure mode in which communications between the buyer and the
   web site are encrypted.

30. The method of claim 29, wherein the connecting step further comprises the
steps of:
   displaying active RFQs for the buyer; and
   displaying the number of unread bids associated with the active RFQs.

31. A web site system for conducting a reverse auction over the Internet,
comprising:
a graphical user interface for interacting with buyers and vendors of products to be auctioned through the web site, wherein the buyers interact with the graphical user interface by inputting product information and logistical information in order to generate a request for quotation (RFQ), and wherein the vendors interact with the graphical user interface by placing bids against RFQs that the vendors were invited to bid upon by the system;

a system database for storing buyer information, vendor information and RFQ information; and

an expert system program for comparing the information stored in the system database in order to select a sub-set of vendors that are invited to bid upon a particular RFQ.

32. A system for conducting an on-line reverse auction over the Internet via a web site, comprising:

means for interacting with buyers and vendors of products to be auctioned through the web site, wherein the buyers interact with the graphical user interface by inputting product information and logistical information in order to generate a request for quotation (RFQ), and wherein the vendors interact with the graphical user interface by placing bids against RFQs that the vendors were invited to bid upon by the system;

means for storing buyer information, vendor information and RFQ information; and

means for comparing the information stored in the system database in order to select a sub-set of vendors that are invited to bid upon a particular RFQ.

33. A method of conducting an on-line reverse auction over the Internet, where buyers input requests for quotation (RFQs) into the web site for a particular
product, and a selected group of vendors are invited to bid upon the RFQs, the method comprising the steps of:

providing a vendor data store, the vendor data store including information about the vendors who are registered to sell products through the web site;

providing a buyer data store, the buyer data store including information about the buyers who are registered to buy products through the web site;

applying a first filter to the information in the vendor data store to generate the selected group of vendors by comparing product data specified in the RFQ with product data associated with the vendors in the vendor data store;

applying a second filter to the information associated with the selected group of vendors to rank the vendors based upon their geographic proximity to the buyer; and

transmitting an invitation to bid on the RFQ to the top N ranked vendors as determined by the second filter.
FIG. 2A

1. Buyer registers with reverse auction exchange system
2. Buyer logs into system
3. System enters secure mode
4. Display active RFQs by vendor type
5. Display number of unread bids for active RFQs
6. Select buyer action
7. Match to FIG. 2B

Buyer data

Store buyer profile

Active RFQs
START

ENTER PART NUMBER, MANUFACTURER, PART TYPE, QUANTITY, TARGET PRICE, DELIVERY SPECIFICATIONS, BID TIME

BUYER SELECTS AUCTION TYPE, OPEN OR SEALED

EXPERT SYSTEM MATCHES VENDORS TO RFQ SPECIFICATIONS

EXPERT SYSTEM SELECTS TOP TEN MOST LIKELY BIDDERS BY MATCHING VENDOR BRANCH OFFICE WITH BUYER LOCATION

ACTIVE RFQs

SUBMIT RFQ FOR BROADCAST

RETURN

VIEW/MODIFY VENDORS

DISPLAY VENDOR INFORMATION

VENDOR DATA

BLOCK VENDOR FROM RFQs

SELECT/DESELECT VENDOR TO RECEIVE RFQ

LINK TO VENDOR SITE

CUSTOMIZE VENDOR CONTACT

ADD NEW VENDOR

Fig. 3