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(54) **Title**: METHOD OF VISUALIZING THE COLLECTIVE OPINION OF A GROUP

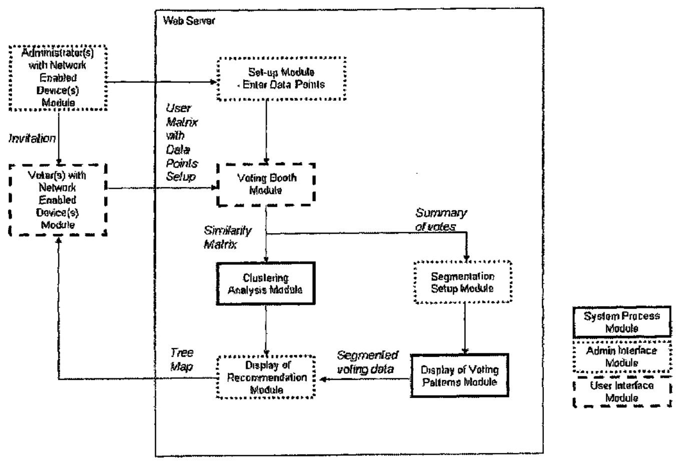

FIG. 1C

(57) **Abstract**: A computerized method of visualizing the collective opinion of a group regarding one or more qualitative issues is provided. The group initially selects N issues from the universe of potential issues and often assigns the issues images and titles. The system presents each user with graphical user interface screens wherein individual users vote on the relative importance and degree of relationship between the N aspects (Data Points) and issues, often using drag and drop methods. The computer program computes NxN similarity matrices based on users voting input and clusters various aspects into groups of greater and lesser similarity and importance, and presents results of users qualitative ranking in easy to read relationship tree diagrams where the relative importance and qualitative relationship of the issues may be designated by size and other graphical markers (such as colour, symbols indicating relationships between concepts and so on, The software may reside on a network server and present display screens to web browsers running on participants' computerized devices.

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METHOD OF VISUALIZING THE COLLECTIVE OPINION OF A GROUP

FIELD OF THE INVENTION

The invention is in the general field of computerized decision-making tools, in particular tools for qualitative analysis of issues such as corporate, product, service or cause branding, marketing, business strategy and communications messaging.

BACKGROUND OF THE INVENTION

In some areas of group decision making, particularly areas relating to taste or subjective opinions or qualitative assessment, often the collective opinions of a large group of individuals are viewed as the most optimal or "best" solution.

In the business world, this sort of statistical averaging approach is somewhat related to problems encountered in certain types of group decision-making, here exemplified by brand management. Branding, (e.g. a corporate, product, service or cause branding) essentially is a way for a business to identify a product, range of products, or organization that, on the one hand, helps identify unique aspects of the product(s) or organization that will be useful to consumers, help make the product or organization attractive to consumers, and also helps distinguish the product or organization from competitors.

As a result, the disciplines of branding, brand analysis, brand strategy, marketing and business strategy have emerged that attempt to capture these considerations, and distil them into a unique message, statement, idea, set of ideas or attributes like a positioning statement, personality traits, brand promise, values, vision statement, purpose or mission statement that best represents the offer or organization in question. Here, the perspectives from a large number of different individuals who are familiar with the issues, subject, work, offer, solution, values, characteristics, traits, attributes, features, benefits, disadvantages, weaknesses, messages, statements, positions, personalities, promises, values, visions, purposes or missions (collectively referred to as "issues") can be very valuable, because each individual will bring to the analysis their own way of looking at things, and a larger diversity of opinions will, in general, be more likely to capture the many different opinion and views that the outside world of individuals may have or will have about the issues or offer.

Unfortunately, prior art methods of group decision making, brand analysis and brand strategy tended to not effectively harness the diversity of opinions and insight that larger groups can bring to a particular problem. Group meetings, for example, quickly tend to become dominated by a few individuals, with the rest of the group often eventually deferring to a formal or informal leader, thus harnessing only a fraction of the group brainpower. Prior art computerized group decision methods, exemplified by US patents 7,177,851; 7,308,418 and US patent applications 10/848,989; 10/874,806; 11/181,644; 11/672,930; 11/672,930 and others tended to be cumbersome and difficult for non-expert users to use, and as a result failed to fully capture group insights into brand marketing and other types of group decision making.

SUMMARY OF THE INVENTION

In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

DESCRIPTION OF THE DRAWINGS

The present invention will become more fully understood from the detailed description given herein and from the accompanying drawings, which are given by way of illustration only and do not limit the intended scope of the invention.

Figure 1A shows an example of a qualitative problem that requires a group consensus. Here the problem is one of capturing the knowledge of an informed group, and translating this knowledge into an appropriate marketing brand.

Figure 1B shows an optional initial step in the process, which is giving the participants an array of images that may potentially relate to various issues, concerns, or features relating to the qualitative problem at hand, and requesting that the audience agree on a limited number (such as 10) of most important issues, and assign a suggestive image and title to these most important issues.

Figure 1C shows a flowchart for the collaborative clustering system and method.

Figure 1D shows a flowchart illustrating another aspect of the collaborative clustering system and method.

Figure 2A shows a mockup of the software user interface for prioritization

Figure 2B shows screen shots from two different users who are each voting on the relative importance of the top ten issues. User one (top) is partway through the process, but has still not assigned two issues (gives base plan, unlock treasure) as to importance. User two (bottom) has finished the process. Although there is some agreement between the assignments as to importance, the two votes are not identical.

Figure 3A shows a mockup user interface for the voting process where users rank the top 10 issues or concerns or features as to similarity.

Figure 3B shows screen shots from two different users who are each voting on the relative similarity between the top ten issues. Here the first issue or Data Point is being voted on. Note that this first issue or Data Point "Captures vision" was previously assigned by both voters as being extremely important. User one (top) is partway through the process, but has still not assigned four issues (gives base plan, unlock treasure, provide guidance, med& biochem) as to similarity. User two (bottom) has finished the process. Again, although there is some agreement between the assignments as to similarity, the two votes are not identical.

Figure 3C shows screen shots from two different users who are each voting on the relative similarity between the top ten issues or Data Points. Here the 9^{th} issue is being voted on. This 9^{th} issue or Data Point was previously rated as very unimportant by user one, and thus had an overall lower average importance rating. User one (top) is partway through the process, but has still not assigned four issues (gives base plan, unlock treasure, provide guidance, med& biochem) as to similarity. User two (bottom) has finished the process. Again, although there is some agreement between the assignments as to similarity, the two votes are not identical.

Figure 4 shows a mockup user interface for summary of individual user's voting results.

Figure 5 shows a sample user matrix (default).

Figure 6 shows a sample similarity matrix for User A and User B.

Figure 7 shows the actual similarity matrix produced by the users who were previously voting in figures 2B, 3B, and 3C.

Figure 8 shows a sample user similarity matrix of nine users.

Figure 9 shows a similarity matrix transformed to positive scale.

Figure 10 shows a single linkage hierarchical clustering – first iteration.

Figure 11 shows a sample display of a treemap.

Figure 12A shows the actual treemap produced by the users who were previously voting in Figures 2B, 3B, and 3C, and who produced the actual similarity matrix shown in Figure 6.

Figure 12B shows an alternate type of treemap for a different analysis. Here the relative importance of the various ratings is indicated by a numeric score in the lower righthand side of the various images.

Figure 13 shows a sample display of a clustering recommendation.

Figure 14 shows the actual clustering recommendation diagram produced by the users who were previously voting in Figures 2B, 3B, and 3C, and who produced the actual similarity matrix shown in Figure 6, as well as the actual treemap shown in Figure 12A.

Figure 15 shows how the entire process may be used to facilitate complex group qualitative decisions, such as product branding, and produce high quality results within a single day.

Figure 16 shows a summary of grouping results for all Data Points and voter modes.

Figure 17 shows a sample report of user grouping results Figure 18 shows a sample user matrix for user A.

Figure 19 shows a sample overall similarity matrix.

Figure 20 shows a sample difference matrix.

Figure 21 shows a sample report of level of agreement.

Figure 22 shows a sample display of clustering results for an individual user.

Figure 23 shows a sample admin interface for setting up pre-defined groups.

Figure 24 shows a sample display of clustering results for a pre-defined age group.

DETAILED DESCRIPTION OF THE INVENTION

A system and method is provided for distillation and/or prioritization of concepts.

"Concepts", as used in this disclosure is means ideas or statements around which there is a need to build consensus in a group. These many include qualitative statements to be used to define key objectives, mission statements, branding elements or attributes, product ideas or business objectives. "Concepts" or "qualitative statements" may be contrasted from objective statements. Building consensus is easy or not required, as objective statements usually may be distilled on an objective basis.

The advantages of distillation of concepts include providing economy in messaging or prioritization of concepts, especially related objectives, and obtaining buy-in from a group for example in relation to a reduced number of objectives. This disclosure refers to reduction or reducing the number of concepts or issues under consideration and thereby achieves distillation. It should be understood that distillation as used in this disclosure is not based solely on for example decreasing the number of concepts or issues. Distillation also may involve simplification of concepts highlighting relationships between concepts and/or making the concepts or the understanding of the concepts more manageable to provide better understanding of the concepts as a whole.

It should be understood that the term buy-in in this disclosure should also be understood to extend to alignment, consensus, consensus, and/or commitments. Buy-in supports inclusions, and promotes adoption of the concepts or objectives, and therefore may promote the organization in a number of ways. For example distillation of branding elements or attributes is likely to deliver greater participation in "living the brand". A mission statement arrived at through group distillation of concepts meets greater approval as each participant recognizes their consultation and participation in the end product.

While arriving at consensus through distillation can provide significant advantages, the process leading to distillation can be cumbersome, time consuming and if not managed properly may result in decision making pathologies such as disengagement by participants, false consensus, Group Think, failure to elicit participants views and insights as a result of organization power imbalances, over weighting of views by extroverted participants over introverted participants, polarization of views or deadlock, failure to reach real consensus, and time delay in reaching consensus, and these outcomes may be more harmful than the potential benefits of consensus.

The present invention consists of a method and computer implemented platform for enabling guiding a group of individuals to distillation of a plurality of concepts into a lesser number of concepts. The method and platform of the present invention represents an innovative approach to facilitation of consensus building around concepts, in which an insightful balance is struck between inclusion of participants' views and efficiency. The platform represents a computer system implementation of this balance, and constitutes a novel and innovative consensus guidance platform.

In one aspect of the invention a brainstorming or decision making method and platform is provided.

In another aspect of the invention, a method and computer system implemented platform is provided for synthesizing two or more concepts into a higher order concept that distils the two or more concepts by clustering the two or more concepts, or a subset of the two or more concepts, into a group of related concepts. In a further aspect of the invention, the platform of the invention uses semantic analysis to suggest automatically a label for a clustered concept that incorporates the two or more concepts, or the subset of the two or more concepts.

In one aspect of the invention, the platform of the invention is configured to enable the group to visualize the decision-making process involved in distillation. The visualization method embodied in the platform is designed to be intuitive and transparent, and therefore is easily understood by participants, which in turn promotes the objective of buy-in. The visualization method and related tools described, in and of themselves are novel and innovative.

The present invention is a simplified method of determining group collective viewpoint on various qualitative problems, which utilizes a computer system that is operable to present a graphical user interface that guides users in a workflow for establishing the group collective viewpoint. The workflow includes capturing input from a plurality of individuals, and this input data is then prioritized and clustered to generate output consisting of a distillation of the input data, or distillation data. The computer system is operable to display the distillation data.

In one aspect of the invention, a computer system and computer implemented method is provided to enable group decision making that is transparent, effective, and fast.

In one embodiment, the invention may be a computer implemented method for establishing a group viewpoint on qualitative issues, such as brand marketing issues. In one aspect of this computer implemented method, N highest importance aspects of the issue are selected by the group and often assigned images and titles. The computer system is configured to present each user with one or more graphical user interface screens wherein the individual users may indicate their vote regarding the relative importance and degree of relationship between the N aspects (Data Points), and the computer system logs the votes. The computer system is further operable to determine N x N similarity matrices and cluster the various aspects into groups of greater and lesser similarity and importance, and present the results to the users. The presentation of such results may include tree diagrams (or other relationship diagrams such as nodal maps) where the relative importance of the issues may be designated by size and other markers such as graphic markers or numeric ratings.

The computer software and algorithms of this invention are typically designed to run under the control of one or more microprocessors and computer memory, accept input by one or more standard graphical user interfaces, and also provide output by one or more graphical user interfaces. In order to facilitate group interaction, often the software will be intended to run on an Internet Web server connected via the internet or the web, connected to a plurality of user interface devices, such as Apple iPads, laptop computers and the like, often running in web browsers on these devices. Ideally, each participant in the process will have access to their own user interface device, although of course users may share user interface devices as needed.

It should be understood that in this disclosure there are various references to the web. However, the present invention may be implemented more broadly in relation to the Internet, and therefore, the references to the web as applicable may be understood to referring to the Internet.

Often, to facilitate group collaboration and decision making, the output from the software will be projected onto large screens intended for group viewing, using standard video projectors and the like. Alternatively, of course, the output may itself be transmitted over a network, such as the Internet, and be viewed on, for example, web browsers running on various individual user computerized devices. This later configuration will be useful when, for example, group collaboration between group members separated by a significant distance is desired.

In one aspect of the invention, a computer implemented method is provided for generating insight on individual or group perceived differences between various concepts or issues. In order to provide a simple and convenient identifier for these various concepts or issues, according to the invention the various concepts or issues may be identified by various visual and/or verbal tags or Data Points. In one particular implementation of the invention, a simple graphical user interface may be provided that presents the visual and/or verbal Data Points in the form of an image that symbolizes or evokes the Data Points, optionally associated with a short descriptive text name attached.

Figure 1A shows an example of a complex qualitative problem that requires group input, along with an example of one embodiment of a decision making workflow enabled by the method of the invention. Figure 1A illustrates this aspect of the invention with the example of capturing the knowledge of an informed group, and translating this knowledge into an appropriate marketing brand.

In this example of the present invention, the method consists of (i) identifying a problem or issue(s) (referred to in this disclosure as the "problem") in connection with a group viewpoint is desired, (ii) prompting the group participants (100) through verbal (102) and/or visual (104) stimuli to start identifying the various qualitative issues that are likely to be most relevant to the problem. In some embodiments, human facilitators (106) who are familiar with this basic process may be used to help guide the process, while in other embodiments, software "wizards", expert systems, or help software may do the same thing. Here the participants are being asked to identify key qualitative issues relevant to branding, such as the brand personality (108) (here the personality of a brand of trendy clothes for teenage girls will clearly be quite different from the personality of a brand intended for the elderly), the needs of the audience of consumers of the product or services being potentially offered by the (to be) brand (110), which relates to the brand positioning, and also other relevant marketing issues such as the company or product values, vision, culture or history of the various products, services, or company behind the brand (112). From this analysis, by operation of the system of the invention, group consensus is determined (114), in this example by identifying the top issues (here the top ten issues, facets or Data Points), based on weighting of their relative importance is weighted, and clustering the concepts. The establishment of the group consensus in this case may provide further output, for example, in this example a brand strategy (116).

