



(19) **United States**

(12) **Patent Application Publication**  
**Bondy et al.**

(10) **Pub. No.: US 2005/0055236 A1**  
(43) **Pub. Date: Mar. 10, 2005**

(54) **SYSTEM AND METHOD FOR DETERMINING PRINTING NEEDS AND IMPLEMENTING PRINTING SOLUTIONS**

**Related U.S. Application Data**

(60) Provisional application No. 60/500,165, filed on Sep. 4, 2003.

(75) Inventors: **Christopher Bondy**, Penfield, NY (US); **David Blaszyk**, Spencerport, NY (US); **Christine Marie-Papp Balestra**, Rochester, NY (US)

**Publication Classification**

(51) **Int. Cl.** ..... **G06F 17/60**  
(52) **U.S. Cl.** ..... **705/1; 705/10**

Correspondence Address:  
**Lawrence P. Kessler**  
**Patent Legal Staff**  
**Eastman Kodak Company**  
**343 State Street**  
**Rochester, NY 14650-2201 (US)**

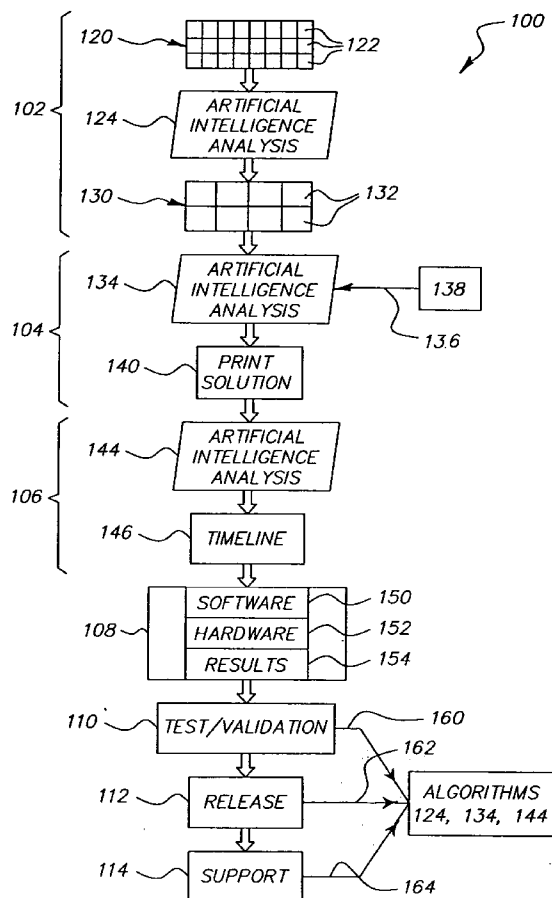
(57) **ABSTRACT**

A method for determining the printing needs of and for implementing print solutions for an entity includes the steps of analyzing a plurality of general records of a general list, each of the general records including general information regarding a corresponding entity, to thereby identify at least one entity having predetermined characteristics. The entities are stored as potential customer records in a business opportunity list. Specific information is obtained regarding the printing system and printing needs of the customer entity. The potential customer records and the corresponding specific information are evaluated to develop at least one proposed print solution for the customer entity. The solution is then implemented, tested, and supported.

