(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
30 July 2015 (30.07.2015)

WIPO | PCT

(10) International Publication Number
WO 2015/113000 A1

(51) International Patent Classification:
G06Q 30/00 (2012.01)

(21) International Application Number:
PCT/US2015/012958

(22) International Filing Date:
26 January 2015 (26.01.2015)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/965,148 26 January 2014 (26.01.2014) US
14/604,667 23 January 2015 (23.01.2015) US

(72) Inventors; and
(71) Applicants : **MOSQUERA, Linda, Allan** [US/US]; 71 Freeman Street, #2, Arlington, MA 02474 (US). **MOSQUERA, Reid, Michael** [US/US]; 71 Freeman Street, #2, Arlington, MA 02474 (US).

(74) Agent: **MANSFIELD, William**; 225 Walden Street, Unit 2-s, Cambridge, MA 02140 (US).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— *as to the identity of the inventor (Rule 4.17(i))*

[Continued on next page]

(54) Title: CUSTOMIZING COMMUNICATIONS

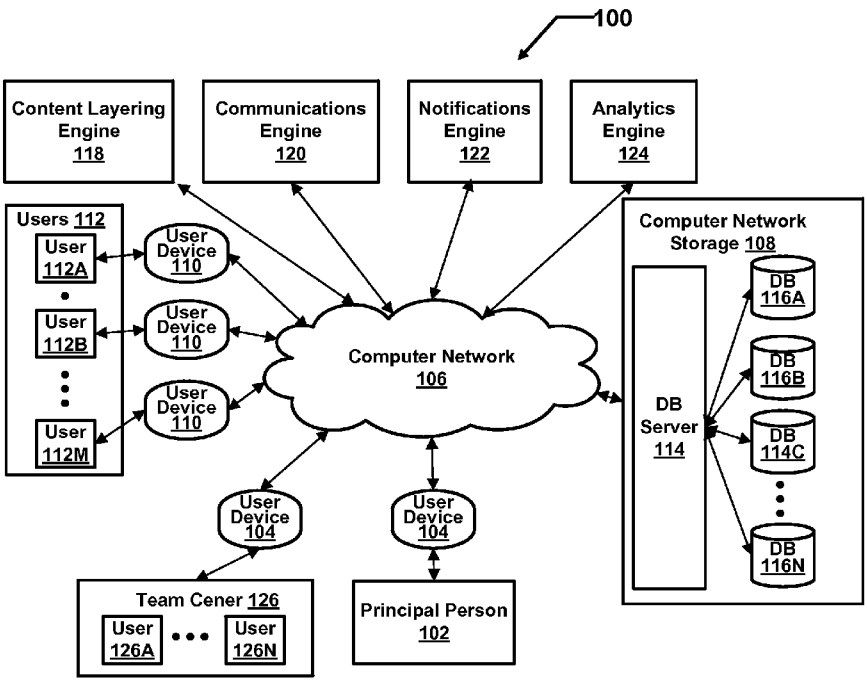

FIGURE 1

(57) Abstract: Among other things, a curated communication system and method for a party who wants to communicate a customized multimedia message and provides expert guidance to simplify the customization.

WO 2015/113000 A1

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

— *of inventorship (Rule 4.17(iv))*

Published:

— *with international search report (Art. 21(3))*

CUSTOMIZED COMMUNICATIONS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to the following applications, the entire contents of all of which are incorporated here by reference: U.S. Patent Application Serial No. 14/604,667, filed January 23, 2015, which claims priority to U.S. Provisional Application Serial No. 61/965,148 filed January 26, 2014.

BACKGROUND

[0002] This description relates generally to document creation in computer-based environments and, more particularly, to systems and methods for efficient and effective generation of customized communications.

SUMMARY

[0003] In general, in an aspect, a communication system comprising a content layering engine, a communications engine, a notification engine, and an analytics engine wherein a user selects communication messages based on targeted markets. In some embodiments file comparison and merging are performed by operations within a content editing tool such as Microsoft Word. However, differences and similarities between data objects such as computer files or text versions or more complex data structures may be performed by a Unix diff utility, or by other file comparison programs such as cmp, FileMerge, WinMerge, Beyond Compare or Microsoft File Compare.

[0004] In one embodiment, a computer-based method for merging multiple document content variants with a rule-based expert system or wizard through a series of associating variation edits with reasons for that reason into a single customized document. From that single customized document a user can assemble a customized communications wherein the user views a display of variation edits together with the associated reason for those variation edits and, by selecting variants, builds the communication layer by layer. For example, the user choosing to generate a

sales marketing communication to corporations would select variant layers based on selected criteria such as size of the company, the audience in the corporate hierarchy, the type of sales process appropriate to the selected audience, and then would select differentiation features of the product or service being offered depending on existing competition in the market.

[0005] In general, in an aspect, a communication system comprising a computer network in connection with a storage location. In some embodiments, communication message components are stored in a database such as Microsoft Access, mySQL or some other ODBC compliant database.

[0006] In general, in an aspect, a communication system comprising a content layering engine for layering a plurality of communication messages into a single file. In some embodiments the customized communication messages may be generated as formatted text, as images, as multimedia presentations in for example, Microsoft PowerPoint, or as components of a website with streaming content. In some embodiments an Extensible Markup Language (XML) may be used with a set of Document Type Definitions (DTD) to interpret the customization file to populate controls for tagging files, accessing data samples and generating the graphical user interface (GUI).

[0007] In general, in an aspect, a communication system comprising a categories library for each subset of recipients.

[0008] In general, in an aspect, a communication system comprising a display module to visualize the user experience of recipients of communication messages.

[0009] In general, in an aspect, a communication system comprising a communications engine, assembly module, display module assemble and deploy customized communications to recipients profiled in a recipients database.

[0010] In general, in an aspect, a communication system comprising a parsing and interpretation library for comparing communication messages.

[0011] In general, in an aspect, a communication system comprising a predictive analytics module for filling in missing data.

[0012] In general, in an aspect, a communication system comprising a forecasting models library from which to select a model to forecast response to a communication message.

[0013] In general, in an aspect, a communication system comprising a base presentation on which to layer additional modifications.

[0014] In general, in an aspect, a communication system comprising layering content securely from a plurality of sources, communicating among a content layering engine, a communications engine, a notification engine, and an analytics engine, notifying the user of communication messaging success, and selecting from alternates using predictive analytics based on historical data.

[0015] In general, in an aspect, a communication system comprising connecting with a storage location.

[0016] In general, in an aspect, a communication system comprising creating a customizer for the creation of a communication message.

[0017] In general, in an aspect, a communication system comprising opening a preset customizer for creating a communications message.

[0018] In general, in an aspect, a communication system comprising opening an existing customizer for creating a communications message.

[0019] In general, in an aspect, a communication system comprising creating a customizer based on analysis of historical data.

[0020] In general, in an aspect, a communication system comprising selecting criteria from a list or adding criteria to a list. , For instance, selecting an audience for the communication message, selecting the type of sales process appropriate to the selected audience, selecting the type of competitor in the market, selecting the primary purpose of the communication message, and selecting the size of the target company.

[0021] In general, in an aspect, a communication system comprising creating customizers based on predictive analytics and historic data.

[0022] In general, in an aspect, a communication system comprising layering content into a single file for easy storage and retrieval.

[0023] In general, in an aspect, a communication system comprising storing the customized layers in an on-line storage device. For example, a user could store customized layers in a cloud storage service.

[0024] These and other aspects, features, implementations, and advantages, and combinations of them, can be expressed as methods, apparatus, systems, components, program products, business methods, and means or steps for performing functions, or combinations of them.

[0025] Other features, aspects, implementations, and advantages will become apparent from the description, the drawings, and the claims.

[0026] These and other aspects, features, implementations, and advantages, and combinations of them, can be expressed as methods, apparatus, systems, components, program products, business methods, and means or steps for performing functions, or combinations of them.

Other features, aspects, implementations, and advantages will become apparent from the description, the drawings, and the claims.

DESCRIPTION

[0027] FIG. 1 is a block diagram of a Computer Network or other system.

[0028] FIG. 2 is a block diagram of a Content Layering Engine.

[0029] FIG. 3 is a block diagram of a Communication Engine.

[0030] FIG. 4 is a block diagram of a Notification Engine

[0031] FIG. 5 is a block diagram of an Analytics Engine.

[0032] FIG. 6 is a view of the Editing Interface for Document Selection.

[0033] FIG. 7 is a view of the Editing Interface for Merge Method Selection.

[0034] FIG. 8 is a view of the Editing Interface for Selection of Customizer Layers for Merging by means of choosing variation reason.

[0035] FIG. 9 is a view of the Editing Interface for Selection of Customized Layers for Merging in the case of customizing a resume.

[0036] FIG. 10 is a flowchart for generating communications from a Preset Customizer.

[0037] FIG. 11 is flowchart for generating communications from a Constructed Customizer

[0038] FIG. 12 is a flowchart for generating communications from a Saved Customizer.

[0039] FIG. 13 is a flowchart for generating communications from an Imported Customizer.

[0040] FIG. 14 is a flowchart for modifying a customizer based on recipient feedback

[0041] The invention is described above with reference to block and flow diagrams of systems, methods, apparatuses, and/or computer program products according to exemplary embodiments of the invention. It will be understood that one or more blocks of the block diagrams and flow diagrams, and combinations of blocks in the block diagrams and flow diagrams, respectively, can be implemented by computer-executable program instructions. Likewise, some blocks of the block diagrams and flow diagrams may not necessarily need to be performed in the order

presented, or may not necessarily need to be performed at all, according to some embodiments of the invention.

[0042] These computer-executable program instructions may be loaded onto a general-purpose computer, a special-purpose computer, a processor, or other programmable data processing apparatus to produce a particular machine, such that the instructions that execute on the computer, processor, or other programmable data processing apparatus create means for implementing one or more functions specified in the flow diagram block or blocks. These computer program instructions may also be stored in a non-transitory computer-readable memory that can direct a computer or other programmable data processing apparatus to function in a particular manner, such that the instructions stored in the non-transitory computer-readable memory produce an article of manufacture including instruction means that implement one or more functions specified in the flow diagram block or blocks. As an example, embodiments of the invention may provide for a computer program product, comprising a non-transitory computer-usable medium having a computer-readable program code or program instructions embodied therein, said computer-readable program code adapted to be executed to implement one or more functions specified in the flow diagram block or blocks. The computer program instructions may also be loaded onto a computer or other programmable data processing apparatus to cause a series of operational elements or steps to be performed on the computer or other programmable apparatus to produce a computer-implemented process such that the instructions that execute on the computer or other programmable apparatus provide elements or steps for implementing the functions specified in the flow diagram block or blocks. In one embodiment, said computer program instructions could be delivered in a plug-in to a content editing application such as Microsoft Word so that a person from a toolbar in a graphical interface could assemble a communication from content stored as Word documents. In one embodiment, said computer program instructions could be delivered on a standalone computer such as a laptop or a desktop. Alternately these computer-implemented processes could be virtualized in a cloud-based environment such as the Amazon Elastic Compute Cloud or Microsoft Azure Cloud.