In order to harness the power of groups of individuals to focus on concepts or issues, often the various individuals will vote on the relative relationships and importance of these concepts or issues, and the system of the present invention is operable to segment the results according to voter preference, as further explained below. The system of the invention may provide additional insight into the problem at hand by segmenting the various voters by results.

In one aspect of the invention, a simple graphical user interface is presented by the computer system of the present invention, which enables transparent decision making, in both an individual focus and a group focus. One aspect of the invention, the system of the invention includes both (i) an individual focus, in enabling each participant to provide input on the problem by means of individual voting, and (ii) a group focus, by aggregating or clustering the results of the individual voting, and reporting these results for consideration by the group. This assists in avoiding or reducing the decision making pathologies referred to above.

In one aspect of the invention, the participants are prompted by the system to link the key concepts, issues or Data Points to suggestive images or icons. Although not obligatory to the invention, this linkage to relevant visual images helps engage the visual centers of the participants' brains, and helps prevent confusion and reinforce attention on the problem at hand. The use of images facilitates a deeper level of collective understanding after words and phrases have been chosen by engaging the visual parts of each individual participant's brain. For example, if the word is "pure" a picture of a distilled glass of water is very different than the picture of an innocent child and the interface allows a collective precise meaning for each word to be defined. For example, in one aspect the group chooses, by operation of the system, a set of top text ideas and then assigns images to each idea, or the group chooses images and then assigns text labels or text ideas to each image. It is noted that in certain circumstances, a combination of text and images will be used and then images and text labels will be assigned, respectively.

Figure 1B shows an optional initial step in the computer implemented method of the invention, which includes (i) accessing a library of images that may be associated with the issues process, which is giving the participants an array of images that may potentially relate to various issues, concerns, or features relating to the qualitative problem at hand, and requesting that the audience agree on a limited number (such as ten) of most important issues, and assign a suggestive image and title to these most important issues.

The distillation method of the present invention may also be referred to as a "collaborative clustering process". A representative workflow for enabling the collaborative clustering of views regarding a problem by a plurality of individuals is illustrated in Figure 1C. Figure 1C also illustrates a possible implementation of the system of the present invention.

The computer system of the present invention may be implemented as client/server computer architecture, in which one or more client devices are operable to link to a web server (30). The client devices may consist of two classes of client devices. First, the participants are associated with a participant device (32). Generally speaking, each participant is provided a participant device (32). For convenience, each participant device (32) may be a tablet computer such as an iPad™. It should be understood that the participant device (32) may also be a smartphone. Each participant device (32) is configured to access programming implementing the participant aspects of the distillation process enabled by the system of the present invention. The participant devices (32) are linked to one or more facilitator devices (34) associated with a facilitator who may be involved in facilitating the distillation process. As mentioned in this disclosure the facilitator device (34) may provide a computer implemented, automated facilitating agent. The participant devices (32) may be linked with at least one facilitator device (34) to initiate the participant devices (32) to prompt participant input in accordance with the distillation process of the present invention. Alternatively, the participant devices (32) may connect to the web server (30) to access one or more functions of the web server (30) by means of a suitable web application. In this particular embodiment, the participant devices (32) include for example a web browser for accessing to the web server (30) implemented functions. Alternatively, the facilitator devices (34) may include a computer program (such as a tablet application) implementing said functions.

The method and system of the present invention may be implemented as an online solution, rather than based on an in person group consultation, whether involving a facilitator or not. The web application may present a chat utility and/or a videoconference that enables participants and/or a participant to engage in sessions, as described, resulting in a distillation of concepts. It also should be understood that the participant devices (32) may include a mobile device such as a smart phone implementing a mobile browser or mobile client that enable the mobile device to function as a participant device (32) as described.

It should be understood that the facilitator devices (34) may be for example an electronic whiteboard used in a seminar setting in connection with the use of users of participant device (32) in connection with a distillation exercise.

For example, the Project Console and Voting Booth components shown in Figure 1C may be implemented as web applications built on a RubyOnRails framework, running for example on a a RackSpace Cloudserver on CentOS, Apache, and MySQL. The Clustering component may be a single-linkage clustering module built in the Ruby programming environment. Other software systems and methods may also be used as desired. 1

In one embodiment, the system of the present invention may use a modular data collection, pre-processing, core processing, post processing, and output approach to quickly and economically support the distillation process. The web application of the present invention may embody one or more hierarchical clustering algorithms to identify relationships between data elements (i.e. the concepts or issues, again usually identified with an image and short text description to facilitate user interaction). The system of the present invention will typically use binary comparisons to generate objective data from subjective input data, and use images to assist in the (human) semantic conversion of data elements. The computer system of the invention will usually also use individual prioritization of data elements to assist with group prioritization, as well as one or more types of graphical output display to help users visualize relationships. In order to avoid undue influence by a few real or self-appointed group leaders, the system will often use anonymous participation to remove group influenced biases during voting process.

This type of approach has a number of distinct advantages. The anonymous participation feature can help prevent or at least reduce the level of individual and group input bias, as well as help prevent prioritization bias.

It should be understood that the system is scalable to large numbers of participants; helps significantly speed up the execution of the decision process, and helps maximizes the objectivity of the prioritization. The system may include a logger to keeps track of and log each step of process, allowing users to review at anytime, and also allows the results from different sessions to be analyzed between sessions. For example the participant devices (32) may be operable to log relevant actions to the participant device(s) (34) and/or the web server (30).

In one aspect thereof, the method of the present invention consists of: (1) creating or retrieving a project, (2) importing related concepts/images, (3) optionally editing a label associated with each concept image and adding a description for each concept/image, (4) defining one or more parameters associated with one or more participants in the project, (5) enabling a voting scheme associated with the concept/images so as to enable the participants to rank or rate the concepts/images relative to other concepts/images, based for example on whether the concepts/images are "extremely important", "important" or "less important" relative to other concepts/images, and (6) comparing the group result for each concept/image for the other concepts/images.

It should be understood that other voting schemes may be used, for example, each participant may be requested to select their top concept/image only or their top three concepts / images only.

In one particular implementation of the invention, the system may be implemented using a series of utilities or modules. While the description below illustrates the invention using particular modules, having particular functions, it should be understood that a single module described may be implemented as several functional blocks, or alternatively several modules described may be implemented as a single functional block. Many implementations of the invention are possible. Software modules used to implement the system of the present invention may include I) an initial setup module, II) a voting booth module, III) a module to summarize the individual voting results into a similarity matrix, IV) a clustering analysis module, V) a recommendation display module, and VI) a voting patterns analysis module. This voting patterns analysis module can, in turn analyze the various votes according to a) voting patterns analysis, b) comparison between individual user voting results matrix with the overall similarity matrix, and c) also analyze voting results on pre-defined groups. The function of these various software modules are described below.

Part I. Initial Setup Module

In one embodiment, the web application allows a user designated as an Administrator to log in, and presents the Administrator with a list of previously executed projects. When the Administrator drills down on each project, a history of results from previous runs will be listed, each drilling into the results of each run. Typically each individual Administrator will have their own logins, but different Administrators in the same organization or division will often be able to share access to the projects list as authorized.

From the projects list, the Administrator can then select and launch a new project by entering and uploading relevant information for the project. Alternatively, the Administrator may choose a previously run project to launch an additional run. The Administrator may additionally be able to set a timer for the length of time the project is allowed to run for.

In order to simplify the user interface for the system, often it will be useful, as a preliminary exercise, to first have the group identify analyze the problem and select a relatively small number of concepts or issues, such as the top ten concepts or issues, to focus on. In some implementations, this initial analysis and identification may be done by the same group of people who later identify the top ten issues or concepts, and in other implementations this may be done by a different group of people. As previously discussed, to improve ease of visualization, often these top ten concepts or issues will be represented by images that symbolize that specific concept or issue, as well as a short text phrase or label that also identifies the concept or issue. This approach simplifies the user interface, and makes it easier for larger groups to maintain a group focus on the problem. Again, these labeled images will be termed "Data Points".

In some embodiments, it may be useful to first identify the top issues, such as the top ten issues, by a preliminary process that initially may be based on a much larger issue list. This preliminary and optional method of reducing the issues may be performed by another computer implemented method, either as a stand-alone program, or as a program module integrated into the computer programs that implement the other aspects of the invention described. For example, each user may be provided with a larger list of potential top issues on a computer screen, for example a scrolling list, which may be implemented using a touch sensitive screen of the participant computer device (34) for ease of use. The participant may be invited to pick his or her top eight or ten issues from this larger list. This computer generated list can also allow the user to get further information as to a more precise definition of that particular potential top issue. The participant may then optionally be presented with the popularity ranking data from the overall team as well. It should be understood that in addition to ranking various other ranking mechanisms may be used. Then, after each participant has made this initial selection, the system administrator or facilitator may be presented with a summary screen that rank orders the various issues in terms of frequency of selection. The numeric ranking of the frequency of selection may also be presented. The facilitator may then view the summary scores, demote issues with fewer votes, and/or edit the various issue names and definitions as appropriate. The facilitator may also add issues and definitions to this summary list as appropriate. This process can then continue in an iterative manner with the participants getting the facilitator adjusted issue list, selecting and voting again as appropriate, until a final list of issues that will ideally have multiple votes for each issue is presented to the participants.

In this discussion, it is assumed that, by one process or another, a group consensus has been obtained as to what the most significant issues are or may be so as to narrow down the number of choices to a reasonable number, which may in one embodiment be around ten.

Continuing, in one embodiment, the software will prompt the Administrator to enter or transfer the names of about ten top Data Points (here assumed to be previously derived) for the project. Here a simplified software user interface, such as a graphical user interface, may allow the Administrator to manipulate the symbolic images and text of the roughly ten most critical issues or points by intuitive methods, such as by dragging-and-dropping images from an online image gallery (e.g. Figure 1B) to the associated Data Points. Often these symbolic images and text may be designated by Universal Resource Locators (URLs), and the computer program may store the public URLs of the dropped-in images for a subsequent voting display. Additionally, to facilitate group interactions, the software may optionally also prompt to the Administrator to send email or social media invitations to various pre-determined voters (i.e. voters, group members, users or participants).

Part II. Voting Booth Module

The voting module may begin in a starting state that presents all of the top selected Data Points. Typically each user (a participant, voter) will then rate each Data Point based on their assessment of the Data Point's level of importance in relative to the other Data Points. However, to prevent users from voting all Data Points as "important", the voting module computer program may enforce preset constraints as to what percentage of the Data Points may be rated into one or more importance categories. This process is shown in Figure 2A, which shows an abstracted version of a user prioritization user interface. Here the various boxes marked with an "X" (200) indicate the various images and text that are used to symbolize the various concepts or issues that are being analyzed by the group. In some embodiments, the software may additionally allow the Administrator to enter various objectives such as "core brand essence" or "concept" to help ensure that all users are using the same importance ranking scheme.

Real examples for a simplified two voter analysis are shown in Figure 2B. Figure 2B shows screen shots from two different users who are each voting on the relative importance of the top ten issues. User one (top) is part way through the process, but has still not assigned two issues (gives base plan, unlock treasure) (202) (204) as to importance. User two (bottom) has finished the process. Although there is some agreement between the assignments as to importance, the two votes are not identical.

After the relative importance of the various concepts or issues are determined and ranked or rated by the group, the next step may be to determine which of the various concepts or issues are really unique, and which are really just alternate ways of stating or looking at the same concept or issue. To do this, the users will then vote to rank the various images and text according to degrees of similarity, such as very similar, similar, different, very different, and so on. Each user will make this determination on their own user interface, and the system will again accumulate group statistics. This voting process is shown in Figure 3A, in one embodiment. Figure 3A shows a mockup user interface for the voting process where users rank the roughly top ten issues or concerns or features as to similarity.

Figure 3A shows an abstraction of a graphical user interface that the system may present to facilitate the voting process. In order to improve usability, the interface may allow users to skip to the next Data Point or go back to change their rating at anytime during the process. Group decision making processes can often be bogged down by users that take too much time to think, and to prevent this, the system may additionally show the time remaining and remind the individual user when it is close to the end. Often various other time management schemes, such as showing the three most important Data Points first, will be used to make sure that users have enough time to rate at least the most important Data Points.

Real examples for a simplified two voter analysis are shown in Figures 3B and 3C. Figure 3B shows screen shots from two different users who are each voting on the relative similarity between the top ten issues. Here the first issue or Data Point (300) is being voted on. Note that this first issue or Data Point "Captures vision" was previously assigned by both voters as being extremely important. User one (top) is part way through the process, but has still not assigned four issues (gives base plan, unlock treasure, provide guidance, med& biochem.) (302) based on similarity. User two (bottom) has finished the process. Again, although there is some agreement between the assignments as to similarity, the two votes are not identical.

Figure 3C shows screen shots from two different users who are each voting on the relative similarity between the top ten issues or Data Points. Here the 9issue (304) is being voted on. This 9issue or Data Point was previously rated as very unimportant by user one, and thus had an overall lower average importance rating. User one (top) is part way through the process, but has still not assigned two issues (unlock treasure, provide guidance) (306) as to similarity. User two (bottom) has finished the process. Again, although there is some agreement between the assignments as to similarity, the two votes are not identical.

When the voting process is completed, the system will then generate a graphical user interface that summarizes the individual user's vote, and this is shown in Figure 4.

Figure 4 shows an abstract view of the user interface that summarizes that individual user's particular voting results. Again the boxes with "X" inside represent the images and descriptive text used to symbolize the concepts or issues being analyzed. In order to insure accurate results, usually the system will allow the users to examine this display, and allow the user to make final changes by suitable dragging and dropping operations. In some embodiments, to help ensure good user input data, the computer system may warn the user if, for example, over 70% of the Data Points are rated 'similar'.

The data from one or more users but usually two or more, are then analyzed by the various matrix methods described below. In general, more users are better, and there is no upper limit on the maximum number of users that may be analyzed using these methods.

In some embodiments, the computer program is operable to create a user matrix based upon a rating scale range, such as -2 (most dissimilar items or concepts) to 2 (most similar items or concepts). Often this particular scale will be fixed regardless of the number of Data Points and/or users being analyzed.