(73) Assignee: **Eastman Kodak Company**

(21) Appl. No.: **10/932,248**

(22) Filed: **Sep. 1, 2004**



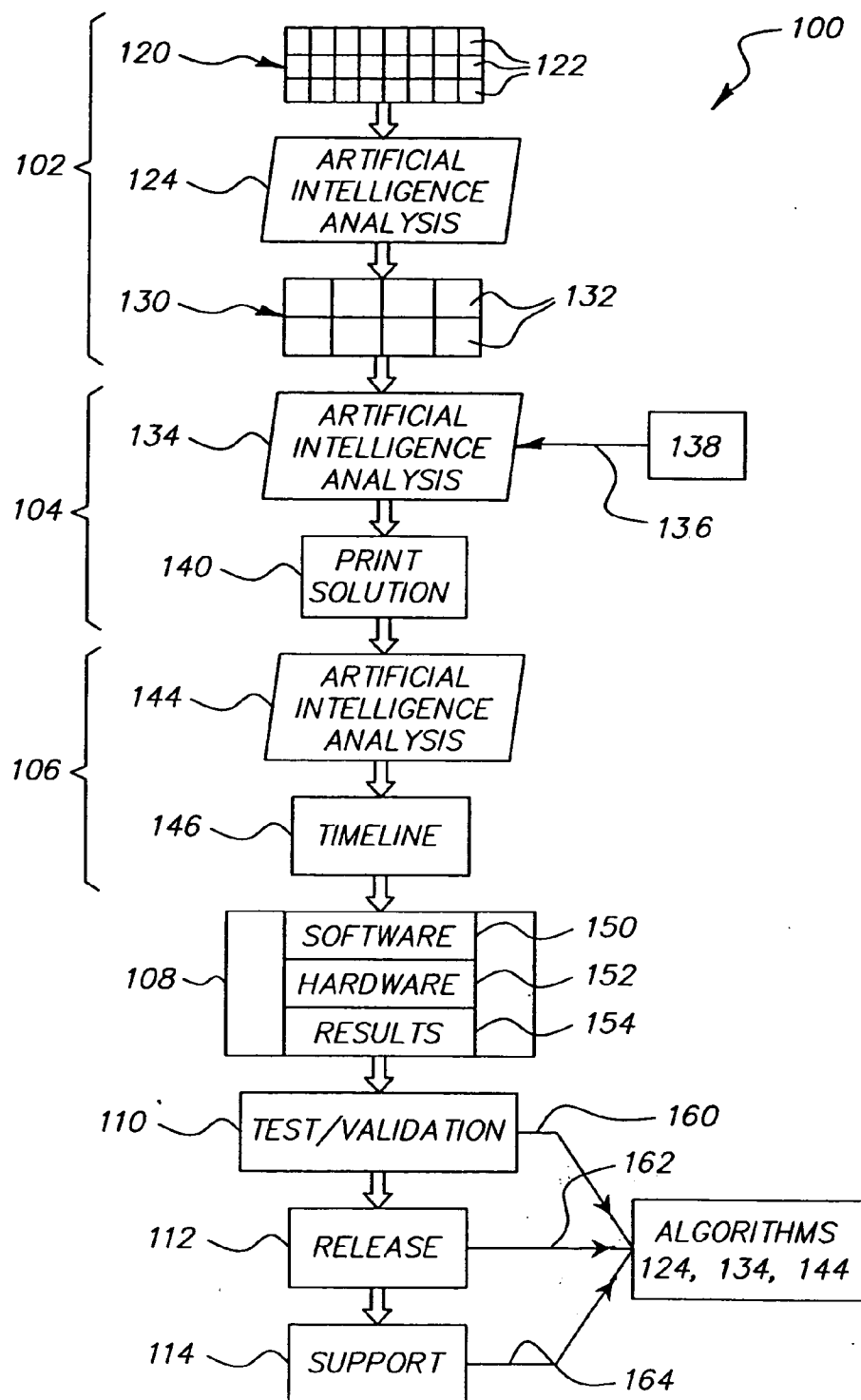


FIG. 1

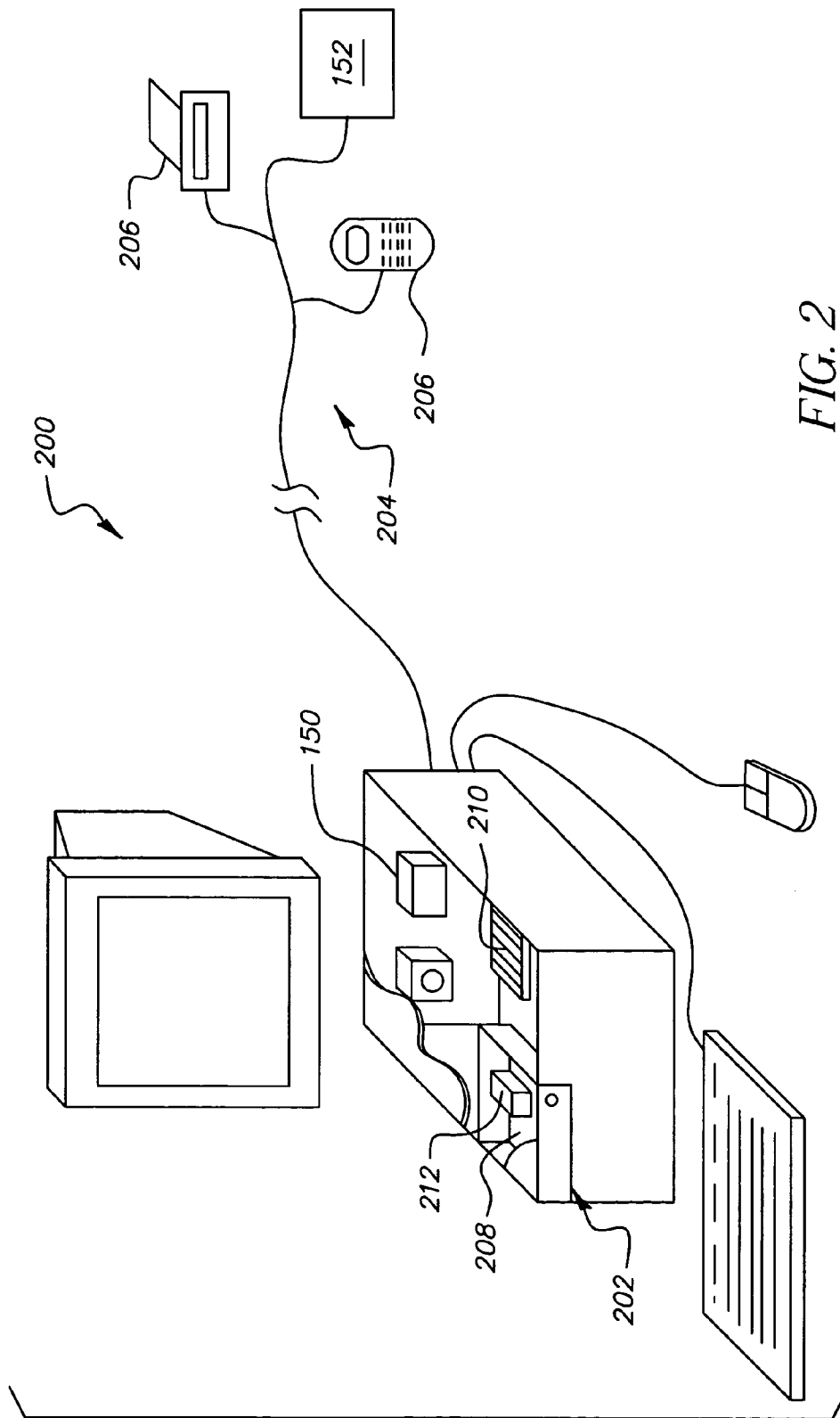


FIG. 2

## SYSTEM AND METHOD FOR DETERMINING PRINTING NEEDS AND IMPLEMENTING PRINTING SOLUTIONS

### FIELD OF THE INVENTION

[0001] The present invention relates to a system and method for determining the printing needs of an entity, such as a business, and for implementing printing solutions that meet those needs.

### BACKGROUND OF THE INVENTION

[0002] Companies typically have a need to print or produce numerous and various types of documents, many of which are produced with the aid of one or more computers. The advances in computer and digital printing technologies have made it economical and convenient for many companies to produce in-house at least some of these documents, such as, for example, sales brochures, product literature and owners manuals, that would have heretofore required the services of a company devoted to and specializing in the production of such documents.

[0003] However, the pace at which printing and computer technologies have advanced has also created certain conditions that are less than ideal. Some companies are forced to operate with a printing infrastructure that includes patched-together equipment having different operating systems and/or protocols. Integrating relatively advanced or sophisticated printing and/or document-producing capability into such patched-together systems requires substantial knowledge and expertise. Further, many companies do not possess the knowledge or expertise to determine their printing and/or document producing needs, nor do they possess the knowledge of the various and myriad printing and/or document producing options that are currently available to them.