[0043] Accordingly, blocks of the block diagrams and flow diagrams support combinations of means for performing the specified functions, combinations of elements or steps for performing the specified functions and program instruction means for performing the specified functions. It will also be understood that each block of the block diagrams and flow diagrams, and

combinations of blocks in the block diagrams and flow diagrams, can be implemented by special-purpose, hardware-based computer systems that perform the specified functions, elements or steps, or combinations of special purpose hardware and computer instructions.

[0044] While the invention has been described in connection with what is presently considered to be the most practical and various embodiments, it is to be understood that the invention is not to be limited to the disclosed embodiments, but on the contrary, is intended to cover various modifications and equivalent arrangements included within the scope of the appended claims. Although specific terms are employed herein, they are used in a generic and descriptive sense only and not for purposes of limitation.

[0045] Devices that are in communication with each other need not be in continuous communication with each other, unless expressly specified otherwise. In addition, devices that are in communication with each other may communicate directly or indirectly through one or more intermediaries.

[0046] A description of an embodiment with several components in communication with each other does not imply that all such components are required. To the contrary, a variety of optional components are described to illustrate the wide variety of possible embodiments of the invention.

[0047] Further, although process steps, method steps, algorithms or the like may be described in a sequential order, such processes, methods and algorithms may be configured to work in alternate orders. In other words, any sequence or order of steps that may be described in this patent application does not, in and of itself, indicate a requirement that the steps be performed in that order. The steps of described processes may be performed in any order practical. Further, some steps may be performed simultaneously despite being described or implied as occurring non-simultaneously (e.g., because one step is described after the other step). Moreover, the illustration of a process by its depiction in a drawing does not imply that the illustrated process is exclusive of other variations and modifications thereto, does not imply that the illustrated process or any of its steps are necessary to the invention, and does not imply that the illustrated process is preferred.

[0048] When a single device or article is described, more than one device/article (whether or not they cooperate) may be used in place of a single device/article. Similarly, where more than one device or article is described (whether or not they cooperate), a single device/article may be used in place of the more than one device or article.

[0049] Techniques and mechanisms described or reference herein will sometimes be described in singular form for clarity. However, particular embodiments include multiple iterations of a technique or multiple instantiations of a mechanism unless noted otherwise.

[0050] The system described here enables a principal user or team of users on a network to generate complex communications, which may include a resume, a fund-raising appeal, an advertisement, a marketing communication, a travel brochure, a multimedia presentation, or a website. The principal user or team of users may generate said communications employing the present invention without technical knowledge of the content tool, which may include word processor, presentation tool, or website development tool, provided that the principal user or members of the team of users are familiar with and can simply follow step-by-step directions.

[0051] FIG. 1 is an exemplary configuration of a system, **100,** for an embodiment of the present invention. The Principal User, **102,** by means of his computing device, **104**, which is connected to the Computer Network, **106**, is enabled to generate a communication customized to a particular set of recipients, **112,** or a particular recipient, **112B.** The Computer Network, **106,** further connects to the Content Layering Engine, **118**, the Communication Engine, **120**, the Notification Engine, **122,** and the Analytic Engine, **124.** These engines and services are connected to Computer Network Storage, **108,** drawn upon a database server, **114,** for network-accessible databases, **116A**, **116B** . . . **116N**, which include the content data, recipient characteristics and locations as well as historical data such as feedback from previous communications. The communications generated by the Principal User, **102,** or Team of Users, **126,** are targeted at network-enabled Recipients, **112** (**112A**, **112B** . . . **112M**).

[0052] The Principal User, **102,** would include Graphic Designers, Copywriters, Salespersons, and Administrative Assistants or others required to generate complex differential communications targeted at individual recipients.

[0053] The computer network could be an intranet on a standalone computer, or local server internet used within a corporate information technology environment, or a distributed server internet used within multiple locations of a corporation, or the internet of the World Wide Web securely accessed by authenticated users, or any other computer network system.

[0054] It will be apparent, however, to one skilled in the art, that the framework described may be practiced using only voice communication or text communication and or more broadly for expertise in various domains. For example, a business may wish to deploy a video commercial to

several remote locations simultaneously and receive feedback from text messages sent by telephone.

[0055] It will be apparent, however, to one skilled in the art, that the framework described may be practiced for more than communicating multimedia messages at future times. For example, a business in the event of an emergency such as a network outage may wish to deploy an alert message to several remote locations simultaneously by fax system with instructions customized to each particular remote location.

[0056] FIG. 2 is a block diagram, **200,** of a Content Layering Engine, **118,** of the system, **100.** The Content Layering Engine, **118,** facilitates for the Principal User, **102,** the generation of communications to multiple different sets of recipient within a single master communication document by means of a graphical user interface on a display module, **204,** for an Expert Layer Wizard, **202**. The Expert Layer Wizard, **202,** enables the Principal User, **102,** to select a generic base document from a library of documents in a folder or database of existing content for individualized display and future editing. The Expert Layer Wizard, **202,** guides the Principal User, **102,** through a series of steps that highlight specific edits, defining categories of reasons from a library of categories, **208,** for the application of each segment, generating an unlimited number of layered edits to the base document and merge several files into a single file for review or further editing When the Principal User, **102,** is presented with a document variation that does not require the creation of a separate reason, the Principal User, **102,** selects and tags that variation to one of the reasons already entered. In some embodiments a Team of Users, **126,** may work together to generate a layered document customizer. For instance, copywriters developing advertizing or marketing communications or scriptwriters collaborating on a movie or television script.

[0057] In some cases the Customizer, **206,** is constructed *ab initio* with the Expert Layer Wizard, **202,** and then the Principal User, **102,** merges content with the Customizer, **206,** to generate a communication. In some cases the Expert Layer Wizard, **202,** guides the Principal User, **102,** through a specified set of documents and a selected preset Customizer, **206,** to create the merged communication using preset Customizer templates selected from a database. In some cases the Expert Layer Wizard, **202,** guides the Principal User, **102,** to create the merged communication using a Customizer, **206,** previously saved by the Principal User, **102**. In some cases, the Expert Layer Wizard, **202,** guides the Principal User, **102,** to import a previously constructed Customizer,

206, from the Team Center, **126**, a set of Users, **126A . . . 126N,** using a web-based application, Team Center, **126**. The Customizer, **206,** is interactive so that after the documents have been merged into a communication, the Principal User, **102,** can review the layering of the document by toggling subcategories to view how the document appears with different variations selected; moreover, the Principal User, **102,** will be able to group subcategories defined during the merge process into Category groupings. The final merged communication can be saved in the format of the content tool from which the content was derived.

[0058] FIG. 3 is a block diagram, **300,** of a Communication Engine, **120,** of the system, **100.** The Communication Engine, **120,** facilitates assembly and deployment of targeted communications by the Principal User, **102**. The Communication Engine, **120,** provides the Principal User, **102,** with information about a recipient's best contact information, profile interest information and/or affinity information in a Recipient Database, **308**. In some examples, said information is shown to the Principal User, **102,** by the Display Module, **304.** The Recipient Database, **308,** may receive data relevant to the location of a recipient from a GPS translation module, **306**. For example, if the targeted recipient is traveling or in a particular location the communication generated by the Principal User, **102,** can be modified accordingly. The Assembly Module, **302,** facilitates assembly and deployment of targeted communications.

[0059] FIG. 4 is a block diagram, **400,** of a Notification Engine, **122,** of the system, **100.** The Notification Engine, **122,** facilitates effective communications by providing feedback to the Principal User, **102,** on the response of the targeted recipients of a communication or on delivery of a targeted communication to an intended recipient, as provided by the Database of Recipient Feedback, **404,** as interpreted by the aid of a Parsing and Interpretation Library, **408**. A Search Module, **402,** is configured to find the feedback to the customized communications targeted to a set of recipients. The interpreted results from the parsed response of the targeted recipients are shown to the Principal User, **102,** on the Display Module, **406**. For example, if the Principal User, **102,** is notified that the open rate of particular communication exceeds that of another communication that differs in content for some categories then the Principal User, **102,** can use the response propensity to improve future communications to that recipient or class of recipients.

[0060] FIG. 5 is a block diagram of the Analytics Engine, **124,** of the system, **100.** The Analytics Engine, **124,** facilitates transforming the feedback information generated by the Notifications

Engine, **122,** to enable the Principal User, **102,** to improve propensity to respond by the recipients, **112,** by generating a more effective communication.

[0061] A predictive analytics module, **502,** in Analytics Engine, **124,** applies algorithms and forecasting models stored in a forecasting models library, **508,** to analyze present and/or historical recipient user data in view of recipient data profiles database, **506,** to identify essential categories and to suggest appropriate media messages or items for a recipient user, **112**. In some embodiments the predictive analytics module, **502,** implements a variety of forecasting techniques beyond simple algorithms, such as future date calculation, including statistical techniques such as machine learning (e.g., as applied by IBM's Watson computer), game theory, and data mining, to analyze current and historical data to determine propensities from notification information, to make predictions about future recipient responses, to identify effective communication messages, and to identify appropriate delivery times and methods, among a wide variety of other analyses and algorithms. By a computer-implemented method, data relevant to the recipient user may be extracted from his profile in the system, **100,** and/or generated implicitly based, at least in part, on the recipient user's stored profile together with historical data by a predictive analytics algorithm based on historical data.

[0062] In some cases, the predictive analytics module, **502,** may also incorporate present or historical data or both to identify relevant information for the communication message or recipient user or both that are in keeping with preferences of the Principal User, **102**.

[0063] A display module, **504,** of the Analytics Engine, **124,** may display for example the response rate of recipients, **112,** to a plurality of variations of communication in a window or webpage accessible to the Principal User, **102**. The changes in the subcategory selection that maximize propensity to response may be sent to the Customizer, **202,** of the Communication Engine, **122,** for deployment of new communications.

[0064] In some embodiments, the predictive analytics implemented by the Analytics Engine, **124,** incorporate the robust, optimizing forecasting techniques of Pinto et al. (United States patent 7,499,897, issued on March 3, 2009; United States patent 7,562,058, issued on July 14, 2009; United States patent 7,725,300, issued on May 25, 2010; United States patent 7,730,003, issued on June 1, 2010; United States patent 7,933,762, issued on April 26, 2011; United States patent 8,165,853. issued April 24, 2012; United States patent 8,170,841, issued May1, 2012; United States patent 8,751,273, issued on June 10, 2014; and United States patent application 10/826,949,

filed April 16, 2004, the contents of all of which are incorporated herein by reference), that manage historical data using missing values, which must be inferred.

[0065] FIG. 6 shows an exemplary embodiment of the Editing Interface for Document Selection, **600,** presented to the Principal User, **102**. In the drop down list of the File Menu of the content creation tool, the Principal User, **102,** selects **Begin Document Layering** that opens the Dialog Box, **602**. From the Dialog Box, the Principal User, **102,** browses for and clicks on the Base Document whose file path displays in the File Selection area, **604**. The Principal User, **102,** clicks on the right arrow, **606,** to move the file name to the Base Document area, **608**. The Principal User, **102,** browses for and clicks on the Document to Merge file whose file path displays in the file selection area, **604.** Then the Principal User, **102,** clicks on the right arrow, **610,** to move the file name to the Presentations to Layer area, **612,** of the Dialog Box. The Principal User, **102,** can continue to add files to list of files to be Merge and reorder the files by selecting the file name and the appropriate arrow. When the list is complete the Principal User, **102,** clicks on the Continue Button, **614**.