The computer program will typically create an NxN matrix for each user, where N is the number of Data Points selected. Thus, for example, if ten concepts or items are being analyzed by the group, and these items or concepts are represented by ten images and associated text, the NxN matrix will be a 10 x 10 matrix, where each row or column will represent a different concept or item, again referred to here as a "Data Point". The rating results of each user will be stored in their own matrix. This is shown in Figure 5.

By default, all cell values in this matrix may initially be set to zero (which means the Data Point pair is neither similar or dissimilar), with the exception of the diagonal cells, since obviously any one given concept or item "Data Point" will be maximally similar to itself, and here maximal similarity is given a value of "2".

Note that although this user matrix will be used to store rating results from a particular user, in order to preserve a simple user interface, this matrix will not usually be displayed to the user. Rather, the users will normally use a different type of interface to compare the Data Points, which will be discussed shortly in the part 2 voting booth module discussion.

The 10 x 10 matrix in Figure 5 shows how the matrix should look like in the beginning of the rating process. In this example the matrix is created for clustering analysis of 10 Data Points.

Once the user starts rating each Data Point pair, the corresponding cell values in the user matrix will be updated at the same time. As previously discussed, the values associated with each rating may be assigned as follows in Table 1 below.

Table 1 Similarity ratings

Data Point Pair Rating	Cell Value
Very Similar	2
Similar	1
Dissimilar	-1
Very Dissimilar	-2

In order to force decision making, in some embodiments, a user may not be allowed to vote neutral, however, a user can choose not to rate a particular Data Point pair.

For example, if the user rated Data Point 1 and Data Point 2 as similar, the value in the corresponding cells will change from zero to one.

To check the data, the system will recognize that the valid cell values will be -2, -1, 0, 1, and 2 only, if a user did not finish the rating process in the given time period. When this happens, the cells corresponding to those Data Point pairs will remain zero by default.

Note that the user matrix is a symmetric matrix so the cell values are symmetric with respect to the main diagonal (top left to bottom right).

Part III. Summarize individual voting results into a similarity matrix

Once all of the user matrices are filled, the computer program will then usually summarize the values into a similarity matrix by a simple summation operation where the value in any summation matrix cell i, j, is simply the sum of the individual user matrix cell i, j values. For example, in a circumstance where the voting results for two users (User A and User B) are being analyzed by the system, then the user matrixes of the two can be added or summed together, as is shown in Figure 6. Note that although for many applications, it is preferable to work with the voting results from multiple users; a single user can also use the system as desired.

Thus in a similarity matrix, the value in each cell is equal to the sum of the corresponding cells in the various user matrices. The diagonal cells will have a value that is equal to the total number of users multiplied by two. If, in the above example, User A gave a rating of one (i.e. similar) for Data Point A and Data Point B, while User B gave a rating of two (i.e. very similar) for Data Point A and Data Point B, then the corresponding cell in the similarity matrix will be: 2+1 = 3. This is shown as the circled cells in Figure 6.

Thus the minimum and maximum values allowed in a similarity matrix should be: minimum is: -2 * number of users, and maximum is: 2 * number of users.

Any values outside of this minimum and maximum range would thus be considered as invalid values. This overall similarity matrix may then be used by the software to perform a clustering analysis, as described below.

Figure 7 shows part of the actual similarity matrix produced by the users who were previously voting in Figures 2B, 3B, and 3C.

Figure 8 shows a sample user similarity matrix of nine users.

Part IV. Clustering Analysis Module

In prior art clustering analysis, the data set is often constructed in a way that the observations (rows) are different than the variables (columns). The variables were then used to describe the observation, instead of showing the relationship between observations. Then the data set would usually then be converted to a distance matrix which would display the distance or closeness between the observations.

According to the invention, however, since we begin with building a similarity matrix, which in a way is already the 'distance' between Data Points, therefore we can skip the conversion step and instead use the similarity matrix itself as the distance matrix for the clustering process.

This process of hierarchical clustering can be defined by the following steps:

1. Assign each Data Point to a cluster, each cluster containing just one Data Point (thus a matrix with N Data Points should have N clusters to begin with). Let the distances (similarities) between the clusters be the same as the distances (similarities) between the Data Points they contain.

2. Find the closest (most similar) pair of clusters and merge them into a single cluster.

3. Compute the distances (similarities) between the new cluster and each of the old clusters. This can be done using single-linkage, average linkage and complete-linkage

4. Repeat steps 2 and 3 until all items are clustered into a single cluster of N Data Points.

Example:

Suppose we have summarized the user ratings into the similarity matrix as shown in Figure 8.

For the ease of calculation, we will transform the values in this similarity matrix to show the similarity in a positive scale. The formula for transformation is:

$-1*(X_{ij} - \text{maximum cell value})$, where X_{ij} is value of row i and column j, $i \in (1,N)$ and $j \in (1,N)$, N is the total number of Data Points

In our example, the maximum cell value is Total # of Users *2 => 9*2 = 18. This transformed matrix is shown in Figure 9, which shows the similarity matrix transformed to a positive scale.

In the transformed similarity matrix, the smaller values represent more similar Data Points, while the larger values represent more dissimilar Data Points. The closest (i.e. most similar) pair of Data Points in this example are Data Point 1 and Data Point 10, with a rating of '1'. They are merged into a new cluster called "Data Point 1/10". The level of the new cluster is thus L (Data Point 1, Data Point 10) = 1 and the new sequence number is m = 1.

Then the similarity is determined from this new compound Data Point to all other Data Points. In single-linkage clustering, the rule is that the similarity from the compound Data Points to another Data Point is equal to the most similar rating from any member of the cluster to the outside Data Point. So the similarity rating from "Data Point 1/10" to "Data Point 2" is 8, which is the similarity rating between Data Point 10 and Data Point 2, and so on.

After merging Data Point 1 with Data Point 10 we obtain the matrix shown in Figure 10, which shows the Single linkage hierarchical clustering – first iteration.

The process then continues to find the next most similar pair. Here we have Min d(i,j) = d(Data Point 1/10, Data Point 8) = 1, therefore we will merge Data Point 1/10 and Data Point 8 into a new cluster.

The system, embodying one or more algorithms, is operable to continue to find the next most similar pair of Data Points. Thus we have Min d(i,j) = d(Data Point 1/10/8, Data Point 6) = 2, therefore we will merge "Data Point 1/10/8" and "Data Point 6" into a new cluster.

Next, Min d(i,j) = d(Data Point 4, Data Point 9) = 2, therefore we will merge Data Point 4 and Data Point 9 into a new cluster.

Next, Min d(i,j) = d(Data Point 4/9, Data Point 7)= 3, therefore we will merge Data Point 4/9 and Data Point 7 into a new cluster.

Next, Min d(i,j) = d(Data Point 2, Data Point 5) = 3, therefore we will merge Data Point 2 and Data Point 5 into a new cluster.

Next, Min d(i,j) = d(Data Point 4/9/7, Data Point 2/5) = 6, therefore we will merge Data Point 4/9/7 and Data Point 2/5 into a new cluster.

Next, Min d(i,j) = d(Data Point 2/5/4/9/7, Data Point 1/10/8/6) = 7, therefore we will merge Data Point 2/5/4/9/7 and Data Point 1/10/8/6 into a new cluster.

The system is operable to merge the last two clusters together and summarize the clustering results into a hierarchical tree (or treemap, Fig 11). This treemap is discussed in more detail in the part V recommendation module, discussed below.

Part V. Display of Recommendation Module:

In another aspect of the invention, the system includes a recommendation module or engine. The recommendation engine may be operable to suggest a lesser number of clusters or, and possible labels (or short lists of labels enabling users to select the most applicable label or labels from the short list) for clusters. The system may include a semantic engine that is operable to analyze in real time for example analyze participant input semantically, and based on the resulting analysis data enabling further analysis of participant feedback using one or more techniques.

The recommendation engine can suggest an optimal number of clusters or "pillars", and the label associated with such pillars. In another aspect of the invention a further user interface is presented to administrative users or facilitators of the platform of the invention, that presents the recommended clustering generated by the system of the invention, but also enables the administrative users or facilitator to change the degree of relevance applied by the system, for example by dragging that in so doing adjusts the degree of relevance parameter, which then results in automated recombination of the clusters. The definition of the clusters includes determination of clusters and child or branches components related to such clusters. Childless or branchless clusters may suggest an "outlier" concept, which may trigger further analysis of the outlier clusters.

The Administrator (and the users as well as desired) can view the clustering results in different graphical display formats such as treemap (also known as a dendrogram), mindmap, heatmap, nodal plot, and other graphical representations.

In some embodiments, it will be useful to select the treemap graphical output mode to be the first (default) output that is graphically shown to the Administrator and optionally the users. If the computer program is being used in an interactive group setting, then the Administrator can then discuss the clustering results with the various users, using the treemap output as a convenient graphical display. Based upon group input, the level of significance of the various tree settings can be assigned, and various threshold cut-offs can be refined based either upon group discussion, or on pre-assigned routines or algorithms as desired.

After discussion is over, the Administrator may enter the necessary threshold cutoff information to the system, or alternatively the system may do this automatically. The system may then display the recommendation with Data Points organized in pillars as indicated.

Figure 11 shows an abstracted example of the treemap output. In this embodiment, the horizontal axis may display all of the data points (i.e. issues, concerns) involved in the process. In order to improve the usability of the treemap user interface, the data points (issues, concerns) that were voted by the group to be more important than the other data points (issues or concerns) may be represented by bigger boxes (i.e. the image symbolizing that particular issue or concern will be made larger), and the system will also weight these higher voted data points (issues or concerns) higher as well.

Alternatively, other methods of priority visualization may also be implemented. For example, in alternative schemes, instead of designating priority by box size, other types of graphical methods may be used. For example, a priority score may be inserted in the corner of each image/text issue, or other graphical index such as number of stars (group favorites) may be employed. In some embodiments, the system may automatically judge when certain selections are clear winners, when all are rated about the same, or clearly show the least important issues.

Figure 12A shows the actual treemap produced by the users who were previously voting in Figures 2B, 3B, and 3C, and who produced the actual similarity matrix shown in Figure 6. As can be seen, the images that correspond to the issues, concepts or Data Points considered most important by the two users are shown as larger images than the less important issues, concepts, or Data Points.

In addition to image size, other graphical methods for visual identification, such as numeric ratings or use of a color scale may also be used to show the average level of similarity, as determined by group consensus. Thus, for example, Data Points that are more similar to each other may be displayed in darker color, and Data Points that are less similar to each other may be displayed in lighter colors.

Alternatively, concepts or data points considered most important can be simply be shown by a numeric indicator on the images that correspond to the issues, concepts, or Data Points. This alternate method (here for a different analysis) is shown in Figure 12B.

In Figures 11 and 12A, the vertical axis represents the distance between clusters. As was discussed in *Part 4 – Clustering Analysis Module*, distance is computed during the clustering process. The definition of distance between clusters various depends on the method of calculation used. For single-linkage method, distance between two clusters may be defined by the closest similarity rating between them.

Continuing with the invention's user interface, in the tree map, the height of a branch may represent the distance between two clusters. Thus in the example tree map, the "height" between Data Point 1 and Data Point 10 is 1 and the height of Data Point 4/9/7 and Data Point 2/5/3 is 7.

This user interface may be used by the Administrator, the various users, or in a conference setting, by a conference facilitator and participants to extract further meaning from the analysis. Here the "height" on this user interface is a very good predictor of how easy or hard it will be to name a cluster. This is because if all the ideas are really very similar, we are looking at almost the same idea. If the ideas are very different, then likely the idea will probably need more discussion in order to understand and interpret the result. An example of the user interface display is shown in Figure 13.

Figure 14 shows the actual clustering diagram produced by the users who were previously voting in Figures 2B, 3B, and 3C, and who produced the actual similarity matrix shown in Figure 6, as well as the actual treemap shown in Figure 12A.

Figure 15 shows how the entire process may be used to facilitate complex group qualitative decisions, such as product branding, to produce high quality results within a single day. Here either human facilitators, or alternatively automated wizard software can help move the process along by imposing time deadlines and providing supplemental help and assistance as needed. In some embodiments, such as when groups are assembled into a single room, it may be advantageous to use multiple high resolution image projectors or video screens or large format interactive display boards to keep a display of past steps in the process up on screen while work commences. The ongoing display assists facilitator to maintain group focus and motivation.

Part VI. Voting Patterns Analysis Module

In some embodiments, the system will also perform clustering on the user rating pattern and display grouping results to the Administrator and/or other users. This option allows different users to be assigned to different groups based on similarity of their rating patterns. For example, voting trends may show that men system users (voters) tend to have significant differences from women system users, or younger voters may have significant differences from older voters. In a branding context, for example, this information can be highly useful, particularly if the brand is being focused at certain specific consumer subgroups.

It should be understood that the web application may include or be linked to an analytics engine. A logger may extract from multiple sessions voting information. The analytics engine may be used to determine voting patterns and other analysis data that may be used for a range of activities, for example optimization of session templates, automated suggestions for next steps recommended to facilitators based on input received from participants, and so on.

In some embodiments, the system will allow the Administrator to see the names of the users in each group, as well as the clustering results based on the specific user group. In other embodiments, specific names may be withheld to encourage candid voting and preserve user privacy.

This type of analysis may begin by extracting information from the various user matrices. Here each row in a user matrix represents the rating results of a Data Point versus the other Data Points. For each Data Point, the program may extract rating results (rows) from each user, and combine them into a single matrix. The column for Data Point X vs. Data Point X may be removed since the value is set to 2 by default (comparing to itself)

The system may then perform average linkage hierarchical clustering. After the analysis is completed, the system may then display an alternative tree map with users being categorized into different clusters.

The number of clusters generated by the system depends on a preset value or run time set value that may be varied according to the judgment of the system Administrator as to where best to "cut the tree".

In alternative embodiments, the system software may be set to automatically force the output to display only a preset maximum number of tree clusters/pillars. For example, the system may automatically force cluster output into a maximum of two, three or four different clusters. This cluster upper limit option allows the Administrator or team to visualize the data as a smaller number of easier to understand branches. This automatic cluster upper limit option is particularly useful when working with larger numbers of concepts and ideas (e.g. 40 ideas) which otherwise (without automatic cluster forcing) could lead to an overly large number of branches, which in turn would make it more difficult for users to use to understand and extract meaning.

In the case where the system does not automatically impose a preset upper limit on the number of the clusters, if we set the system to cut off the tree at half of the longest distance between any clusters, we will get four clusters in results. We may name each cluster from left to right (group 1, group 2, group 3, etc.). For example, we have the following grouping results after the clustering analysis for Data Point X:

Group1: User A, User B, User C, User D, User H

Group2: User E

Group3: User G, User F

Group4: User I

This process may be repeated for the rest of the Data Points, and the system will keep track of the user groupings. After all the Data Points are analyzed, the system can then calculate the group a user most frequently belongs to (i.e. the mode). An example of such a table showing user grouping results for all Data Points and voter modes is shown in Figure 16.