[0004] Therefore, what is needed in the art is a system and method by which the printing and/or document producing needs of a company are determined.

[0005] Moreover, what is needed in the art is a system and method by which solutions to those printing and/or document producing needs are identified and implemented.

### SUMMARY OF THE INVENTION

[0006] The present invention provides a system and method for use by a principal entity to determine the printing needs of and for implementing print solutions for use by a customer entity.

[0007] The present invention includes, in one form thereof, a method of determining and implementing a printing solution that includes the steps of analyzing a plurality of general records of a general list, each of the general records including general information regarding a corresponding entity, to thereby identify at least one customer entity having predetermined characteristics. The customer entities are stored as potential customer records in a business opportunity list. Specific information is obtained regarding the printing system and printing needs of the customer entity. The potential customer records and the corresponding specific information are evaluated to develop at least one print solution for the customer entity.

[0008] An advantage of the present invention is that the print solutions developed are stored and available for wide-

spread dissemination within, for later reference and use by, and for commercialization to other customer companies by, the principal company.

[0009] A further advantage of the present invention is that issues in the development, integration, testing, and on-going use are recorded and incorporated into the process for identifying print solutions, thereby making previously-designed and implement solutions available to reduce the likelihood that effort and resources would be duplicated in the design and installation of similar systems.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The above-mentioned and other features and advantages of this invention, and the manner of attaining them, will become apparent and be better understood by reference to the following description of the embodiments of the invention in conjunction with the accompanying drawings, wherein:

[0011] **FIG. 1** is a flow chart of one embodiment of the method of the present invention; and

[0012] **FIG. 2** is a schematic representation of one embodiment of a system for performing the method of **FIG. 1**.

[0013] Corresponding reference characters indicate corresponding parts throughout the several views. The exemplifications set out herein illustrate one preferred embodiment of the invention, in one form, and such exemplifications are not to be construed as limiting the scope of the invention in any manner.

### DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0014] The term printing needs as used herein includes pre-press, press and post-press activities related to printing. Pre-press activities include things such as, for example, job set-up, font and color selection, layout, image selection and positioning, etc. Press activities include the actual printing and paper handling for the printing process. Post-press needs include things such as, for example, finishing, binding, handling, and packaging for distribution.

[0015] Referring now to the drawings, and particularly to **FIG. 1**, there is shown one embodiment of the method for determining printing needs and implementing printing solutions of the present invention. Method **100** is generally performed by, on behalf of, or in response to the request of a principal company, and includes identifying potential customers **102**, identifying solutions step **104**, implementation planning step **106**, development and integration **108**, test and validation **110**, release **112** and support **114**.

[0016] Identifying potential customers step **102** includes obtaining from various sources information regarding companies and/or other entities that may be potential customers of the principal company. General attributes of these potential customer companies are also acquired, such as, for example, address and general contact information. The information regarding these companies is collected into general list **120** that includes a plurality of general company records **122**.

[0017] Each general company record **122** contains the name of a company/entity and its general information/

attributes. Included as general records **122** of general list **120** are, for example, current and former customers of the principal company and other companies and/or entities that may be or appear to be involved in certain predetermined broad printing market segments, such as, for example, commercial printing, photofinishing services and/or transactional printing. Additional information, such as, for example, approximate size in terms of revenue and/or employees, volume of any printing services required and/or performed, type of technology employed and various other business and technical information regarding the potential customer companies is also obtained whenever possible. Thus, each general record **122** of general list **120** represents a potential customer company that may have some need for support, services and/or solutions related to digital printing that can be provided by the principal company.

[**0018**] General list **120** is then operated upon, such as, for example, by a set of rules-based questions and/or artificial-intelligence parameters **124**, as part of identifying potential customers step **102** to thereby produce business opportunity list **130** which is a subset of general list **120**. Business opportunity list **130** includes prospective customer (PC) records **132**. PC records **132** include only those general records or companies **122** of general list **120** that satisfy or meet the criteria established by rules-based questions and/or artificial-intelligence analysis **124**. Thus, PC records **132** represent the prospective customers that are contained within general list **120**.