[0065] FIG. 7 shows an exemplary embodiment of the Editing Interface for Customizer Generation, **700,** presented to the Principal User, **102**. In the Customizer Generation Dialog Box, **702**, the Principal User, **102,** clicks on one of four buttons to select the mode of generation for the Customizer, **202,** to be produced by the Content Layer Engine, **118:** the Create a Customizer while you layer Button, **704,** that provides for customized document creation as shown in **FIG. 11;** the Open a Preset Customizer Button, **706,** that provides for customized document creation as shown in **FIG. 10;** the Open an Existing Customizer Button, **708,** that provides for customized document creation as shown in **FIG. 12;** the Choose a Customizer from the Team Center Button, **710,** that provides for customized document creation as shown in **FIG. 13.** When the choice has been made the Principal User, **102,** clicks on the Continue Button, **712.**

[0066] FIG. 8 shows an exemplary embodiment of the Editing Interface for Selection of Customizer Layers for Merging by means of choosing content variation reasons, **800,** presented to the Principal User, **102**. The Layer Selection Dialog Box, **802,** displays a list of content variation classifiers or reasons, **804**. Depending on the classifier selected there are different options or reasons, **804**. For example, the label Audience**, 806,** may have content varied according to a list of subcategories, **808,** such as whether the audience of a customized software sales communication

is directed at the President/CEO, Sales Management, Marketing Management, Sales End Users, Marketing End Users, IT.

[0067] The first variation edit displays in area, **808**, even before a variation edit reason is selected and tagged to that variation edit. In most cases, the user chooses a reason and then clicks on Next, thus associating the variation edit they were presented with to a reason in the Customizer. If they don't want to choose a reason, they can click on Skip. When they click on Next or Skip, the next variation edit displays that is found in the Compare and the process keeps repeating. The up and down arrows are to scroll through the list of reasons. There may only be 3 or there may be 6 or more. Depending on the classifier or reason selected different options will be displayed. When an option is selected the content variant will display in the Layer Selection area, **812,** for review by the Principal User, **102,** who can toggle with the controls, **810,** using the controls **<Back Skip Next>** between content variants to select the appropriate version. By selecting a classifier label then clicking on the Down Arrow, **814,** or the Up Arrow, **816**, the Principal User, **102,** can reorder the list.

[0068] FIG. 9 shows an exemplary embodiment of the Editing Interface for Selection of Customizer Layers for Merging by means of choosing content variation reasons, **900,** presented to the Principal User, **102,** for customizing a resume, **902,** presented on a computer display. In the Content Layering Dialog Box, **904**, the Principal User, **102,** is presented with a variation between the two documents and has the opportunity to select a reason for that difference. In this case the phrase **Blood Banking Industry** would be substituted by another phrase **High Tech Industry** as shown, **906,** and this is reflected in the document, **902.** The Principal User, **102,** makes the choice from a list of categories, **908**, specifically the category Industry, **910,** and within that category a list of reasons, **912,** of which the one for High Technology, **914,** is selected.

[0069] FIG. 10 is a flowchart of an example process, **1000,** for the generation of a customized communication using the Communication Layering Engine, **118,** by the Principal User, **102,** from a Customizer, **202,** that has been preset as a template. The Principal User, **102,** then selects a base document, **Step 1002,** then selects the documents to be layered together into a composite, **Step 1004**. The Principal User, **102,** then selects the Merge Method to be used, **Step 1006,** which in this case is the Preset Customizer option. Then the Principal User, **102,** selects a document type, **Step 1008,** to filter for the set of available Customizers for that type of document. From the group of preset Customizers templates the Principal User, **102,** designates the Preset Customizer

template to be applied, **Step 1010.** The Principal User, **102,** begins the merger by selecting reasons, **Step 1012**, then determining if further reasons to merge content variants are required, **Step 1014**. If so, the Principal User, **102**, may create additional reasons, **Step 1016**. If not, the Principal User, **102**, checks to see if there are additional variant edits on the list to be merged, **Step 1018**.

[0070] If so, the Principal User, **102,** continues to merge, **Step 1020**, by selecting a reason associated with the next document to extract and merge the content variation, **Step 1012**. If not, the Principal User, **102,** assembles and reviews the customized communication; **Step 1022**, and then completes the communication ready for saving or deployment, **Step 1024**.

[0071] FIG. 11 is a flowchart of an example process, **1100,** for the generation of a customized communication using the Communication Layering Engine, **118,** by the Principal User, **102,** from a Customizer, **202,** that is generated in layering process. The Principal User, **102,** selects a base document, **Step 1102,** and then selects the documents to be layered together into a composite communication, **Step 1104**. Then the Principal User, **102,** chooses a Merge Method to be used, **Step 1106,** which in this case is creating a New Customizer, **Step 1108.** The Principal User, **102,** then chooses a reason as the grounds for merging a particular content variation, **Step 1110,** then determining if further reasons to merge content variants are required, **Step 1112**. If so, the Principal User, **102,** may create additional reasons, **Step 1114**. If not, the Principal User, **102**, checks to see if there are additional documents on the list to be merged, **Step 1116**. If so, the Principal User, **102,** continues to merge, **Step 1118**, by selecting a reason associated with the next content variant to extract and merge the content variation, **Step 1110**. If not, the Principal User, **102,** assembles and reviews the customized communication, **Step 1120**, and then completes the communication ready for saving or deployment, **Step 1122**.

[0072] FIG. 12 is a flowchart of an example process, **1200,** for the generation of a communication using the Communication Layering Engine, **118,** by the Principal User, **102,** from a Customizer, **202,** that had been previously saved. The Principal User, **102,** first selects a base document, **Step 1202,** and then selects the documents to be layered together into a composite, **Step 1204**. Next the Principal User, **102,** chooses a Merger Method, **Step 1206,** which in this case is by using an existing Customizer previously saved, **Step 1208.** The Principal User, **102,** begins the merger by selecting reasons, **Step 1210**, then determining if further reasons to merge content variants are required, **Step 1212**. If so, the Principal User, **102,** may create additional reasons, **Step 1214**. If

not, the Principal User, **102,** checks to see if there are additional content variants on the list to be merged, **Step 1216**. If so, the Principal User, **102,** continues to merge, **Step 1218**, by selecting a reason associated with the next document to extract and merge the content variation, **Step 1210**. If not, the Principal User, **102,** assembles and reviews the customized communication, **Step 1220**, and then completes the communication ready for saving or deployment, **Step 1222**.

[0073] FIG. 13 is a flowchart of an example process, **1300,** for the generation of a communication using the Communication Layering Engine, **118,** by the Principal User, **102,** from a Customizer, **202,** that had been imported from the Team Center, **126**. The Principal User, **102,** first selects a base document, **Step 1302,** and then selects the documents to be layered together into a composite, **Step 1304**. Next the Principal User, **102,** chooses a Merger Method, **Step 1306,** which in this case is by using an existing Customizer previously saved, **Step 1308.** The Principal User, **102**, begins the merger by selecting reasons, **Step 1310**, then determining if further reasons to merge content variants are required, **Step 1312**. If so, the Principal User, **102,** may create additional reasons, **Step 1314**. If not, the Principal User, **102,** checks to see if there are additional content variants on the list to be merged, **Step 1316**. If so, the Principal User, **102,** continues to merge, **Step 1318**, by selecting a reason associated with the next document to extract and merge the content variation, **Step 1310**. If not, the Principal User, **102,** assembles and reviews the customized communication, **Step 1320**, and then completes the communication ready for saving or deployment, **Step 1322**.

[0074] FIG. 14 is a flowchart of an example process, **1400,** for modifying a Customizer, **206,** in Content Layering Engine, **118,** based on feedback from the recipients, **114,** as received and processing by the Notification Engine, **122,** following deployment of one or more communications by the Communication Engine, **120,** and enhanced for maximal propensity of response by the Analytics Engine, **124**. The Principal User, **102,** then selects a base document, **Step 1402,** then selects the documents to be layer together into a composite, **Step 1404**. Next the Principal User, **102,** selects a Merger Method, **Step 1406,** and proceeds to create a customized communication by selecting reasons for content variations to be included in the communication, **Step 1408,** and subsequently assembles and reviews the customized communication, **Step 1410,** as previously described in **FIGS. 10 - 13**. Then, using the Communication Engine, **120,** the Principal User, **102,** sends the customized communication to the targeted set of recipients or to a representative sample subset, **Step 1412**. Next using the Notification Engine, **122,** the feedback response is

obtain from the recipients, **Step 1414,** and evaluated, **Step 1416**. If the response meets a predetermined criterion then the Customizer has been adequately modified to produce an appropriate customized communication. If not, then the present data as well as historical data are analyzed using the Analytic Engine, **124**, **Step 1418**, to more appropriately adjust the content variants, **Step 1420,** to increase the targeted response.

[0075] While this specification contains many specific implementation details, these should not be construed as limitations on the scope of any invention or of what may be claimed, but rather as descriptions of features that may be specific to particular embodiments of particular inventions. Certain features that are described in this specification in the context of separate embodiments can also be implemented in combination in a single embodiment. Conversely, various features that are described in the context of a single embodiment can also be implemented in multiple embodiments separately or in any suitable subcombination. Moreover, although features may be described above as acting in certain combinations and even initially claimed as such, one or more features from a claimed combination can in some cases be excised from the combination, and the claimed combination may be directed to a subcombination or variation of a subcombination.

[0076] Similarly, while operations are depicted in the drawings in a particular order, this should not be understood as requiring that such operations be performed in the particular order shown or in sequential order, or that all illustrated operations be performed, to achieve desirable results. In certain circumstances, multitasking and parallel processing may be advantageous. Moreover, the separation of various system modules and components in the embodiments described above should not be understood as requiring such separation in all embodiments, and it should be understood that the described program components and systems can generally be integrated together in a single software product or packaged into multiple software products.

[0077] Particular embodiments of the subject matter have been described. Other embodiments are within the scope of the following claims. For example, the actions recited in the claims can be performed in a different order and still achieve desirable results. As one example, the processes depicted in the accompanying figures do not necessarily require the particular order shown, or sequential order, to achieve desirable results. In certain implementations, multitasking and parallel processing may be advantageous.

[0078] Other implementations are also within the scope of the following claims.

CLAIMS

We claim:

1. A communication system for generating customized communications, the system comprising:
   (a) A content layering engine configured to generate an aggregate single customizable file;
   (b) A communications engine configured to facilitate the assembly and deployment of targeted communications;
   (c) A notification engine configured to determine responses from customized communication;
   (d) An analytics engine configured to maximize responses to communications based on historical data;
   wherein a user from the said aggregate single customizable file selects communication messages based on targeted markets.

2. The communication system for generating customized communications of Claim 1, further comprising a computer network in connection with a storage location.