Here, the overall grouping results may be summarized as below:

Group 1: User A, User C, User D

Group 2: User B, User E, User H

Group 3: User F, User G, User I

The system may then run cluster analysis on Group 1, 2, and 3 separately and display a comparison report on their clustering results.

For this analysis, the clustering process is similar that mentioned earlier, except that instead of combining the individual matrix of 9 users, the system may instead combine the individual matrix of users in Group 1 only (then do the same for group 2 and 3).

The overall clustering results may then be displayed. If the computer program is being run in a group setting, the facilitator can then, for example, compare the difference between each user group and the overall results, as well as the difference between each user group. A sample report of such user grouping results is shown in Figure 17. Note that in Figure 17, the clustering results are only for display purposes, and are not actual data.

Voting Patterns Analysis Module Part B: -compare individual user matrix with overall similarity matrix.

More insight may also be obtained by comparing how individual user choices compare with the group averages. This can be done by first calculating the percentage of similarity between the similarity matrix belonging to the user of interest, versus the overall group similarity matrix. The users can then be grouped by percentage of similarity, and a level of confidence rating generated. For example, this level of confidence can determine how different a user result is from the majority, as well as determining if we have a group divided into factions, or even if a particular user is an extreme outlier who perhaps should be discarded from the analysis. In some embodiments, the system Administrator may, for example, be able to see the names of the users in each group and the % of total users, and also determine segmentation – i.e. the relationship (if any) between voting patterns and types of users.

This analysis may also begin by comparing an individual user matrix with the overall similarity matrix. This involves determination of the differences in cell values between the user and overall matrices. The computer program can pick any user to start. In this example shown in Figure 18, the system commences operation with User A's matrix.

To do this, User A's matrix needs to be transformed to show similarity in a positive scale.

The formula for this transformation is:

$-1*(X_{ij} - 2)$ Where X_{ij} is value of row i and column j, $i \in (1,N)$ and $j \in (1,N)$, N is the total number of Data Points

As before, in this example, the maximum cell value is 2, which is the maximum value allowed in a user matrix.

To compare User A's matrix with the overall similarity matrix shown in Figure 19, we will need to transform the overall similarity matrix into a single user matrix.

For this comparison exercise, the formula for transforming an overall similarity matrix is shown as follows:

-1*(ROUND(X_{ij} / N) – 2) Where X_{ij} is value of row i and column j, i $\in$(1,N) and j $\in$(1,N), N is the total number of Data Points

In our example the overall similarity matrix combined the results from nine users. Here we will transform it to a single user matrix by dividing the cell values by nine, which is the total number of users participated.

Then, the above formula will transform the matrix to show similarity in a positive scale.

Comparison between an individual user matrix and the overall similarity matrix

Now that both matrices have the same scale, we can compare each cell in the user matrix to the corresponding cell in the overall similarity matrix. The comparison results will be stored in a new matrix, called the *Difference Matrix*. If the two cell values are identical, the corresponding cell in the difference matrix will be zero. Otherwise the difference matrix cell value will equal to the absolute value of the difference between the two cells.

The formulas are summarized as below:

If $X_{ij} = Y_{ij}$ thenZij = 0

Otherwise if $X_{ij} \neq Y_{ij}$ then Z_{ij} = absolute(X_{ij} -Y_{ij})

Where X is the individual user matrix, Y is the overall similarity matrix and Z is the difference matrix.

Here Row i $\in$(1,N) and column j $\subset$(1,N), N is the total number of Data Points.

The difference matrix for user A's matrix vs. overall similarity matrix is shown in Figure 20.

Here the percentage of similarity is calculated by the inverse of the sum of all cells divided by 2 then divided by total number of cells in the difference matrix.

% of Similarity = 100% -SUM of cells in Difference Matrix ÷ 2 ÷ Total Number of Cells in Different Matrix.

In this example, the sum of all cells in the difference matrix is 101 and there are 10 x 10 = 100 cells in the matrix so the % of similarity is:

% - (101/2/100) = 49%

This lets the Administrator and users know, for example, that the voting pattern of user "A" is 49% similar to the overall voting results.

The system will perform the same calculation to the rest of the users and summarize the results into a level of agreement report, shown in Figure 21.

Using this report, the Administrator can then drill down to view the clustering results for an individual user. This is shown in Figure 22.

Part VII. Voting Patterns Analysis Module – Voting results on pre-defined groups (optional)

In some situations, the Administrator may also want to know if users with different backgrounds have voted differently. In this optional embodiment, the system may ask the Administrator to enter the name and predefined values of the user parameters (e.g. age range, sex, department, etc.) in various preset groups. When users log in to their voting booth, they will have to select the best description from a drop-down list user interface, such as one shown in Figure 23.

For example, if we have the following pre-defined groups:

Group 1: User A, User C, User E, User G

Group 2: User B, User H

Group 3: User D, User F, User I

The system may then run clustering analysis for each group and display the results, such as those shown in Figure 24. Here Figure 24 shows a sample display of clustering results for a pre-defined age group.

In some embodiments, the Administrator may also have the ability to compare voting results side by side between different groups.

This function may also allow Administrators to run clustering on specific selected group(s). For example, if the Administrator has decided not to look at clustering results from the executive group (or if the executive group has locked out this function) but rather may just want to look at results from the marketing and customer service groups, then the Administrator can exclude executive and combine marketing and customer service together and rerun clustering.

Implementation

The description above discloses at a high level the various functions of the proposed distillation solution.

In order to provide additional context for various aspects of the subject innovation, the following discussion is intended to provide a brief, general description of a suitable computing environment in which the various aspects of the present invention can be implemented. While the innovation has been described above in the general context of computer-executable instructions that may run on one or more computers, those skilled in the art will recognize that the innovation also can be implemented in combination with other program modules and/or as a combination of hardware and software.

Generally, program modules include routines, programs, components, data structures, etc., that perform particular tasks or implement particular abstract data types. Moreover, those skilled in the art will appreciate that the inventive methods can be practiced with other computer system configurations, including single-processor or multiprocessor computer systems, minicomputers, mainframe computers, as well as personal computers, hand-held computing devices, microprocessor-based or programmable consumer electronics, and the like, each of which can be operatively coupled to one or more associated devices.

The illustrated aspects of the innovation may also be practiced in distributed computing environments where certain tasks are performed by remote processing devices that are linked through a communications network. In a distributed computing environment, program modules can be located in both local and remote memory storage devices.

A computer (such as the computer(s) illustrated in the architecture described above) typically includes a variety of computer-readable media. Computer-readable media can be any available media that can be accessed by the computer and includes both volatile and non-volatile media, removable and non-removable media. By way of example, and not limitation, computer-readable media can comprise computer storage media and communication media. Computer storage media includes both volatile and nonvolatile, removable and non-removable media implemented in any method or technology for storage of information such as computer-readable instructions, data structures, program modules or other data. Computer storage media includes, but is not limited to, RAM, ROM, EEPROM, flash memory or other memory technology, CD-ROM, digital versatile disk (DVD) or other optical disk storage, magnetic cassettes, magnetic tape, magnetic disk storage or other magnetic storage devices, or any other medium which can be used to store the desired information and which can be accessed by the computer. Communication media typically embodies computer-readable instructions, data structures, program modules or other data in a modulated data signal such as a carrier wave or other transport mechanism, and includes any information delivery media. The term "modulated data signal" means a signal that has one or more of its characteristics set or changed in such a manner as to encode information in the signal. By way of example, and not limitation, communication media includes wired media such as a wired network or direct-wired connection, and wireless media such as acoustic, RF, infrared and other wireless media. Combinations of the any of the above should also be included within the scope of computer-readable media.

What has been described above includes examples of the innovation. It is, of course, not possible to describe every conceivable combination of components or methodologies for purposes of describing the subject innovation, but one of ordinary skill in the art may recognize that many further combinations and permutations of the innovation are possible. Accordingly, the innovation is intended to embrace all such alterations, modifications and variations that fall within the spirit and scope of the appended claims. Furthermore, to the extent that the term "includes" is used in either the detailed description or the claims, such term is intended to be inclusive in a manner similar to the term "comprising" as "comprising" is interpreted when employed as a transitional word in a claim.

Additional features and embodiments:

In addition to the previously described software features, additional software features may be added to the system as desired. Some of these additional features include:

1. Addition of third party participation input of Data Points, including focus group participants, organization stakeholders, employees, customers, target customers or other consumer audiences.

2. Votes may be weighted differently based on one or more attributes associated with one or more participants, depending on the objectives associated with the project. The attributes may include one or more of the following:

    (a) weighted voting based on user title or age or years of service or function in the organization;

    (b) weighted based on other user allocating votes to each user participant;

(c) weighted based on user test scores of user participant on tests from learning about the subject domain including best practices where decision being made - i.e. branding, marketing, messaging, positioning, etc.

(d) weighted or separated based on user participant response to filter questions, for example whether the user participant is a customer of a particular company, brand or product;

(e) weighted based on customer data, for example network usage or bill revenue for a cell customer.

3. Addition of templates for use by a facilitator to use in particular sessions.

4. Addition of third party participation in clustering Data Points.

5. Addition of alternative clustering methodologies.

6. Addition of alternative semantic data conversion methodologies.

7. Addition of input of Data Points as sounds, scents, 3D images, moving images and/or physical objects.

8. Addition of result display methods.

9. Addition of alternative analysis methods of voting patterns.

10. Addition of adaptive selection of pre-defined user group clustering.

11. Addition of tools to assist users in naming sub-clusters and clusters

Alternative uses:

Although brand identification and analysis has been used throughout as a specific example and embodiment of the invention's methods, it should be understood that these specific examples and embodiments are not intended to be limiting. Rather, this is a general purpose process, as such it can be used anywhere users are trying to analyze and interpret the relationship between verbal and/or visual data elements.

Other areas where the methods of the invention may be used include:

1. A group of decision makers clustering decision options into groups, and sub-groups;

2. Obtaining group feedback regarding a company's products, services, or extent of engagement between a group of users and a brand;

3. Project management, or support of project management, by building consensus around a reduced number of priorities in order to streamline projects;

4. A creative professional artist clustering ideas, images, objects and/or sounds into themes and sub-themes;

5. A group of marketers collectively clustering ideas, images, sounds and/or objects into groups of creative categories;

6. A group of product managers collectively clustering features into a feature set, and sub-sets;

7. A group of managers collectively clustering positions or positioning for their goods, services, offerings or corporate brand;

8. An author or group of authors clustering ideas into the themes or chapters of a published work;

9. A group of customers collectively clustering products into groups, and sub-groups;

10. An individual or group clustering personal ideas, images or objects into meaningful groups, and sub-groups;

11. A sales person or team clustering ideas to present as different parts of a proposal;

12. A group of friends clustering ideas to create a theme for an event;

13. Developing messaging around a theme for a product, service, or group of offerings, cause, brand or organization;

14. A group of fans clustering their favorite stories, shows, or events; and

15. An individual clustering the friends in their social network.

Claims

1. A computer implemented method for enabling the collaborative distillation and/or prioritization of concepts and/or images, characterized in that the method comprises the steps of:

    (a) initiating a web implemented computer platform to create or retrieve a project involving a plurality of concepts and/or images for distillation and/or prioritization;

    (b) defining, selecting or importing a plurality of concepts and/or images related to the project;

    (c) optionally defining or editing a label associated with each concept and/or image and optionally adding a description for each concept/image;

    (d) defining one or more parameters associated with one or more participants in the project;

    (e) enabling at least one voting scheme associated with the concept and/or images so as to enable the participants to rank rate the concepts/images relative to other concepts/images; and

    (f) comparing the group result for each concept/image for the other concepts/images, so as to generate a reduced set of the concepts/images that enables the generation of a distillation and/or prioritization of the concepts/images.

2. The computer implemented method of claim 1, characterized in that the method comprises the step of clustering the concept/images based on the similarity of at least one concept/image to the other concepts/images, so as to define one or more clusters of related concepts/images.

3. The computer implemented method of claim 2, characterized in that the ranking of concepts/images based on the voting scheme occurs on a participant by participant basis.

4. The computer implemented method of claim 3, characterized in that the method further comprises the display of the clusters of related concepts/images using a visualization

tool, and obtaining input from the participants as a group regarding the distillation and/or prioritization.

5. A method of establishing and visualizing the collective opinion of a group regarding one or more qualitative issues, said group consisting of at least two or more users, characterized in that the method comprises:

determining the N highest aspects of the qualitative issues and designating these as N Data Points;

using at least one computer program running on at least one processor to:

(a) optionally present at least one importance ranking graphical user interface to said users wherein said users may individually vote on the relative importance of said N Data Points;

(b) present at least one similarity ranking graphical user interface to said users wherein said user may individually group said N Data Points into at least two categories of greater and lesser similarity, and construct an user N x N similarity matrix for each user;

(c) compute a group N x N similarity matrix, where the contents of an individual cell of location i, j, in said group similarity matrix is a sum of the individual cell contents of location i, j, in each of said user N x N similarity matrices;

(d) use said group N x N similarity matrix to analyze said N Data Points into clusters of greater and lesser similarity; and

(e) summarize said clusters as a graphical output, and display at least one diagram showing the relationship between said clusters.

6. The method of claim 5, wherein at least the size of the image of said N Data Points is adjusted in size according to said average group determination of importance on said diagram showing the relationship between clusters.

7. The method of claim 5, wherein said N highest aspects of the issue are determined by using an issue computer program or module that presents a larger list of potential issues to said group, allows said users to individually select said N highest aspects of the larger list, and then in an iterative process presents the sum of the individual selections of said

N highest aspects to said users, and allows for further rounds of issue editing and selection.

8. A method of visualizing the collective opinion of a group regarding one or more qualitative issues, said group consisting of at least two or more users, said qualitative issue being a branding issue, said method comprising;

determining the N highest aspects of the issue and designating these as N Data Points;

N being a number greater than 5 and less than 20;

using at least one computer program running on at least one processor to:

(a) present at least one importance ranking graphical user interface to said users wherein said users may individually vote on the relative importance of said N Data Points;

(b) present at least one similarity ranking graphical user interface to said users wherein said user may individually group said N Data Points into at least two categories of greater and lesser similarity, and construct an user N x N similarity matrix for each user;

(c) compute a group N x N similarity matrix, where the contents of an individual cell of location i, j, in said group similarity matrix is a sum of the individual cell contents of location i, j, in each of said user N x N similarity matrices;

(d) use said group N x N similarity matrix to analyze said N Data Points into clusters of greater and lesser similarity; 5) summarize said clusters as a graphical output, and display at least one diagram showing the relationship between said clusters;

further associating an image and a title to each of said N Data Points, and showing said images and titles in any of said importance ranking user interfaces, similarity ranking user interfaces, or said diagram showing the relationship between said clusters;

wherein said software is run on a network server computer, and said users interact with said network server over one or web browsers running on one or more computerized devices that are connected to said network server over a local or long distance network connection.