[**0019**] The rules-based questions and/or artificial intelligence analysis **124** includes questions and analysis that determine whether the particular customer company that is the subject of general record **122** produces printed material in sufficient volume or of sufficient complexity to require and/or benefit from a system produced by the principal company. Further, analysis **124** includes questions and analysis that determines from the information within general record **122** the current printing system architecture in use by the corresponding customer company and the type of work products produced to thereby determine whether the customer company requires or would benefit from the technology and/or support offered by the principal company. The types of printing/work product produced by a customer company are categorized into one of several broad categories including, for example, short run color, customized, personalized, versioned, transactional, fully custom, and automated fulfillment print output. Questions/analysis **124** are developed from a composite customer profile that contains the beneficial and/or desired attributes, such as technology and print volumes, of current, former and/or desired customers of the principal company. Business opportunity list **130** is input to, or is a resource for, identifying solutions step **104**.

[**0020**] Identifying solutions step **104**, in general, applies further rules-based questions and/or artificial-intelligence algorithm **134** to a selected PC record **132** in business opportunity list **130** to thereby determine what printing needs the potential customer may have. More particularly, each PC record **132** is individually analyzed and cross-referenced according to rules-based questions and/or an artificial-intelligence algorithm **134**. Identifying solutions step **104** requires, and the questions/artificial intelligence algorithm **134** are applied to, information **136** regarding the particular company that is the subject of the corresponding

PC record **132**. Information **136** is obtained via completion of questionnaire **138**, as is more particularly described hereinafter.

[**0021**] Information **136** generally pertains to the current system used by the particular customer company and includes, for example, profiles of key system users, print products that the system is used to create and the costs associated therewith, the operating environment of the system, the print floor configuration, and specific hardware, software and work processes employed within the system. Input/information **136** is collected through the completion of a questionnaire **138**. Questionnaire **138** is completed either directly by or through input from a representative of the customer company. Questionnaire **138** is completed either on paper or electronically, such as, for example, via an electronic version of questionnaire **138** that is accessed via the Internet or distributed via e-mail. Rules-based questions and/or artificial-intelligence algorithm **134** is applied to each PC record **132** and the input/information **136** corresponding thereto, and produces one or more print solutions **140** for the review of and/or adoption by the customer company.

[**0022**] Rules-based questions and/or artificial-intelligence algorithm **134** produces one or more proposed print solutions **140**. In order to do so, rules-based questions and/or artificial-intelligence algorithm **134** matches the information contained within PC record **132** and the input/information **136** corresponding thereto with one or more proposed print solutions **140**. More particularly, artificial-intelligence algorithm **134** matches the required or expected volumes, type of printing, number of colors, types of bonding and/or paper processing required by the customer to the characteristics of various pieces of printing equipment and systems.

[**0023**] Each proposed print solution **140** includes a revised or new printing system architecture, a new or revised printing process model that illustrates the process, activities and high-level work flow of the proposed print solution **140**, identification of new pieces of printing machinery that may be incorporated in the new printing process, and a new/revised printing work flow. Additionally, a customer information summary and other customer-focused information are generated by questions and/or artificial-intelligence algorithm **134**.

[**0024**] Implementation planning step **106** utilizes yet another rules set and/or artificial-intelligence algorithm **144** to generate timeline **146** for the execution, implementation, installation and integration of a selected one of the proposed print solutions **140**. Algorithm **144** creates timeline **146** based at least in part upon the complexity, elements and characteristics of the selected one of proposed print solutions **140**, such as, for example, the system architecture, the particular pieces of printing and/or material handling equipment being installed and/or interfaced, etc. Once created, timeline **146** is circulated, such as, for example, electronically via e-mail or Internet, to and for the review of and approval by the various implementation teams involved in the actual installation of the desired/selected print solution **140**. Once approved, the development and integration step **108** commences.

[**0025**] Development and integration step **108** includes the performance of a simulation using print systems simulation software **150**, hardware **152** and/or a combination thereof that are created, selected and configured to reflect the

printing system in use at the customer company location. Simulation software **150** and hardware **152** are used to conduct a simulation in order to discover any integration or other issues, such as, for example, protocol conflicts, that may arise when printing solution **140** is integrated into the printing system in use at the customer company location. Integration results **154** and/or other issues that arise or are discovered as a result of development and integration step **108**, are addressed as part of the testing **110**, release **112** and support **114** steps.