3. The content layering engine in the communication system of Claim 1, further comprising
   (a) an expert layering wizard configured for layering a plurality of communication messages into a single file based on decision rules;
   (b) a customizer module configured to enable a user to generate a customized communication based using said decision rules;
   (c) a display module configured for comparing content variants for generating and executing said decision rules.
   (d) a library of categories for each subset of recipients configured to enable the decision rule comparisons for generating customized communications.

4. The communication engine of the communication system of Claim 1, further comprising
   (a) a recipient database configured to provide the recipient's best contact information, profile interest information and/or affinity information;
   (b) a GPS translation module configured to provide location information of recipients;
   (c) a display module configured to provide the user with information for assembly and directing customized communications;
   (d) an assembly module configured to assist the user in the assembly and deployment of targeted communications.

5. The notification engine of the communication system of Claim 1, further comprising:
   (a) a database of recipient responses to customized messages;
   (b) a library of procedures configured to parse and interpret recipient responses to customized messages;
   (c) a search module configured to find the feedback to the customized communications;
   (d) a display module is configured to show the interpreted results from the parsed response of the targeted recipients.

6. The analytics engine of the communication system of Claim 1, further comprising:
   (a) a preditice analytics module configured to maximize the propensity of recipient response to customized targeted messages;
   (b) a forecasting models library for applying predictive analytics to present and historic response data for increasing recipient response rates;
   (c)a recipient data profile database for maintaining profile and historical response data;

(d) a display module configured for showing the predictive analytic results.

7. The communication system for generating customized communications of Claim 1, the system further comprising non-transitory computer readable medium comprising:
program code to interactively layer content variants into a targeted message for recipients.
8. The communication system for generating customized communications of Claim 1 further comprising, non-transitory computer readable medium comprising:
program code to generate multimedia messages customized for targeted recipients.
9. The communication system for generating customized communications of Claim 1 further comprising, non-transitory computer readable medium comprising:
program code to generate on the internet multimedia messages customized for targeted recipients.
10. The system of customized communication of Claim 1 in which the system is deployed in the cloud internet.
11. .A computer-implemented method for customizing communication messages, the computer-implemented method comprising:

(a) layering content variants with associated reasons into a single customizer file by means of rule-based expert wizard;
(b) merging content variants from the single customizer file into a targeted message;
(c) displaying alternate content variants for associated reasons for generating said single customized file;
(d) categorizing content variants for generating said single customizer file by means of a library of categories;
wherein the customizer generated with the rule-based expert wizard enables a user to effectively assemble a plurality of customized messages for targeted recipients.

12. The computer-implemented method of Claim 7 further comprising:
(a) locating the position of recipients for targeted customized communications
(b) accessing contact and profile information of recipients for targeted customized communications;
(c) displaying at least one of said contact information, said location information, and said profile information;
(d) assembling from selections of content variants a customized communication targeted to recipients;
wherein a user assembles from selections of content variants by choosing reasons associated with said content variants in order to deployed said customized communication to targeted recipients.

13. The computer-implemented method of Claim 7 further compressing:
(a) finding the feedback to the customized communication by the targeted recipient;
(b) storing said feedback in a database;
(c) parsing said feedback by means of a library of parsing and interpretion procedures;
(d) storing said parsing results in said database;
(e) display said results in a display module;
wherein a user determines the effectiveness of customized communication to targeted recipients.

14. The computer-implemented method of Claim 7 further compressing:
(a) accessing recipient profile and historical response data stored in a database;

(b) applying algorithms and forecasting models from a library of said algorithms and models;
(c) analyzing responses of targeted recipients to customized communications using predictive analytics based on recipient profile and historical data to increase propensity of said responses;
(d) displaying the results of the predictive analytics modeling and forecasting;
wherein a user is enable to target more effectively the intended recipients of the customized communications.

15. A computer-implemented method for customizing communications, the computer-implement method comprising:
(a) constructing a customized communication using a content layering wizard to constructing a customizer for deciding between content variants;
(b) constructing a customized communication using a template customizer;
(c) constructing a customized communication using a previously saved customizer;
(d) constructing a customized communication using an imported customizer;
(e) constructing a customized communication using predictive analytics based on historical data.

16. The content layering method of for customizing communications of Claim 11 further comprising:
(a) selecting a base document on which to layer;
(b) selecting the documents to be layered together into a composite communication'
(c) choosing a merge method for creating a new customizer by layering;
(d) choosing a reason for a particular content variant;
(e) determining additional reasons for merging content variants;
(f) determining if all documents have been processed;
wherein the user generates a customizer for assembling communications by choosing reasons for selecting content variants to layer into a customized communication.

17. The preset customizer method of for customizing communications of Claim 11 further comprising:
(a) selecting a base document on which to layer;
(b) selecting the documents to be layered together into a composite communication;
(c) choosing a preset template customizer method for generating a customized communication;
(d) choosing a document type for the preset template method;
(e) choosing a preset template with the said document type;
(f) merging content variants by selecting reasons for each content variant;
(g) determining if all documents have been processed;
wherein the user generates a customized communication for deployment to targeted recipients.

18. The method of construction from a saved customizer of Claim 11 further comprising:
(a) selecting a base document;
(b) selecting documents to be layered into a composite customized communication;
(c) selecting an imported customizer;
(d) merging content variants by selecting reasons for each variant;
(e) determining if additional reasons are needed;
(f) determining if all documents have been considered

wherein the user generates a customized communication for deployment to targeted recipients.

19. The method of applying predictive analytics of Claim 11 further comprising:

(a) selecting a base document;
(b) selecting the documents to be layered together into a composite customized document;
(c) selecting a merger method for generating a composite document;
(d) selecting reasons for content variations to be included in the communication;
(e) assembling the composite document;
(f) sending the composite document to a targeted set of representative recipients ;
(g) receiving and parsing the feedback of the responses of the recipients;
(h) adjusting the content variants to increase the response propensity using predictive analytics applied to historic data

wherein the user more effectively customizes the communication for the targeted recipients

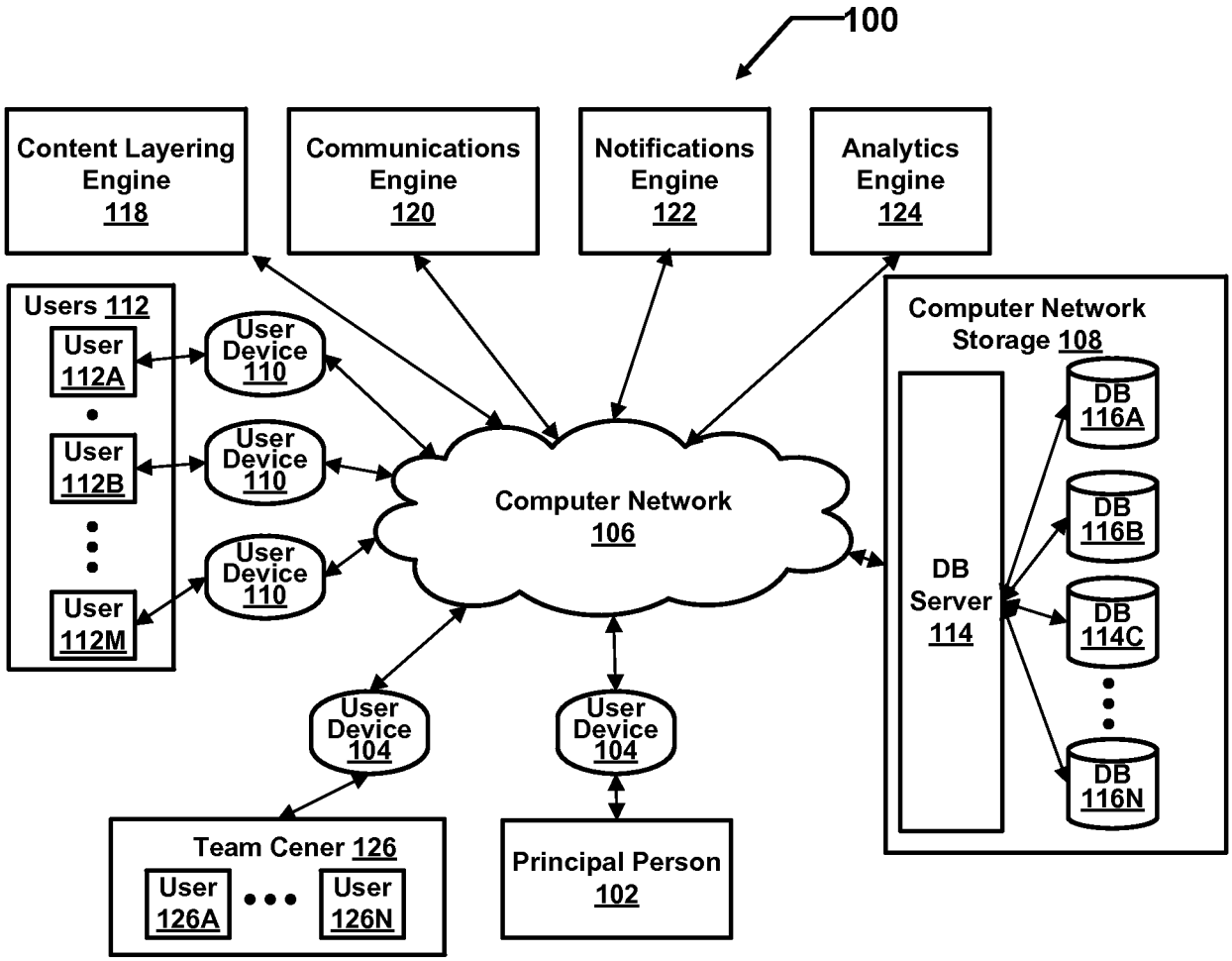
100
Content Layering Engine 118
Communications Engine 120
Notifications Engine 122
Analytics Engine 124
Users 112
User 112A
User 112B
User 112M
User Device 110
User Device 110
User Device 110
Computer Network 106
Computer Network Storage 108
DB Server 114
DB 116A
DB 116B
DB 114C
DB 116N
User Device 104
User Device 104
Team Cener 126
User 126A
User 126N
Principal Person 102