9. A computer network implemented system is provided, characterized in that the system comprises:

   (a) a web server and a web application linked the web server, the web server being accessible to one or more client devices associated with two or more participants, wherein the web application provides one or more utilities that are operable to enable:

      (i) capture of feedback from the two or more participants regarding two or more concepts; and

      (ii) processing the feedback in order to synthesize the two or more concepts into one or more higher order concepts that distil the two or more concepts by clustering the two or more concepts, or a subset of the two or more concepts, into a group of related concepts.

10. The system of claim 9, characterized in that the web application further includes a semantic analysis utility, and the web application is operable to, based on semantic analysis of the feedback, suggest automatically a label for one or more of the clustered concepts.

11. The system of claim 9, characterized in that the web application is operable to enable the clustering of the concept/images based on the similarity of at least one concept/image to the other concepts/images, so as to define one or more clusters of related concepts/images.

12. The system of claim 11, characterized in that capture of the feedback occurs using a voting scheme for ranking of concepts/images on a participant by participant basis.

13. The system of claim 12, characterized in that the web application and/or the client devices connectable to the web server, are operable to provide a visualization tool that enables the display of the participants for distillation and/or prioritization.

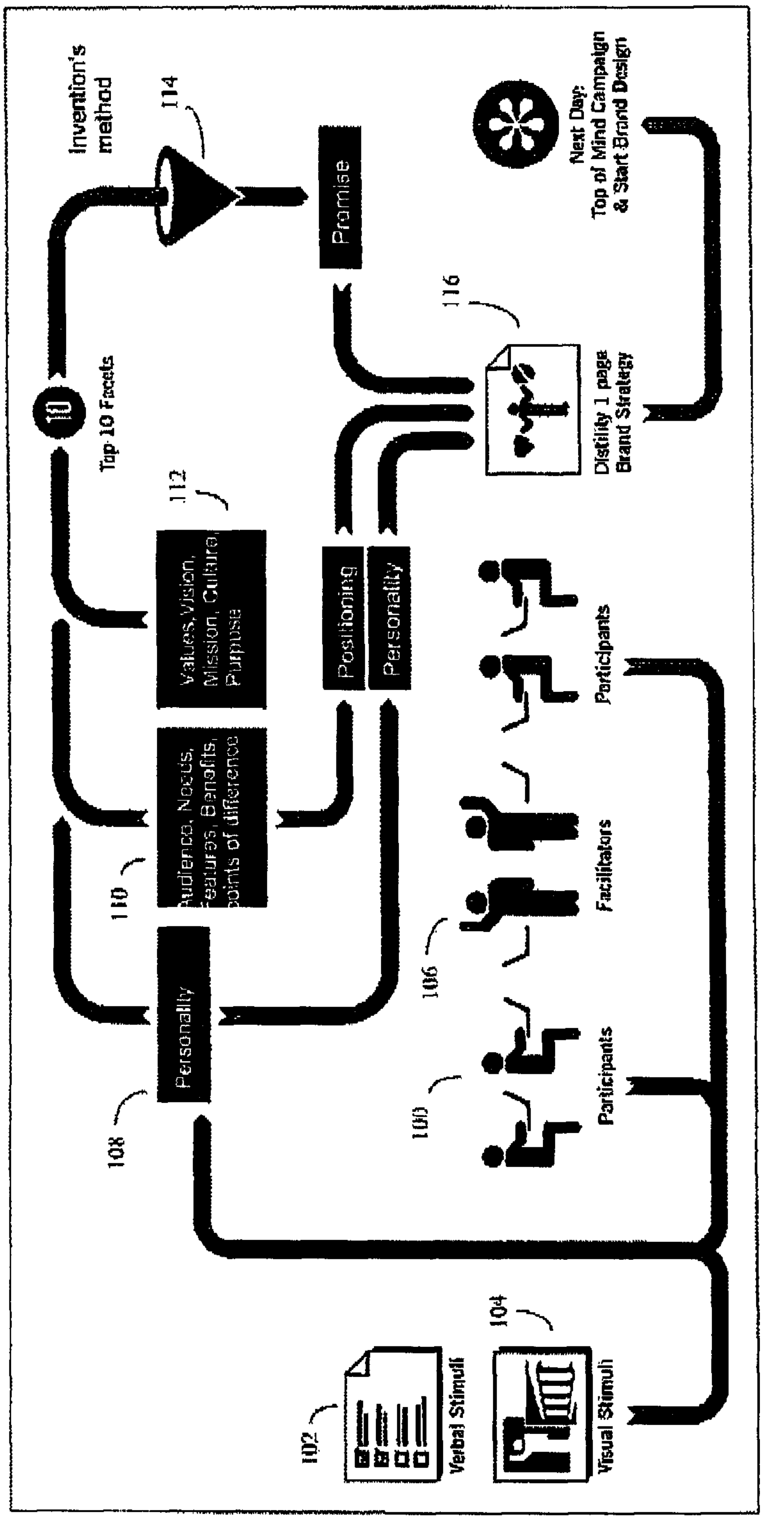

Invention's method
114
Top 10 Facets
10
Promise
116
Next Day: Top of Mind Campaign & Start Brand Design
Distility 1 page Brand Strategy
112
Values, Vision, Mission, Culture, Purpose
Positioning
Personality
110
Audience, Needs, Features, Benefits, points of difference
108
Personality
106
Participants
Facilitators
Participants
100
104
102
Verbal Stimuli
Visual Stimuli

FIG. 1A

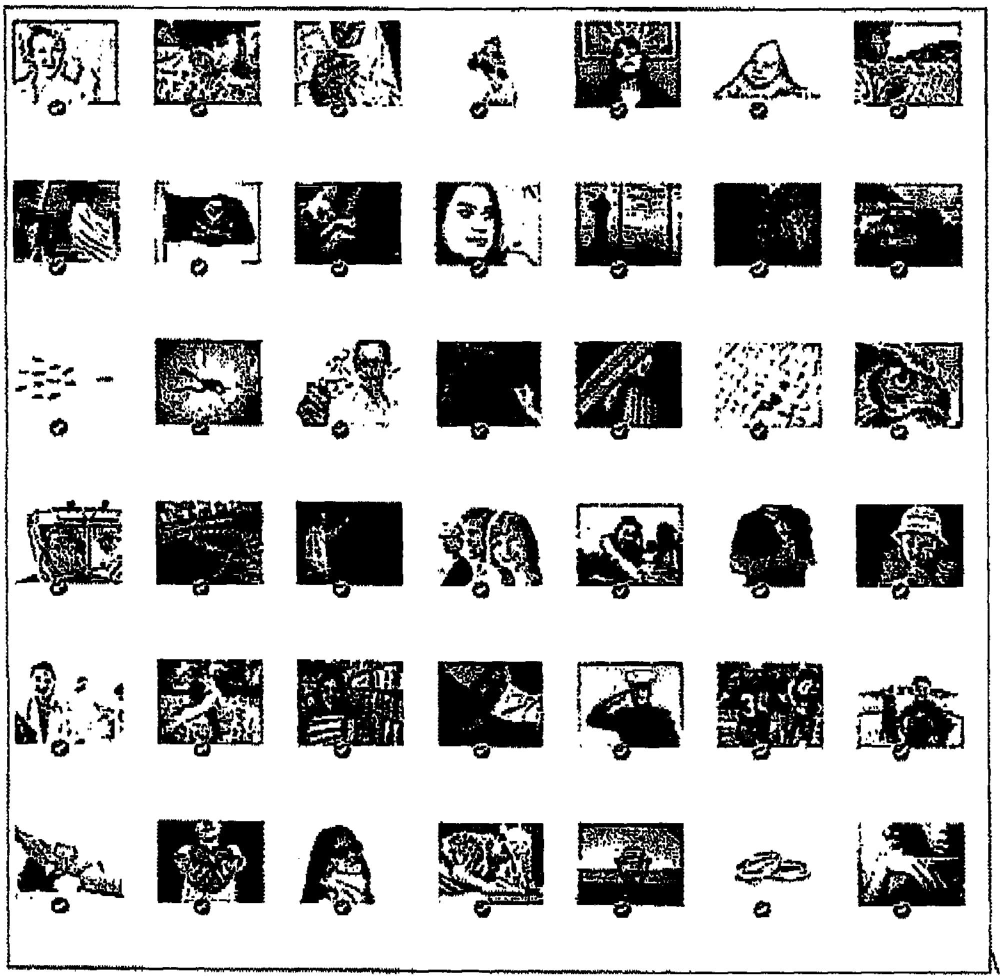


FIG. 1B

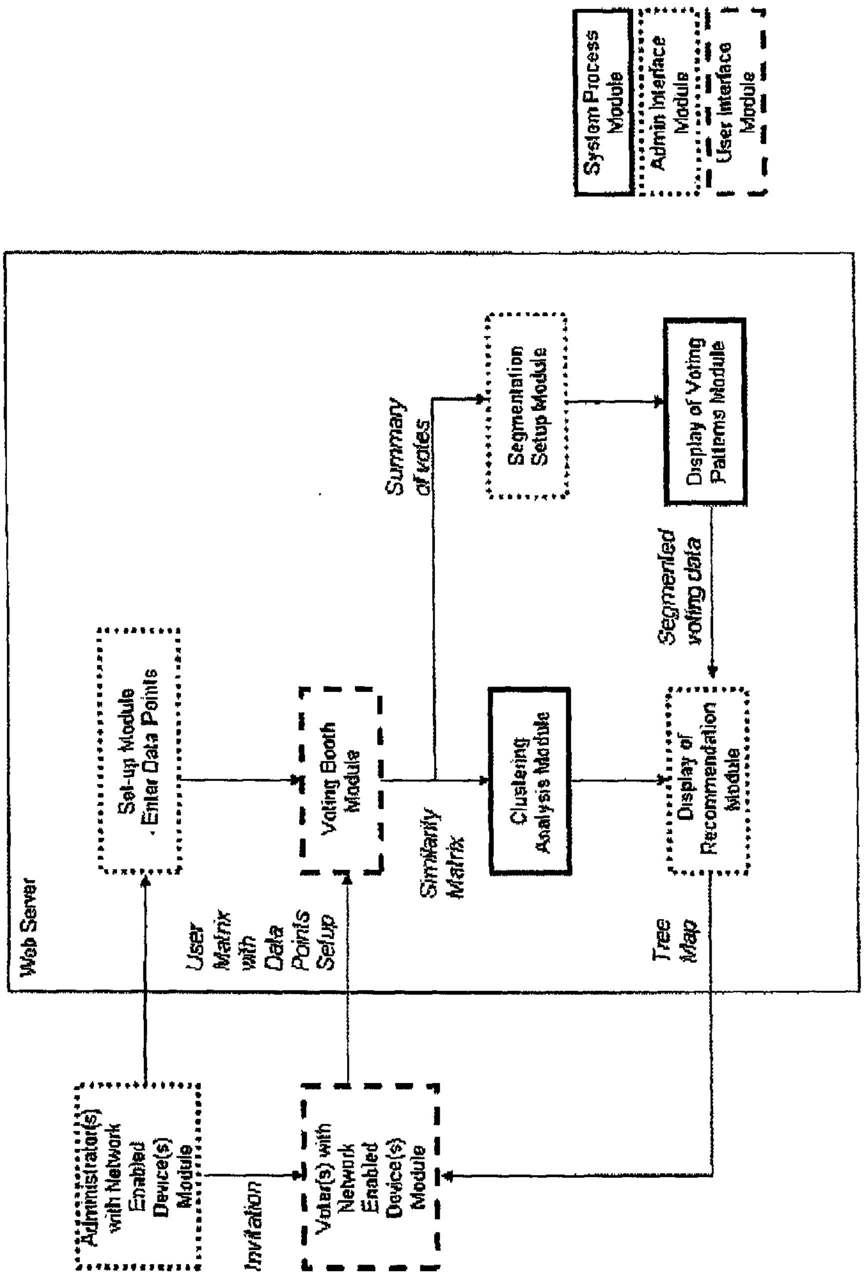

System Process Module
Admin Interface Module
User Interface Module
Web Server
Set-up Module
Enter Data Points
Voting Booth Module
Summary of votes
Segmentation Setup Module
Display of Voting Patterns Module
Segmented voting data
Similarity Matrix
Clustering Analysis Module
Display of Recommendation Module
User Matrix with Data Points Setup
Tree Map
Administrator(s) with Network Enabled Device(s) Module
Invitation
Voter(s) with Network Enabled Device(s) Module