[0026] Test and validation step **110** tests print solution **140** in a controlled customer environment. Test results **160**, such as, for example, potential reliability, functionality, and/or work flow issues, are fed back to and incorporated within one or more of artificial intelligence algorithms **124**, **134** and **144**, as appropriate.

[0027] Release step **112** includes the installation of print solution **140** at the customer location. The arrangement and characteristics **162** of print solution **140**, which are at this point in the process fixed, are fed back to and incorporated within one or more of artificial intelligence algorithms **124**, **134** and **144**, as appropriate, and are available for future users of method **100** when seeking print solutions for other customer companies. Further, arrangement and characteristics **162** of print solution **140** is also available for other uses, such as, for example, marketing to other customers and/or full-scale commercialization.

[0028] Support step **114** includes the on-going gathering of feedback **164**, which is also incorporated within one or more of artificial intelligence algorithms **124**, **134** and **144**, as appropriate. Feedback **164** includes data, such as, for example, the amount of use, indicators of the success and/or failure within the particular customer environment, the nature of use, suggested enhancements, and other customer feedback, that characterizes print solution **140** in use. Feedback **164** is also incorporated within one or more of artificial intelligence algorithms **124**, **134** and **144**, as appropriate.

[0029] Referring now to FIG. 2, a schematic diagram of one embodiment of a system for performing the method of FIG. 1 is shown. System **200** includes at least one personal computer **202** that is connected to a computer network **204**. Personal computer **202** communicates and exchanges data with a plurality of other electronic devices **206**, such as, for example, printers, other computers, and personal digital assistants, via network **204**. Further, computer **202** accesses the Internet and exchanges e-mail via network **204**. Computer **202** includes data storage device **208**, such as, for example, a hard drive, and memory **210** that includes random access memory and read only memory. The basic functions of personal computer **202**, such as, for example, display and data handling, are controlled by an operating system (not shown). Computer **202** executes or runs application software **212** that embodies method **100**, and which is stored in data storage **208**.

[0030] In use, system **200** performs method **100**. Computer **202** running application software executes identify potential customers step **102** by applying to general list **120** the rules-based questions and/or artificial-intelligence parameters **124** to produce business opportunity list **130**. Business opportunity list **130**, which includes a plurality of prospective customer (PC) records **132**, is stored in one of storage device **208** and/or memory **210**. PC records **132**, as

described above, include only those general records or companies **122** of general list **120** that satisfy or meet the criteria established by the rules-based questions and/or artificial-intelligence analysis **124**. Thus, PC records **132** represent the prospective customers that are contained within general list **120**.

[0031] Identifying solutions step **104** is then executed by system **200**. More particularly, computer **202** analyzes one or more selected PC records **132** in business opportunity list **130** by applying artificial-intelligence algorithm **134** thereto. In doing so, computer **202** reads into memory **210**, information **136** that corresponds to the particular PC record being analyzed. Information **136** is read from, for example, data storage device **208** or is requested and read from one or more remote electronic devices **206** over network **204**. Algorithm **134** cross-references the information contained within PC record **132** and corresponding information **136**, and produces one or more print solutions **140**. Print solutions **140** are then stored in one of storage device **208** and/or memory **210**, and can be printed, distributed to one or more intended recipients via e-mail, and/or posted to the Internet to be accessed by one or more intended persons or entities.

[0032] In order to arrive at print solutions **140**, computer **202** executing application software **212** applies algorithm **134** to match the information contained within PC record **132** and the information **136** corresponding thereto, such as, for example, the required or expected volumes, type of printing, number of colors, types of bonding and/or paper processing required by the customer with the characteristics of various pieces of printing equipment and systems. Further, algorithm **134** analyzes the information contained within PC record **132** and the information **136** corresponding thereto with other, previously implemented, print solutions, to determine whether there is a match between any previously implemented print solutions and the customer needs represented by PC record **132** and information **136** corresponding thereto.