FIGURE 1

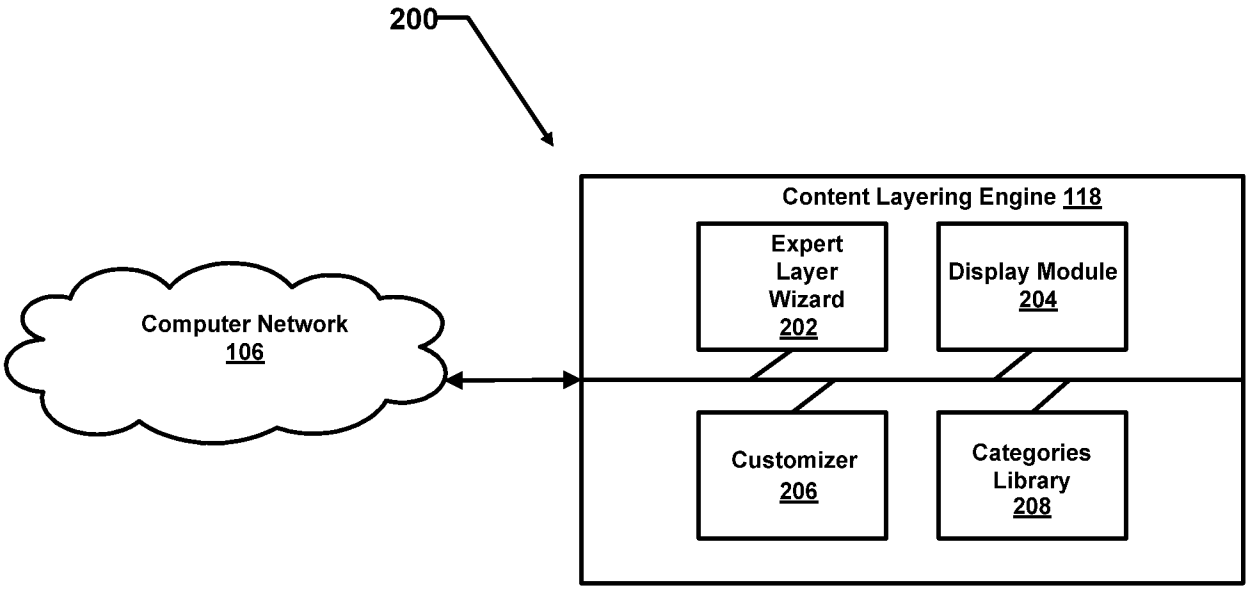
200
Content Layering Engine 118
Expert Layer Wizard 202
Display Module 204
Computer Network 106
Customizer 206
Categories Library 208

FIGURE 2

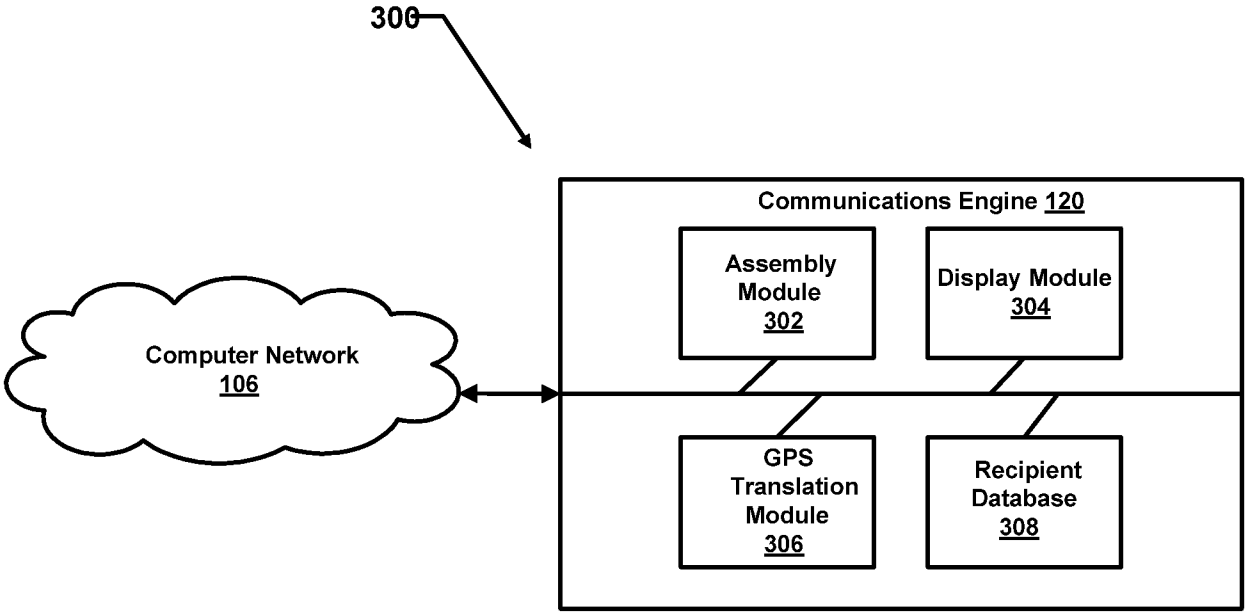
300
Communications Engine 120
Assembly Module 302
Display Module 304
Computer Network 106
GPS Translation Module 306
Recipient Database 308

FIGURE 3

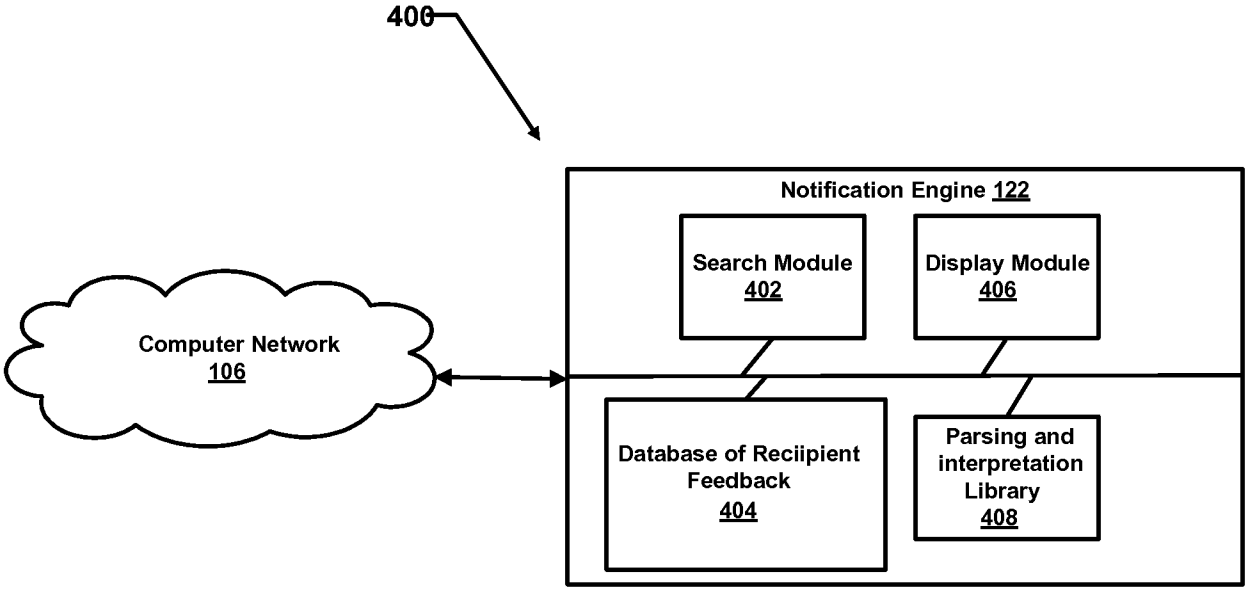
400
Notification Engine 122
Search Module
402
Display Module
406
Computer Network
106
Database of Reciipient
Feedback
404
Parsing and
interpretation
Library
408

FIGURE 4

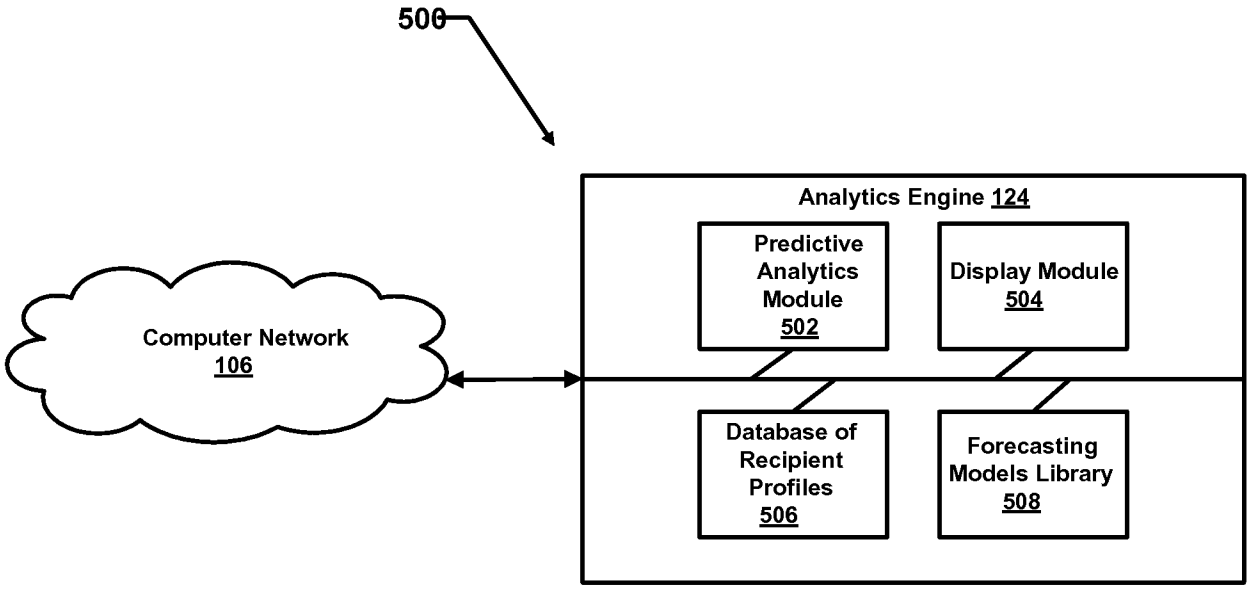
500
Analytics Engine 124
Predictive Analytics Module 502
Display Module 504
Computer Network 106
Database of Recipient Profiles 506
Forecasting Models Library 508

FIGURE 5

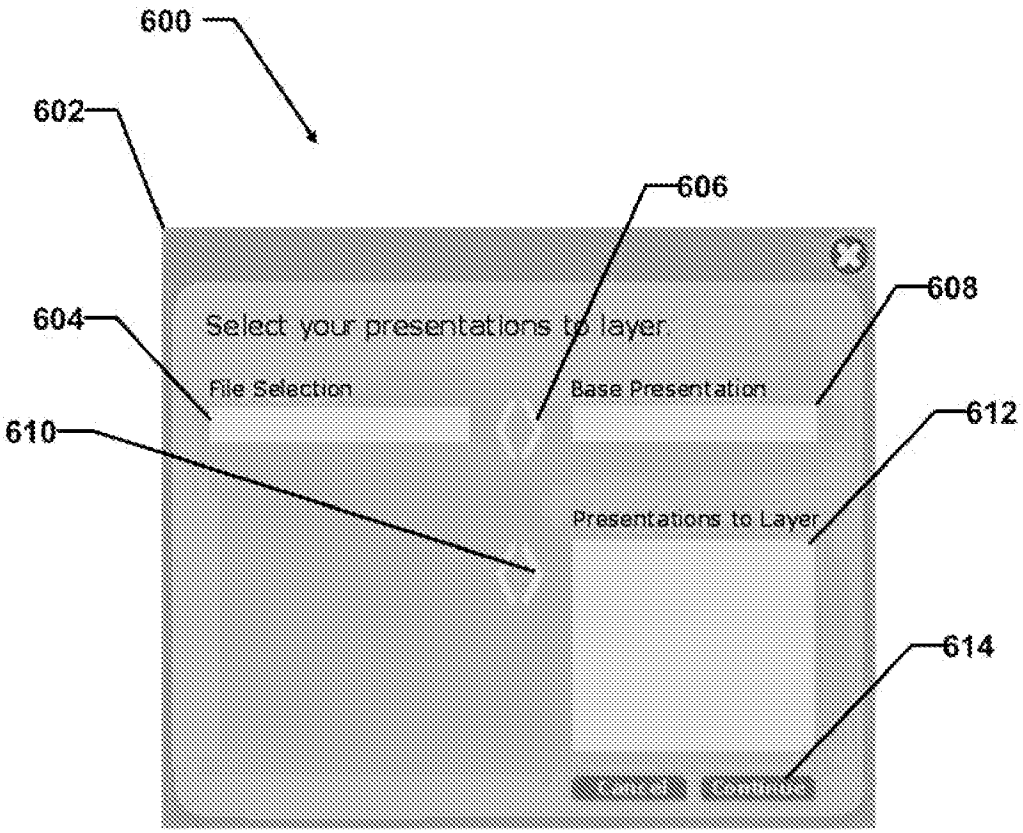
600
602
606
608
604
Select your presentations to layer
File Selection
Base Presentation
610
612
Presentations to Layer
614