FIG 1C

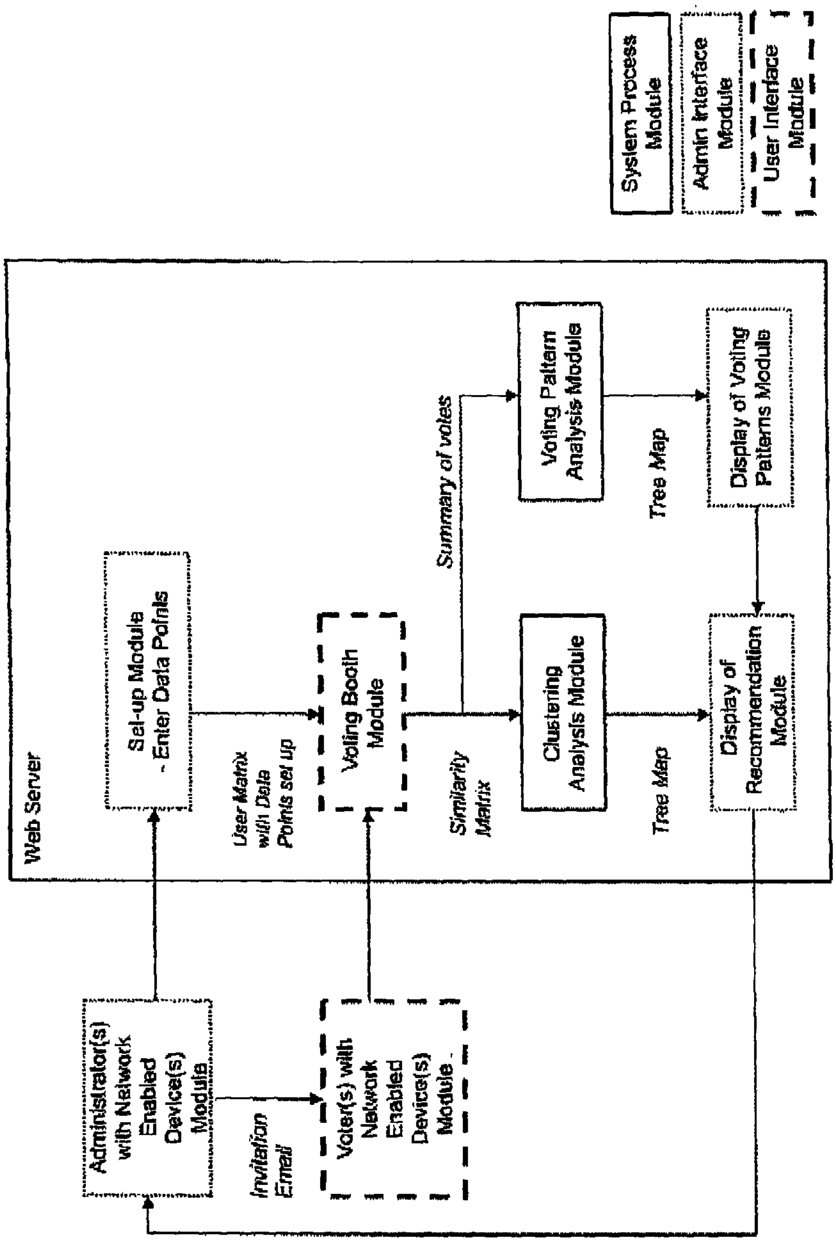

System Process Module
Admin Interface Module
User Interface Module
Web Server
Set-up Module - Enter Data Points
User Matrix with Data Points set up
Voting Booth Module
Similarity Matrix
Summary of votes
Clustering Analysis Module
Voting Pattern Analysis Module
Tree Map
Tree Map
Display of Recommendation Module
Display of Voting Patterns Module
Administrator(s) with Network Enabled Device(s) Module
Invitation Email
Voter(s) with Network Enabled Device(s) Module

FIG. 1D

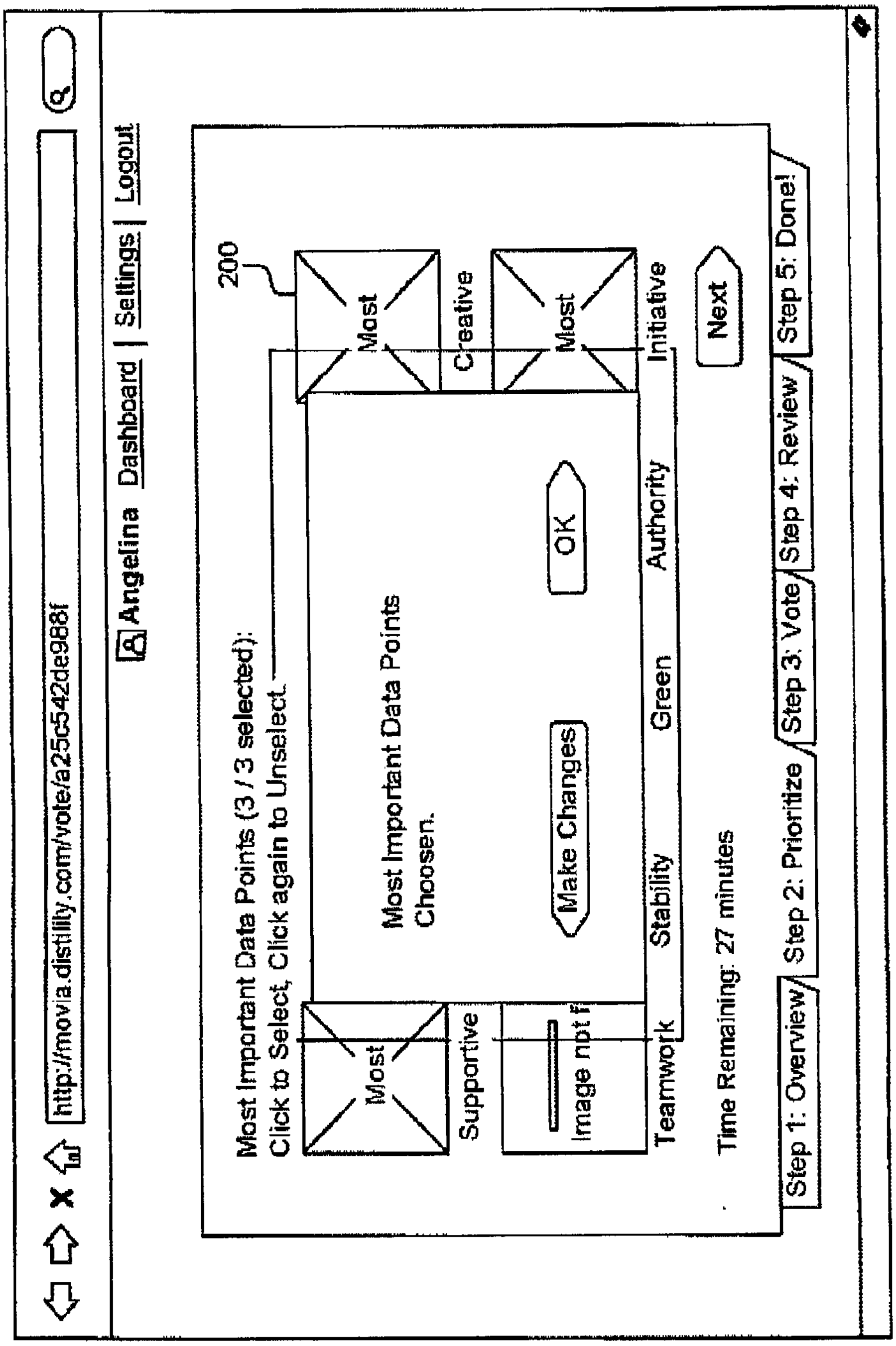
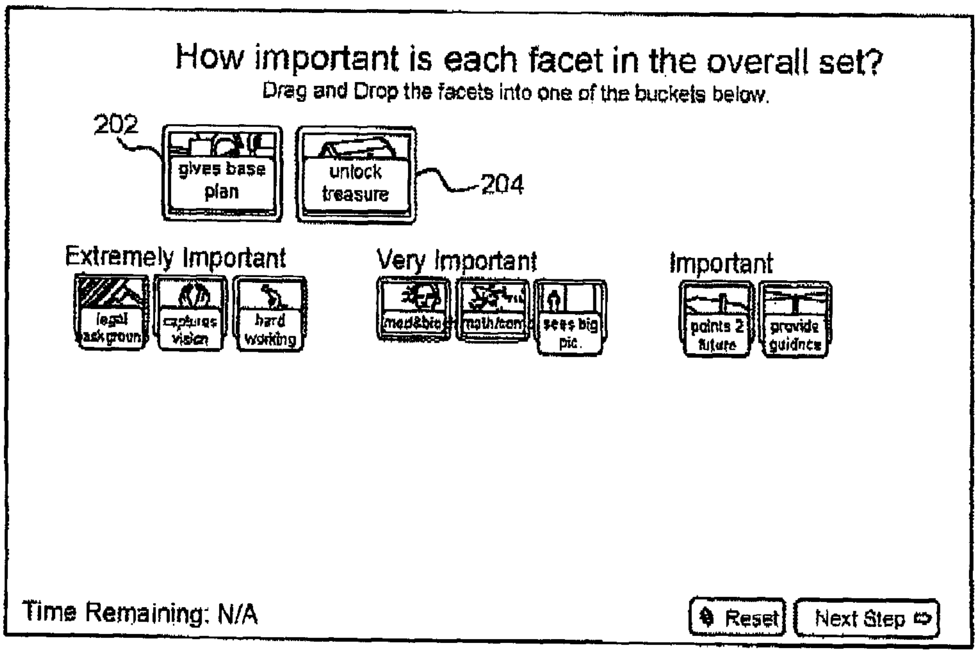

http://movia.distility.com/vote/a25c542de988f
Angelina
Dashboard
Settings
Logout
Most Important Data Points (3 / 3 selected):
Click to Select, Click again to Unselect
200
Most
Most
Most
Supportive
Creative
Initiative
Image not f
Teamwork
Stability
Green
Authority
Most Important Data Points Choosen.
Make Changes
OK
Next
Time Remaining: 27 minutes
Step 1: Overview
Step 2: Prioritize
Step 3: Vote
Step 4: Review
Step 5: Done!

FIG. 2A


How important is each facet in the overall set?
Drag and Drop the facets into one of the buckets below.
202
gives base plan
unlock treasure
204
Extremely Important
legal background
captures vision
hard working
Very Important
med&bio
math/com
sees big pic.
Important
points 2 future
provide guidnce
Time Remaining: N/A
Reset
Next Step

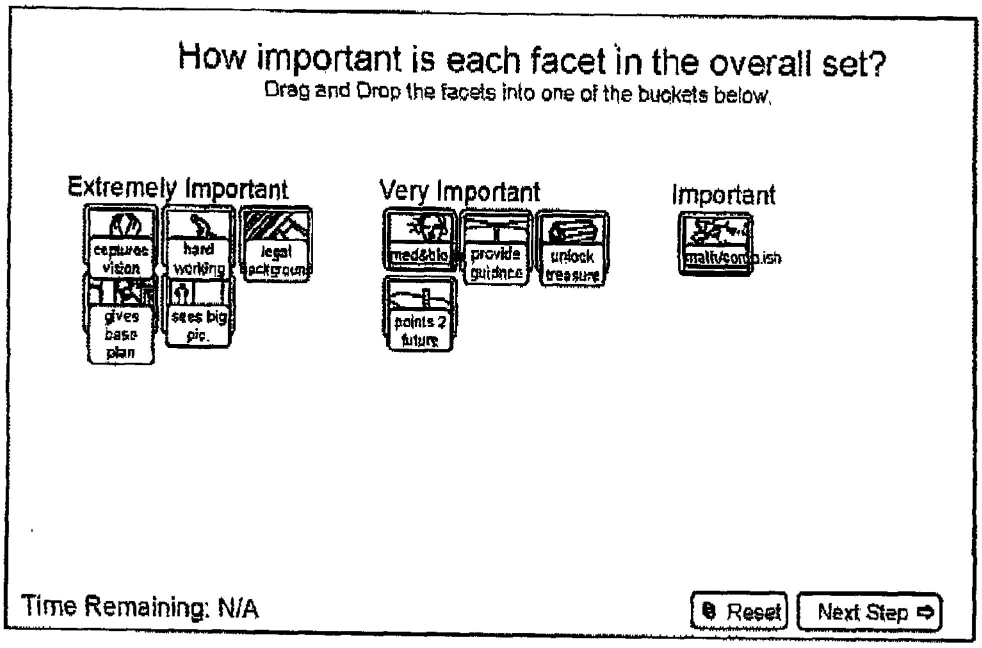

How important is each facet in the overall set?
Drag and Drop the facets into one of the buckets below.
Extremely Important
captures vision
hard working
legal background
gives base plan
sees big pic.
Very Important
med&bio
provide guidnce
unlock treasure
points 2 future
Important
math/com
Time Remaining: N/A
Reset
Next Step

FIG. 2B

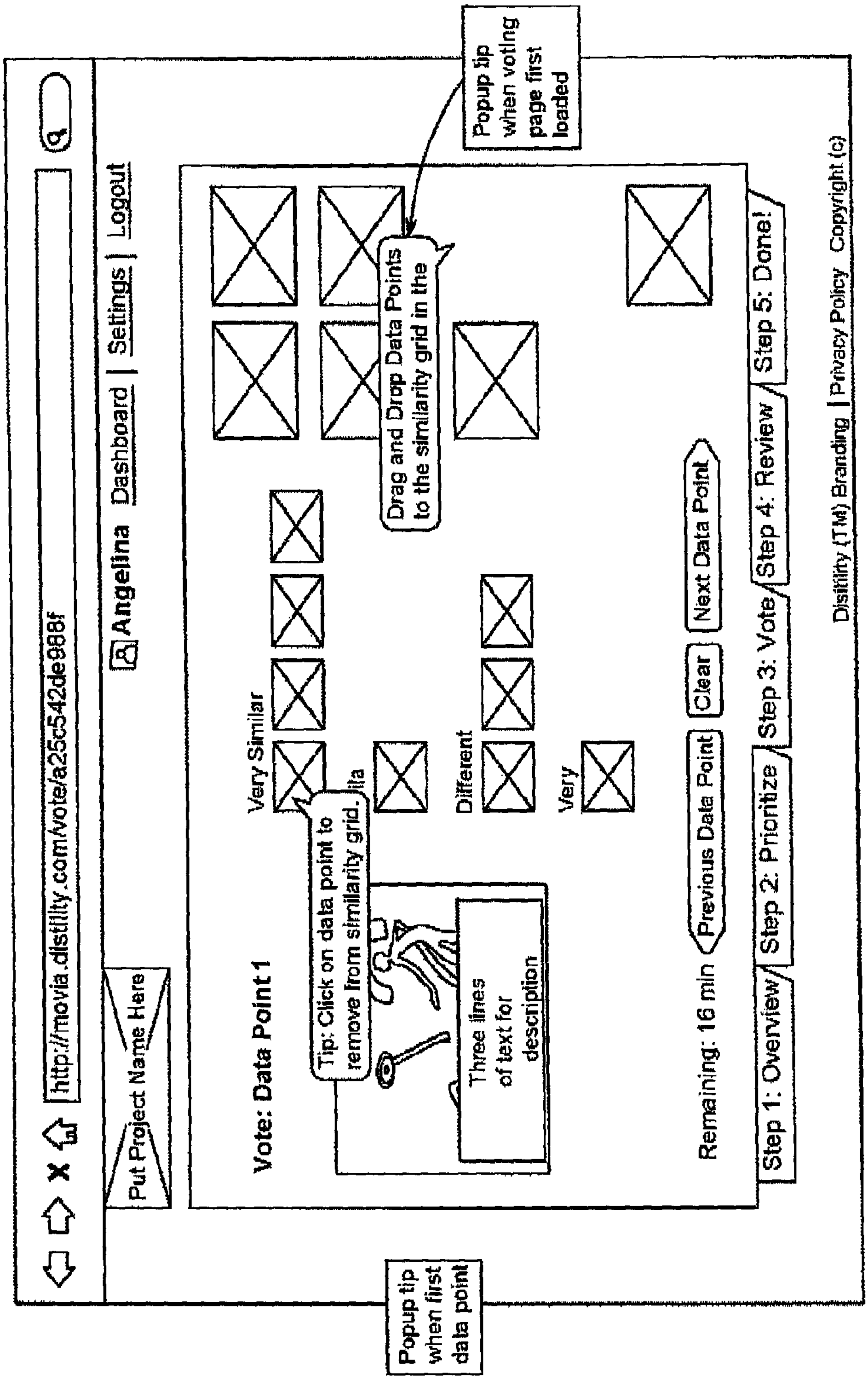

http://movia.distility.com/vote/a25c542de988f
Put Project Name Here
Angelina
Dashboard
Settings
Logout
Vote: Data Point 1
Three lines
of text for
description
Tip: Click on data point to
remove from similarity grid.
Very Similar
Different
Very
Drag and Drop Data Points
to the similarity grid in the
Remaining: 16 min
Previous Data Point
Clear
Next Data Point
Step 1: Overview
Step 2: Prioritize
Step 3: Vote
Step 4: Review
Step 5: Done!
Distility (TM) Branding
Privacy Policy
Copyright (c)
Popup tip
when voting
page first
loaded
Popup tip
when first
data point