[0033] Implementation planning step **106** is then executed by system **200**. More particularly, computer **202** executing application software **212** applies algorithm **144** to print solution **140** to generate timeline **146** for the execution, implementation, installation and integration thereof. Algorithm **144** analyzes the complexity, elements, and characteristics of the proposed print solution, such as, for example, the system architecture, the particular pieces of printing and/or material handling equipment being installed and/or interfaced, etc, to generate timeline **146**. Once created, timeline **146** is printed and/or circulated electronically via e-mail, the Internet, or is accessed by other devices **206** over computer network **204**, and is reviewed by the various implementation teams involved in the actual installation of print solution **140**. Once approved by the teams, the development and integration step **108** is executed.

[0034] Similarly, development and integration step **108** is also executed by system **200**. More particularly, computer **202** executing application software **212** executes development and integration step **108** by running print systems simulation software **150** which, in turn, interfaces with hardware **152** to simulate the operation of print solution **140** as it will be used in the customer environment. Simulation software **150** is, at least in part, developed for and is based upon a specific one of print solutions **140**. Integration or

other issues with the operation of print system **140** that occur during the simulation are recorded as integration results **154**. Integration results **154** are recorded within one of storage device **208** and/or memory **210**, and can be displayed on computer **202**, printed, accessed via network **204** by devices **206**, and/or distributed via e-mail to a desired destination. Application software **212** facilitates the review and analysis of integration results **154**, which are fed back and incorporated into one more of artificial intelligence algorithms **124**, **134** and **144**, as appropriate.

[**0035**] Test and validation step **110**, is then executed by computer **202** running application software **212** and print systems simulation software **150** to thereby test print solution **140** in a controlled environment. Test and validation step **10** issues test results **160** including less than desirable results and/or conditions, such as, for example, potential reliability, functionality, and/or work flow issues. Application software **212** facilitates the review and analysis of test results **160**, which are fed back and incorporated into one more of artificial intelligence algorithms **124**, **134** and **144**, as appropriate. Test results **160** are, for example, configured as error codes and/or problem descriptions that are recorded within one of storage device **208** and/or memory **210**, and can be printed, accessed via network **204** by devices **206**, and/or distributed via e-mail to a desired destination.

[**0036**] Thereafter, release step **112** is executed. Print solution **140** is installed at the customer location, and the final design and characteristics **162** of print solution **140** are fed back and/or input into application software **212** and/or stored in storage device **208**. Arrangement and characteristics **162** are then incorporated within one or more of artificial intelligence algorithms **124**, **134** and **144**, as appropriate. Print solution **140** is thereby incorporated within the knowledge base represented by application software **212** and algorithms **124**, **134** and **144**, and is thus available for reference and use by method **100** when a print solution is sought for other customer companies. Further, the final arrangement and characteristics **162** of print solution **140** are also available for other uses, such as, for example, marketing to other customers and/or full-scale commercialization.

[**0037**] Support step **114** includes the on-going gathering of feedback **164**, which is also incorporated within one or more of artificial intelligence algorithms **124**, **134** and **144**, as appropriate, of application software **212**. Feedback **164** includes data, such as, for example, the amount of use, indicators of the success and/or failure within the particular customer environment, the nature of use, suggested enhancements, and other customer feedback, that characterizes print solution **140** in use. Feedback **164** is gathered through various means, such as, for example, automated data collection and reporting, customer surveys completed and submitted via e-mail and/or over the Internet, and/or telephonic surveys. Feedback **164** is incorporated within one or more of artificial intelligence algorithms **124**, **134** and **144**, as appropriate, of application software **212**.

[**0038**] While this invention has been described as having a preferred arrangement, the present invention can be further modified within the spirit and scope of this disclosure. This application is therefore intended to cover any variations, uses, or adaptations of the present invention using the general principles disclosed herein. Further, this application is intended to cover such departures from the present dis-

closure as come within the known or customary practice in the art to which this invention pertains and which fall within the limits of the appended claims

What is claimed is:

1. A computerized method for use by a principal entity to determine the printing needs of and for implementing print solutions for use by a customer entity, said method comprising:

analyzing a plurality of general records of a general list, each of the general records including general information regarding a corresponding entity, to identify at least one customer entity having predetermined characteristics;

storing the customer entities as a potential customer record in a business opportunity list;

obtaining specific information regarding the printing system and printing needs of the customer entity; and

evaluating the potential customer record and the corresponding specific information to develop at least one print solution for the customer entity.