FIGURE 6

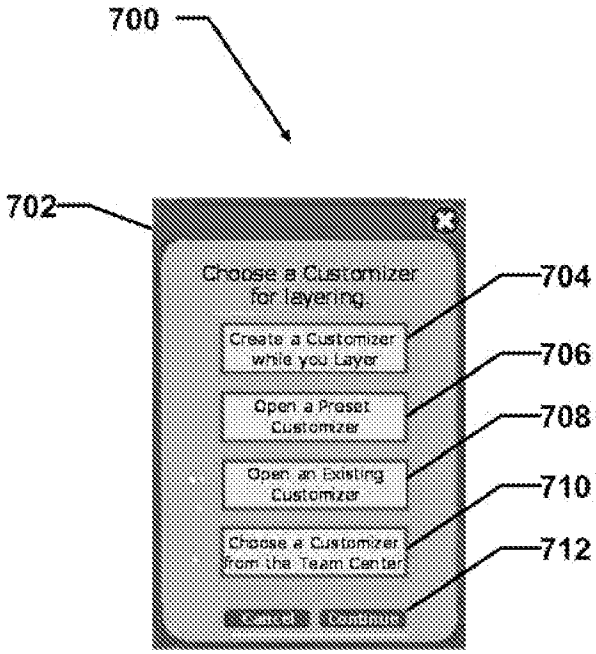
700
702
Choose a Customizer for layering
Create a Customizer while you Layer
Open a Preset Customizer
Open an Existing Customizer
Choose a Customizer from the Team Center
704
706
708
710
712

FIGURE 7

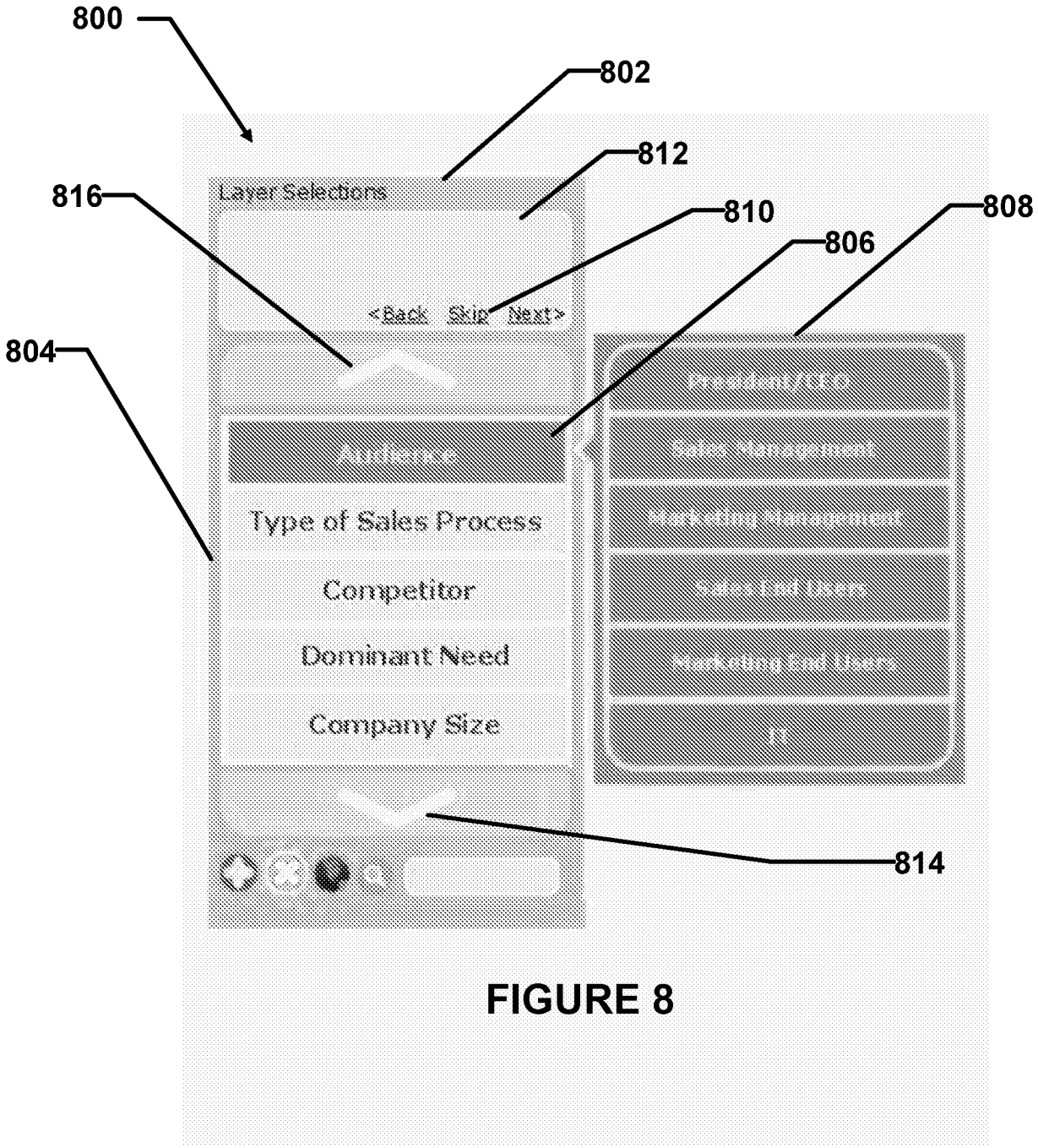
800
802
812
816
810
808
806
804
Layer Selections
<Back Skip Next>
Attributes
Type of Sales Process
Competitor
Dominant Need
Company Size
President/CEO
Sales Management
Marketing Management
Sales End Users
Marketing End Users
IT
814

FIGURE 8

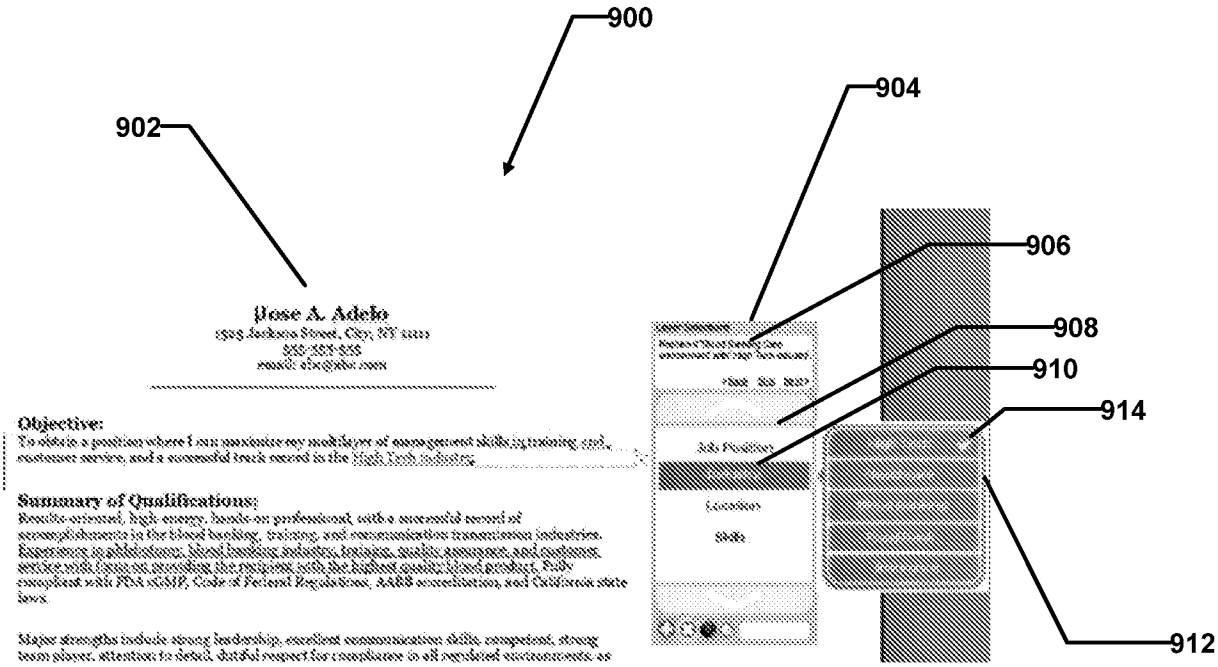
900
902
904
906
908
910
914
912
Jose A. Adelo
Objective:
Summary of Qualifications:

FIGURE 9

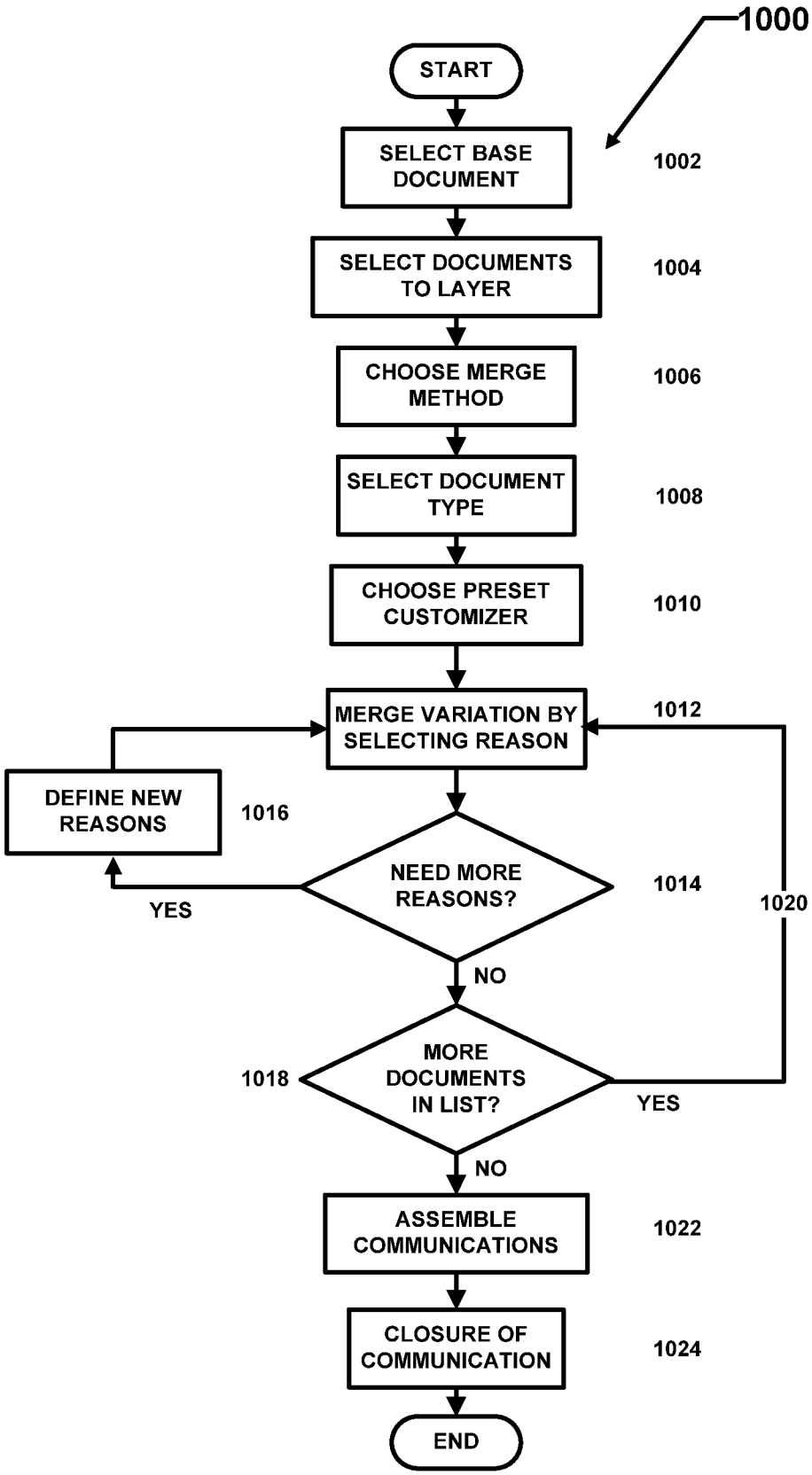
1000
START
SELECT BASE DOCUMENT
1002
SELECT DOCUMENTS TO LAYER
1004
CHOOSE MERGE METHOD
1006
SELECT DOCUMENT TYPE
1008
CHOOSE PRESET CUSTOMIZER
1010
MERGE VARIATION BY SELECTING REASON
1012
DEFINE NEW REASONS
1016
NEED MORE REASONS?
1014
YES
1020
NO
MORE DOCUMENTS IN LIST?
1018
YES
NO
ASSEMBLE COMMUNICATIONS
1022
CLOSURE OF COMMUNICATION
1024
END

FIGURE 10

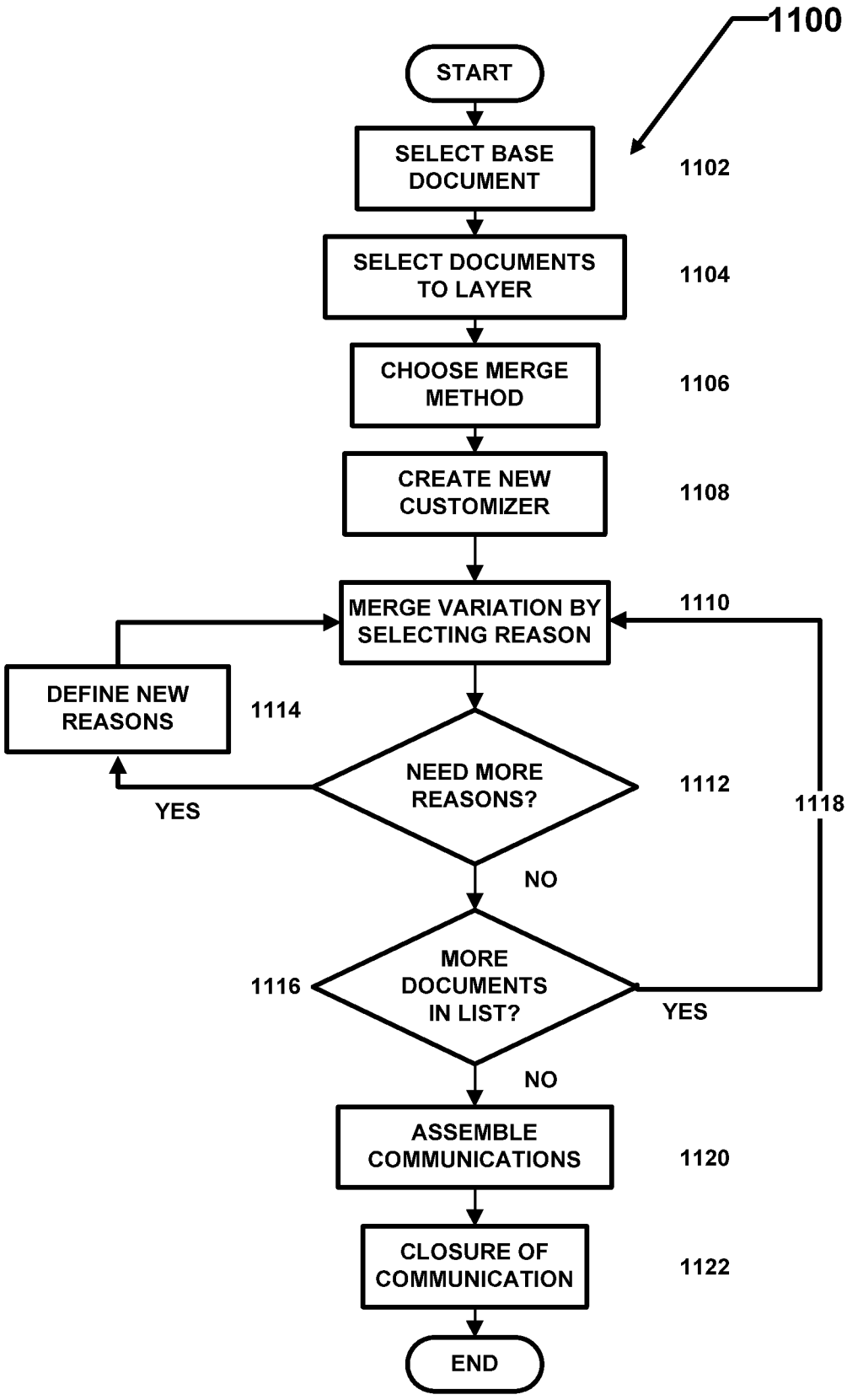
1100
START
SELECT BASE DOCUMENT
1102
SELECT DOCUMENTS TO LAYER
1104
CHOOSE MERGE METHOD
1106
CREATE NEW CUSTOMIZER
1108
MERGE VARIATION BY SELECTING REASON
1110
DEFINE NEW REASONS
1114
NEED MORE REASONS?
1112
YES
NO
1118
MORE DOCUMENTS IN LIST?
1116
YES
NO
ASSEMBLE COMMUNICATIONS
1120
CLOSURE OF COMMUNICATION
1122
END

FIGURE 11

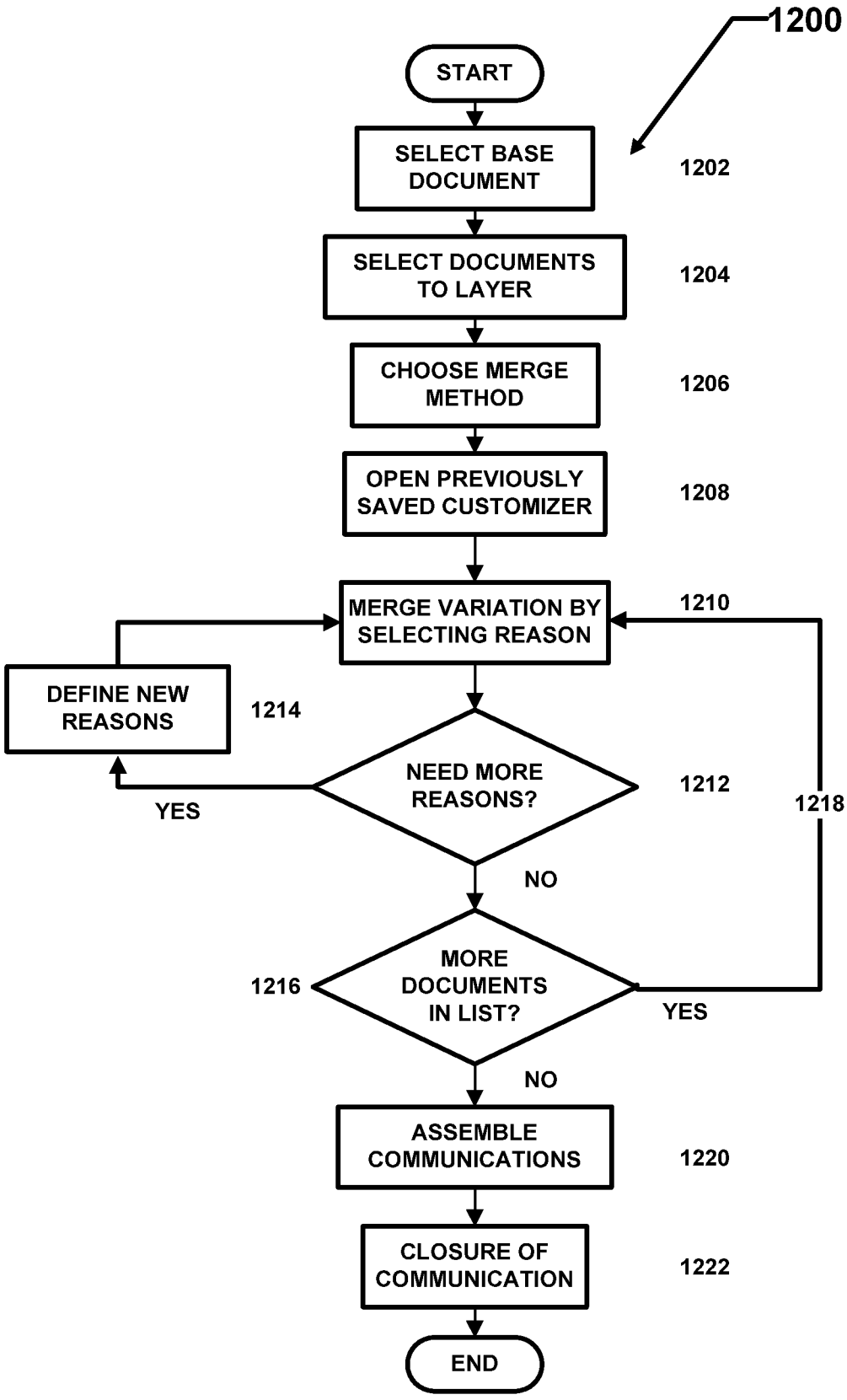
1200
START
SELECT BASE DOCUMENT
1202
SELECT DOCUMENTS TO LAYER
1204
CHOOSE MERGE METHOD
1206
OPEN PREVIOUSLY SAVED CUSTOMIZER
1208
MERGE VARIATION BY SELECTING REASON
1210
DEFINE NEW REASONS
1214
NEED MORE REASONS?
1212
YES
NO
1218
MORE DOCUMENTS IN LIST?
1216
YES
NO
ASSEMBLE COMMUNICATIONS
1220
CLOSURE OF COMMUNICATION
1222
END