FIG. 3A

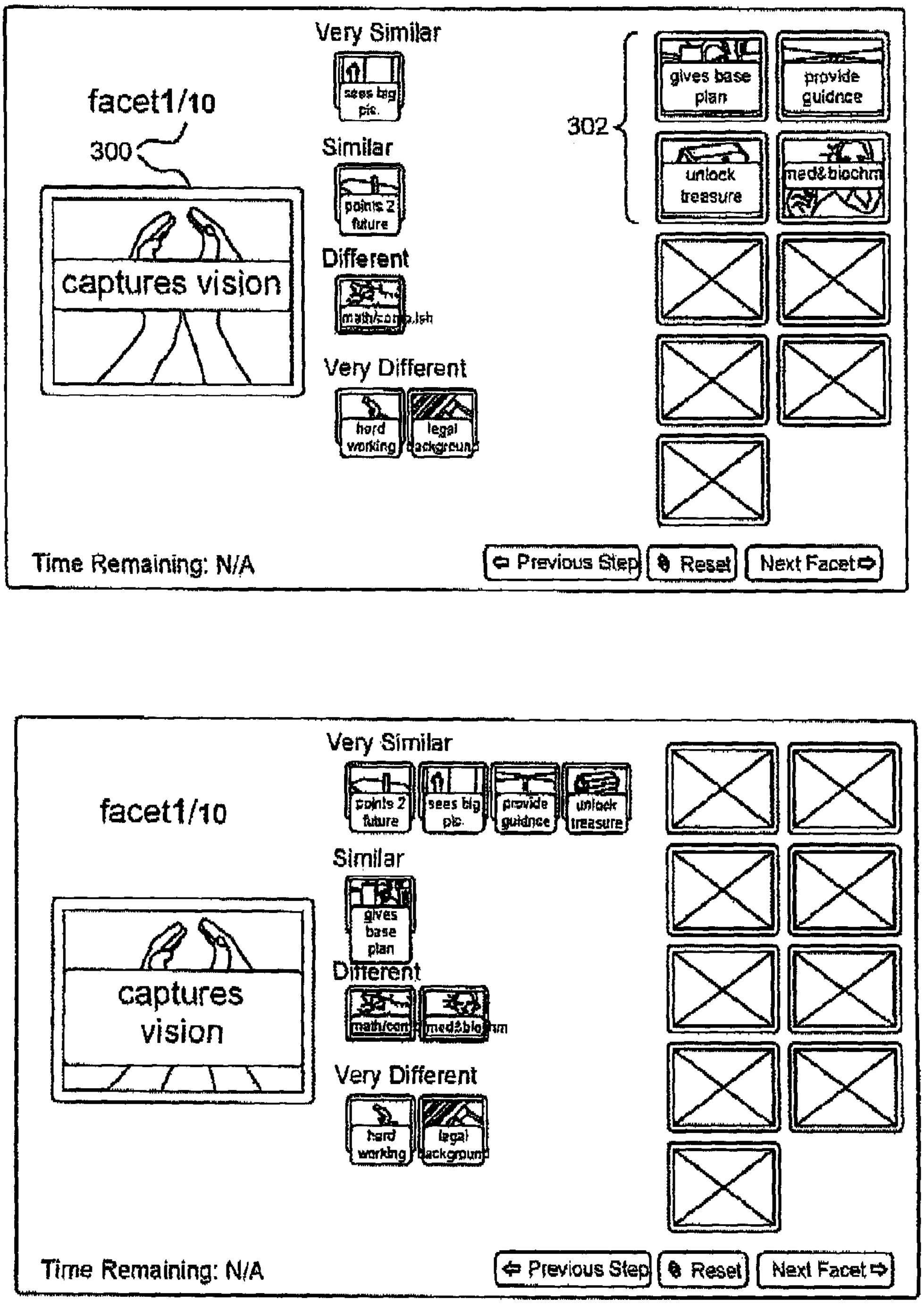
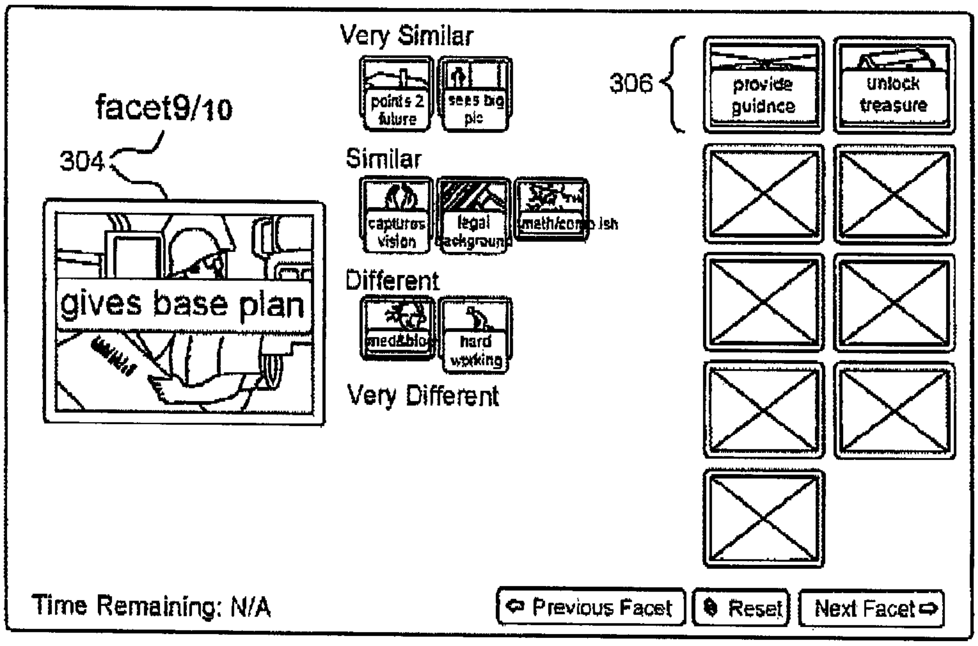

Very Similar
sees big pic.
Similar
points 2 future
Different
math/comp.lsh
Very Different
hard working
legal background
facet1/10
300
captures vision
302
gives base plan
provide guidnce
unlock treasure
med&biochm
Time Remaining: N/A
Previous Step
Reset
Next Facet
Very Similar
points 2 future
sees big pic.
provide guidnce
unlock treasure
Similar
gives base plan
Different
math/com
med&biochm
Very Different
hard working
legal background
facet1/10
captures vision
Time Remaining: N/A
Previous Step
Reset
Next Facet

FIG. 3B


Very Similar
facet9/10
points 2 future
sees big pic
306
provide guidnce
unlock treasure
304
Similar
captures vision
legal background
math/comp ish
gives base plan
Different
med&bio
hard working
Very Different
Time Remaining: N/A
Previous Facet
Reset
Next Facet

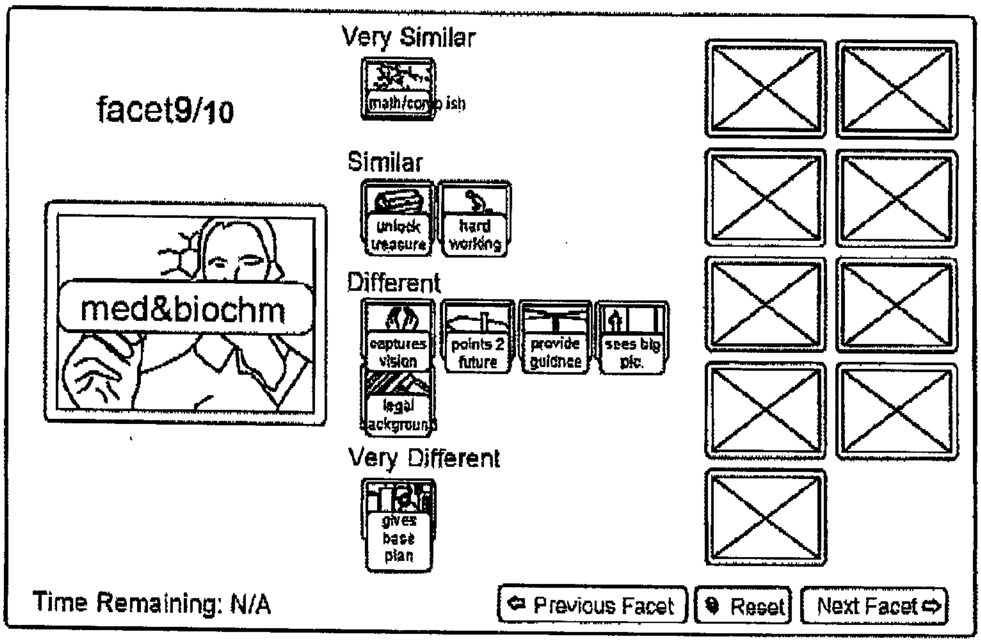
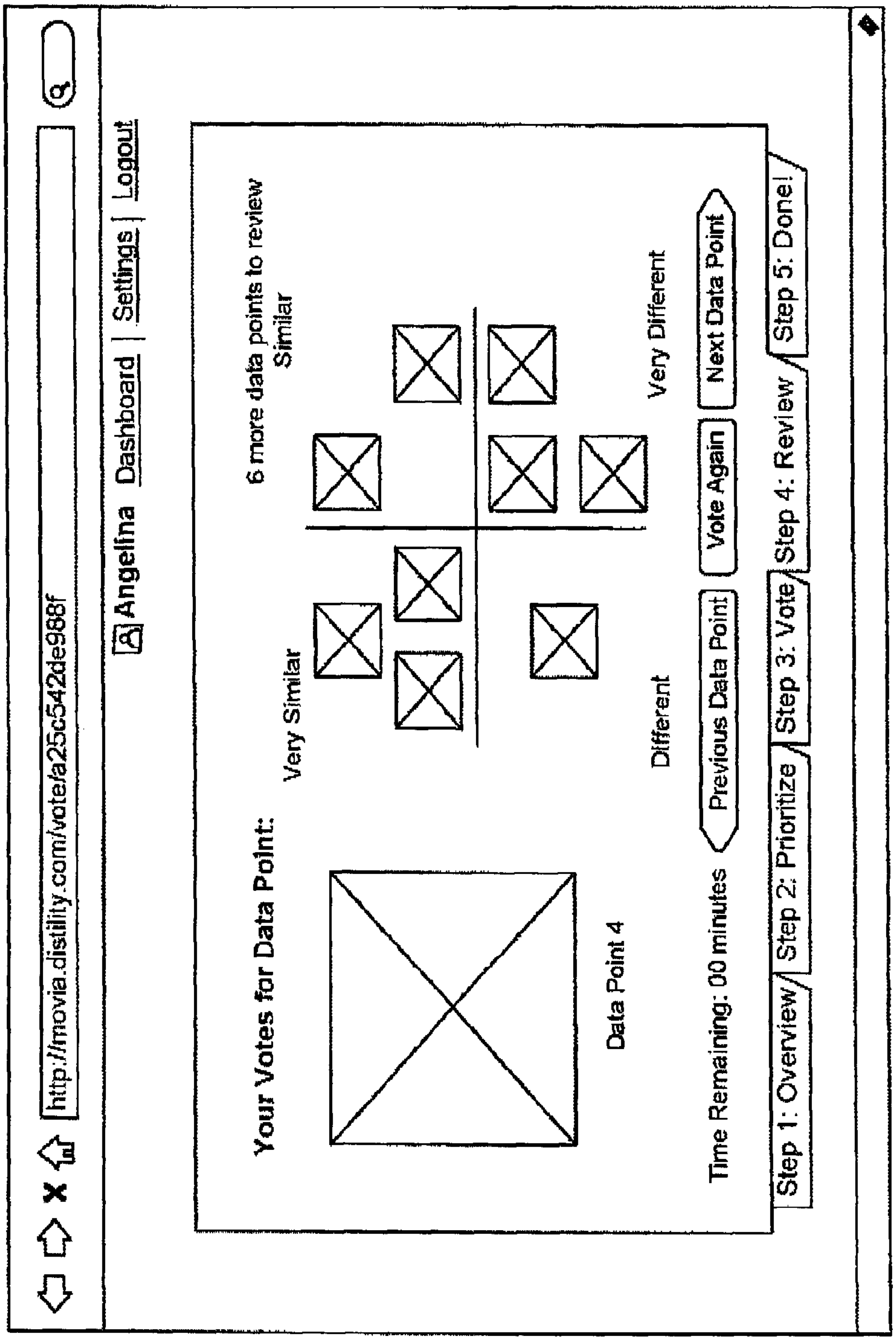

Very Similar
facet9/10
math/comp ish
Similar
unlock treasure
hard working
med&biochm
Different
captures vision
points 2 future
provide guidnce
sees big pic.
legal background
Very Different
gives base plan
Time Remaining: N/A
Previous Facet
Reset
Next Facet

FIG. 3C



http://movia.distility.com/vote/a25c542de988f
Angelina
Dashboard
Settings
Logout
Your Votes for Data Point:
Data Point 4
6 more data points to review
Very Similar
Similar
Different
Very Different
Time Remaining: 00 minutes
Previous Data Point
Vote Again
Next Data Point
Step 1: Overview
Step 2: Prioritize
Step 3: Vote
Step 4: Review
Step 5: Done!