2. The method of claim 1, wherein said general records include the type, technology, and volume of printing performed by the corresponding entities, said analyzing step comprises a first artificial intelligence algorithm executed by a computer and which identifies as customer entities those entities that perform printing of at least one of a particular type, predetermined range of volumes, or predetermined technology.

3. The method of claim 2, wherein the first artificial intelligence algorithm identifies as customer entities those entities of the general records that conduct at least one of photo-finishing, commercial printing, and transactional printing.

4. The method of claim 1, wherein said obtaining specific information comprises obtaining predetermined characteristics of the printing system in use at the customer entity, and associating the specific information with the corresponding potential customer records.

5. The method of claim 4, wherein said obtaining specific information comprises at least one of electronically distributing a questionnaire to the customer entity, and return by the customer entity of the completed questionnaire to the principal company, via one of e-mail, the Internet, and a computer network.

6. The method of claim 4, wherein said associating comprises one of reading the specific information into a memory or storing the specific information in a storage device of a computer.

7. The method of claim 1, wherein said evaluating step comprises a second artificial intelligence algorithm executed by a computer and which determines, dependent at least in part upon the potential customer record, at least one print solution.

8. The method of claim 7, wherein the artificial intelligence algorithm matches the potential customer record with, and the print solution includes at least one of, a printing system architecture, a printing process model, printing machinery to be incorporated in the printing process model, and a printing work flow.

9. The method of claim 1, comprising the further step of generating a timeline for implementation of the at least one print solution.

10. The method of claim 9, wherein said step of generating the timeline comprises a third artificial intelligence algorithm executed by a computer and which determines the timeline dependent at least in part upon the characteristics and components of the print solution.

11. The method of claim 1, further comprising the step of developing and integrating the print solution by developing simulation software, executing the simulation software with a computer, the simulation software and computer being integrated with hardware identified by the print solution, and recording integration results.

12. The method of claim 1, comprising the further step of testing and validating the print solution, said testing and validating step issuing test results, said test results being fed back to and selectively incorporated within one or more of said first, second, and third artificial intelligence algorithms.

13. The method of claim 1, comprising the further step of releasing the print solution into use at the customer location and recording the final arrangement and characteristics of the print solution, the final arrangement and characteristics being fed back to and selectively incorporated within one or more of said first, second, and third artificial intelligence algorithms.

14. The method of claim 1, comprising the further step of supporting the print solution by gathering data in an ongoing manner, said data including the amount of use of, indicators of success and/or failure of, nature of use of, suggested enhancements for, and customer feedback regarding the print solution, said data being fed back to and selectively incorporated within one or more of said first, second, and third artificial intelligence algorithms.

15. A system to determine the printing needs of and for implementing print solutions for a customer entity, said system comprising:

a personal computer having a display, at least one data storage device and a memory;

application software stored within at least one of said data storage device and said memory, and being executable by said at least one personal computer, said application software configured for analyzing a plurality of general records, each of the general records including general information regarding a corresponding entity, identifying customer entities having predetermined characteristics, storing the customer entities as potential customer records in a business opportunity list, reading specific information regarding the printing system and printing needs of the customer entity, and evaluating the potential customer records and the corresponding specific information to develop at least one print solution for the customer entity.

16. The system of claim 15, wherein said application software includes a first artificial intelligence algorithm that identifies as customer entities those entities that perform printing of at least one of a particular type, predetermined range of volumes, or predetermined technology.

17. The system of claim 15, wherein said application software includes a second artificial intelligence algorithm that determines, dependent at least in part upon the potential customer record, the at least one print solution.

18. The system of claim 15, wherein said application software includes a third artificial intelligence algorithm executed by a computer and which determines the timeline dependent at least in part upon the characteristics and components of the at least one print solution.

\* \* \* \* \*