FIGURE 12

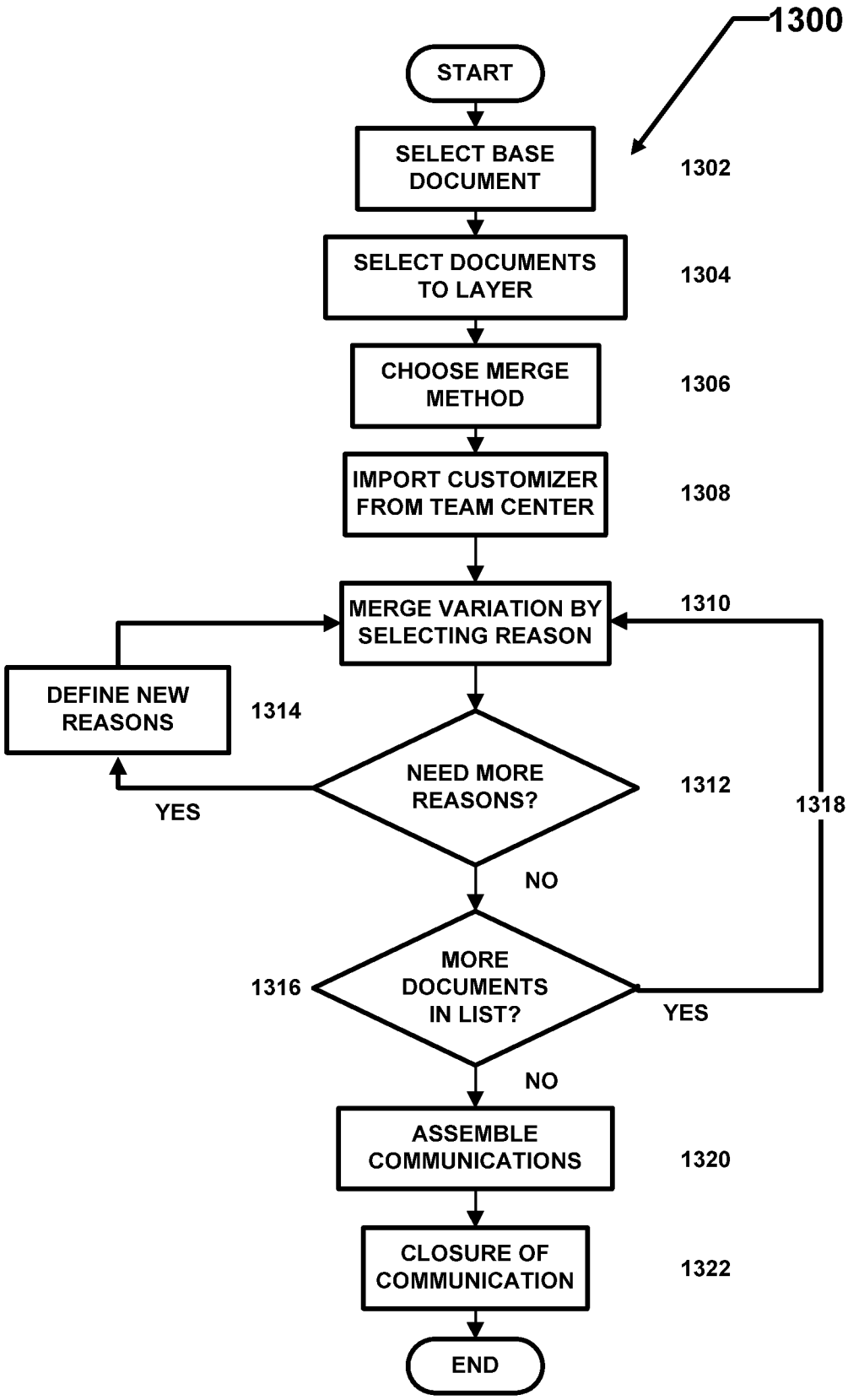
1300
START
SELECT BASE DOCUMENT
1302
SELECT DOCUMENTS TO LAYER
1304
CHOOSE MERGE METHOD
1306
IMPORT CUSTOMIZER FROM TEAM CENTER
1308
MERGE VARIATION BY SELECTING REASON
1310
DEFINE NEW REASONS
1314
NEED MORE REASONS?
1312
YES
NO
1318
MORE DOCUMENTS IN LIST?
1316
YES
NO
ASSEMBLE COMMUNICATIONS
1320
CLOSURE OF COMMUNICATION
1322
END

FIGURE 13

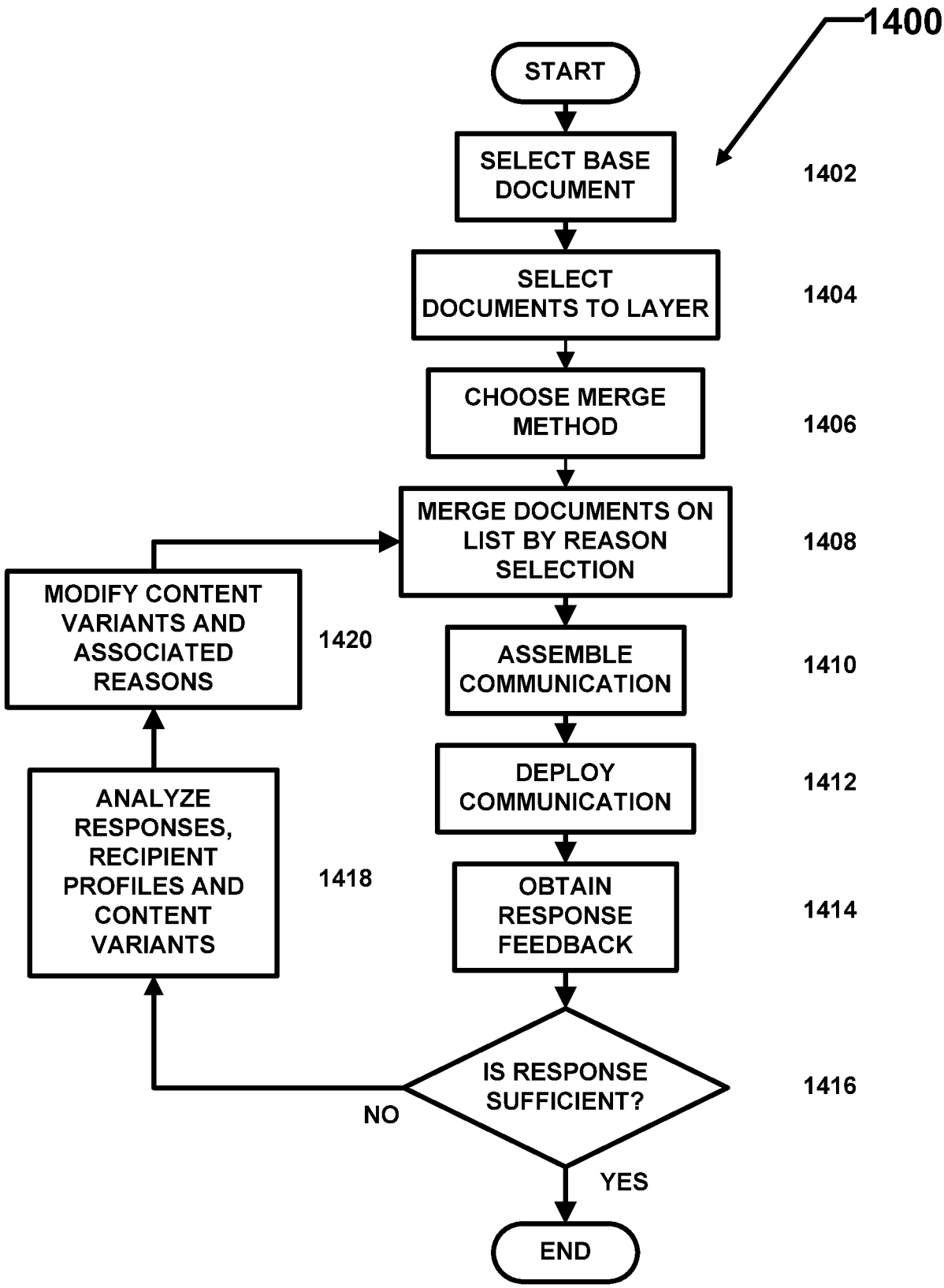
1400
START
SELECT BASE DOCUMENT
1402
SELECT DOCUMENTS TO LAYER
1404
CHOOSE MERGE METHOD
1406
MERGE DOCUMENTS ON LIST BY REASON SELECTION
1408
ASSEMBLE COMMUNICATION
1410
DEPLOY COMMUNICATION
1412
OBTAIN RESPONSE FEEDBACK
1414
IS RESPONSE SUFFICIENT?
1416
NO
YES
END
ANALYZE RESPONSES, RECIPIENT PROFILES AND CONTENT VARIANTS
1418
MODIFY CONTENT VARIANTS AND ASSOCIATED REASONS
1420

FIGURE 14

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 15/12958

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G06Q 30/00 (2015.01)
CPC - G06Q 30/0241
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC (8) - G06Q 30/00 (2015.01)
CPC - G06Q 30/0241

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
CPC - G06Q 30/02; G06Q 30/0277 (See Keywords Below)
USPC - 705/14.4, 715/223, 705/14.42, 705/7.37, 705/7.33

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Thomsoninnovation.com; Patbase; Google Scholar; Google Patents; Gogole.com; Freepatentsonline; ProQuest Dialog
Search Terms: Customize, personalize, target, layer, tier, aggregate, combine, single, file, template, model, deploy, assemble, notification, response, feedback, maximize, optimize, history, previous, past, rule, policy, etc.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2009/0089654 A1 (WITTIG et al.), 02 April 2009 (02.04.2009), entire document, especially Abstract; Para [0006], [0042], [0063], [0068]-[0072], [0091], [0150]	1-19
Y	US 2008/0091516 A1 (GIUNTA), 17 April 2008 (17.04.2008), entire document, especially Abstract; Para [0027]-[0028], [0045]-[0047]	1-10, 12-15 and 19
Y	US 2012/0265611 A1 (BOOKMAN et al.), 18 October 2012 (18.10.2012), entire document, especially Abstract; Para [0036], [0076]-[0078], [0093]	11 and 16-19
Y	US 2012/0172062 A1 (ALTMAN et al.), 05 July 2012 (05.07.2012), entire document, especially Abstract; Para [0060]-[0062]	4 and 12
A	US 2010/0023952 A1 (SANDOVAL et al.), 28 January 2010 (28.01.2010), entire document	1-19
A	US 2013/0246189 A1 (PATEL et al.), 19 September 2013 (19.09.2013), entire document	1-19

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
07 April 2015 (07.04.2015)	29 APR 2015
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-8300	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (January 2015)