FIG 4

	Data Point 1	Data Point 2	Data Point 3	Data Point 4	Data Point 5	Data Point 6	Data Point 7	Data Point 8	Data Point 9	Data Point 10
Data Point 1	2	0	0	0	0	0	0	0	0	0
Data Point 2	0	2	0	0	0	0	0	0	0	0
Data Point 3	0	0	2	0	0	0	0	0	0	0
Data Point 4	0	0	0	2	0	0	0	0	0	0
Data Point 5	0	0	0	0	2	0	0	0	0	0
Data Point 6	0	0	0	0	0	2	0	0	0	0
Data Point 7	0	0	0	0	0	0	2	0	0	0
Data Point 8	0	0	0	0	0	0	0	2	0	0
Data Point 9	0	0	0	0	0	0	0	0	2	0
Data Point 10	0	0	0	0	0	0	0	0	0	2

FIG. 5

	Data Point 1	Data Point 2	Data Point 3	Data Point 4	Data Point 5	Data Point 6	Data Point 7	Data Point 8	Data Point 9	Data Point 10
Data Point 1	4	3	0	-1	2	4	3	3	0	4
Data Point 2	3	4	3	4	2	-1	2	4	0	4
Data Point 3	0	3	4	3	3	1	3	1	1	0
Data Point 4	-1	4	3	4	-1	2	4	1	4	0
Data Point 5	2	2	3	-1	4	3	-3	3	-2	3
Data Point 6	4	-1	1	2	3	4	3	4	1	3
Data Point 7	3	2	3	4	-3	3	4	3	4	3
Data Point 8	3	4	1	1	3	4	3	4	3	4
Data Point 9	0	0	1	4	-2	1	4	3	4	0
Data Point 10	4	4	0	0	3	3	3	4	0	4

FIG. 6

	Captures vision	Points 2 future	Gives base plan	Provide guidance	Unlock treasure	Sees big pict.	Legal background	Math/Comput.
Captures vision	0	1	2	1	1	0	8	6
Points 2 future	1	0	0	0	1	1	6	4
Gives base plan	2	0	0	0	2	0	1	5
Provide guidance	1	0	0	0	1	1	0	6
Unlock treasure	1	1	2	1	0	2	5	2
Sees big. pict.	0	1	0	1	2	0	2	6
Legal background	8	6	1	0	5	2	0	7
Math/comput.	6	4	5	6	2	6	7	0
Med & biochem	6	4	7	4	2	6	7	1
Hard working	8	8	7	6	2	7	4	1

FIG. 7

	Data Point 1	Data Point 2	Data Point 3	Data Point 4	Data Point 5	Data Point 6	Data Point 7	Data Point 8	Data Point 9	Data Point 10
Data Point 1	18	7	0	2	1	15	4	15	-5	17
Data Point 2	7	18	-1	12	15	9	-5	8	3	10
Data Point 3	0	-1	18	9	-1	0	4	2	3	5
Data Point 4	2	12	9	18	5	9	12	10	16	11
Data Point 5	1	15	-1	5	18	3	-13	7	-11	10
Data Point 6	15	9	0	9	3	18	11	16	4	15
Data Point 7	4	-5	4	12	-13	11	18	7	15	9
Data Point 8	15	8	2	10	7	16	7	18	2	17
Data Point 9	-5	3	3	16	-11	4	15	2	18	3
Data Point 10	17	10	5	11	10	15	9	17	3	18

FIG. 8

	Data Point 1	Data Point 2	Data Point 3	Data Point 4	Data Point 5	Data Point 6	Data Point 7	Data Point 8	Data Point 9	Data Point 10
Data Point 1	0	11	18	16	17	3	14	3	23	1
Data Point 2	11	0	19	6	3	9	23	10	15	8
Data Point 3	18	19	0	9	19	18	14	16	15	13
Data Point 4	16	6	9	0	13	9	6	8	2	7
Data Point 5	17	3	19	13	0	15	31	11	29	8
Data Point 6	3	9	18	9	15	0	7	2	14	3
Data Point 7	14	23	14	6	31	7	0	11	3	9
Data Point 8	3	10	16	8	11	2	11	0	16	1
Data Point 9	23	15	15	2	29	14	3	16	0	15
Data Point 10	1	8	13	7	8	3	9	1	15	0

FIG 9

	Data Point 1/10	Data Point 2	Data Point 3	Data Point 4	Data Point 5	Data Point 6	Data Point 7	Data Point 8	Data Point 9
Data Point 1/10	0	8	13	7	8	3	9	1	15
Data Point 2	8	0	19	6	3	9	23	10	15
Data Point 3	13	19	0	9	19	18	14	16	15
Data Point 4	7	6	9	0	13	9	6	8	2
Data Point 5	8	3	19	13	0	15	31	11	29
Data Point 6	3	9	18	9	15	0	7	2	14
Data Point 7	9	23	14	6	31	7	0	11	3
Data Point 8	1	10	16	8	11	2	11	0	16
Data Point 9	15	15	15	2	29	14	3	16	0

FIG. 10

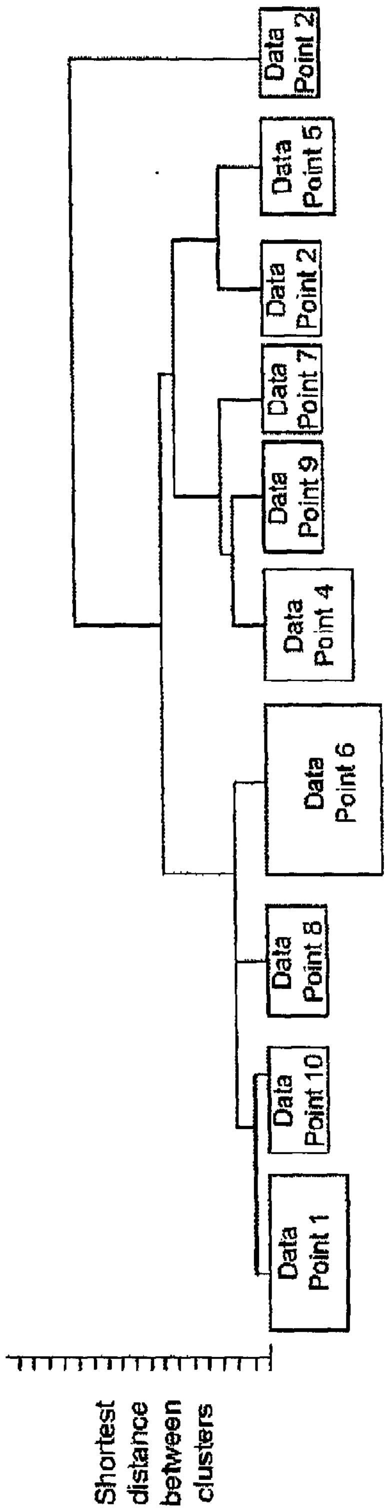

Data Point 2
Data Point 5
Data Point 2
Data Point 7
Data Point 9
Data Point 4
Data Point 6
Data Point 8
Data Point 10
Data Point 1
Shortest distance between clusters

FIG. 11

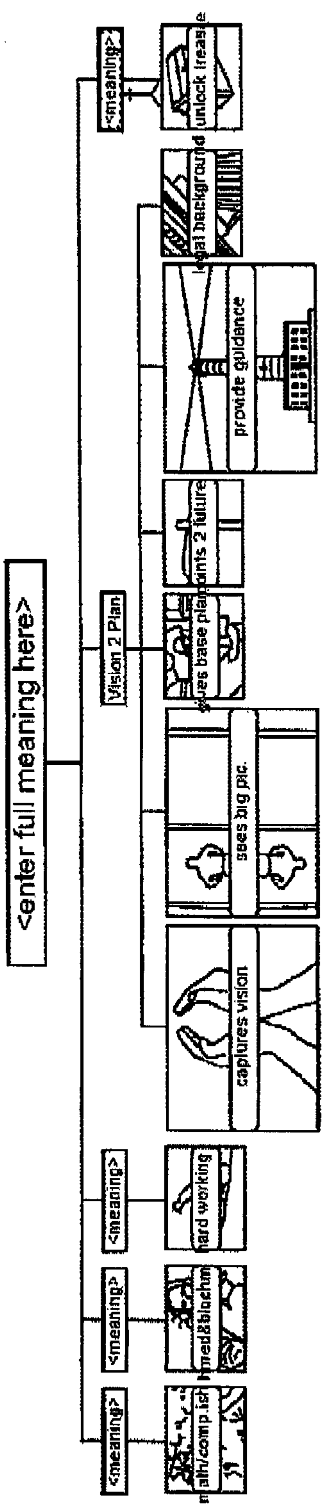

<enter full meaning here>
<meaning>
<meaning>
<meaning>
Vision 2 Plan
<meaning>
hard working
captures vision
sees big pic.
provide guidance
unlock treasure

FIG 12A

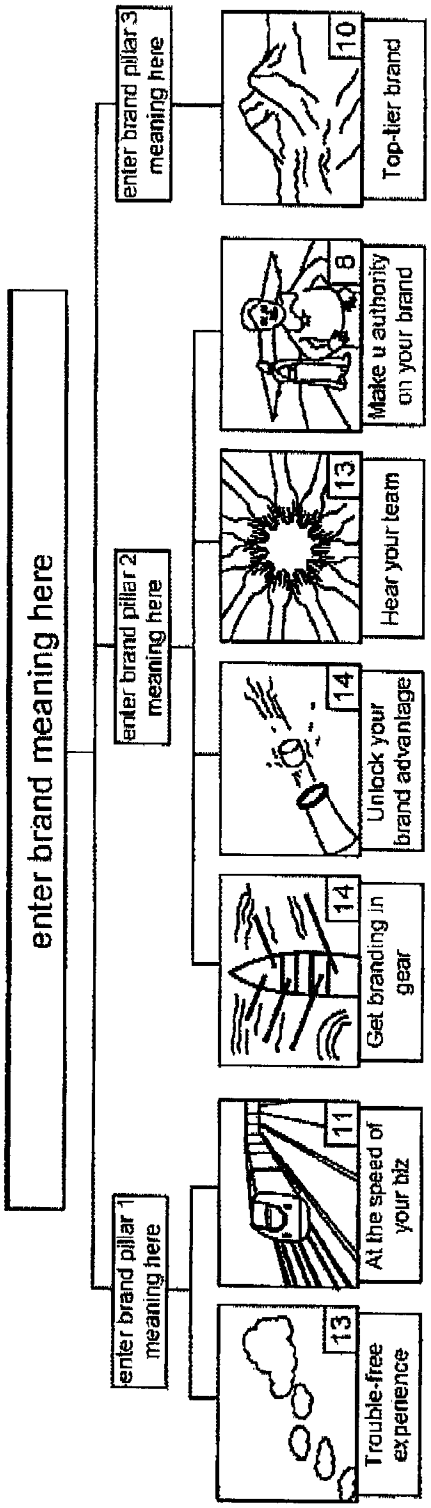

enter brand meaning here
enter brand pillar 1 meaning here
enter brand pillar 2 meaning here
enter brand pillar 3 meaning here
13
Trouble-free experience
11
At the speed of your biz
14
Get branding in gear
14
Unlock your brand advantage
13
Hear your team
8
Make u authority on your brand
10
Top-tier brand

FIG 12B

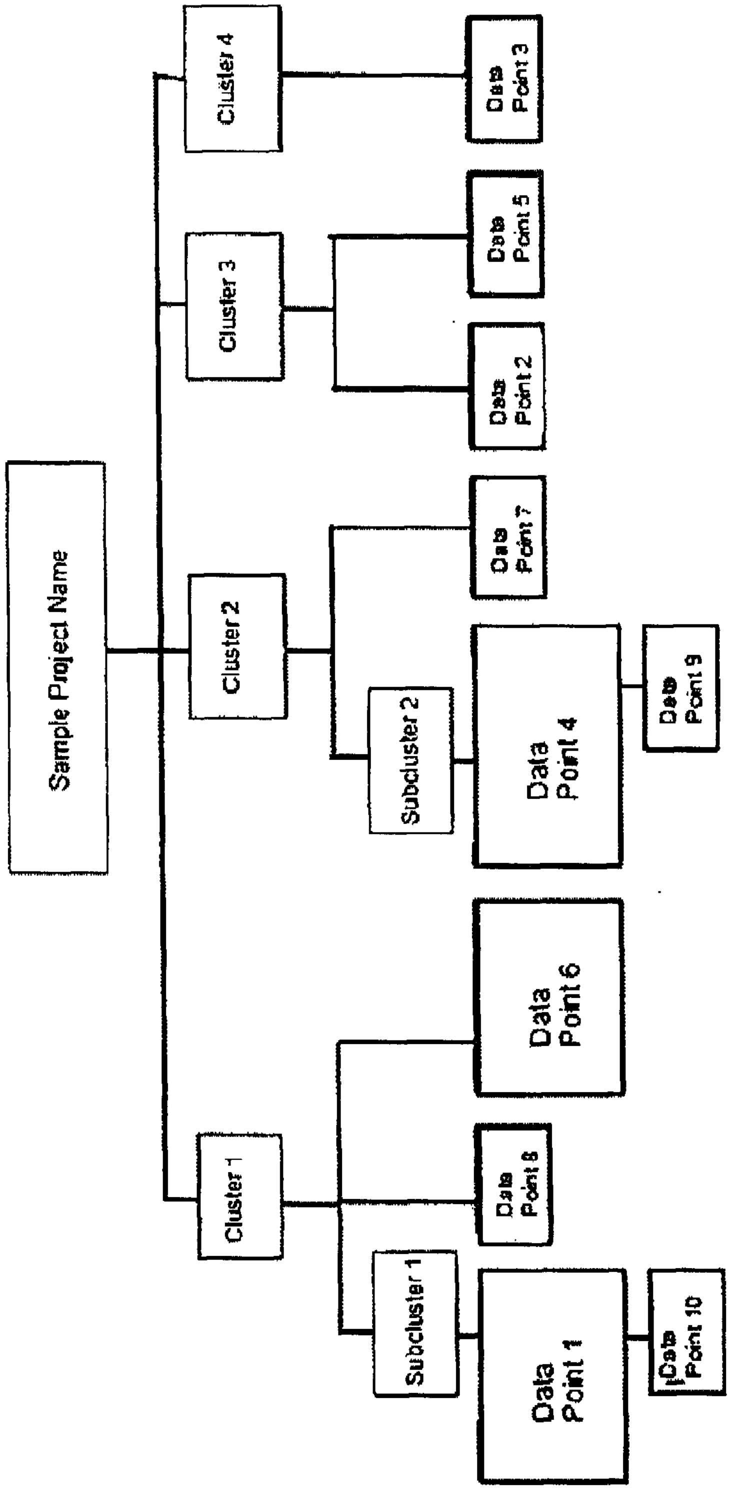

Sample Project Name
Cluster 4
Data Point 3
Cluster 3
Data Point 5
Data Point 2
Cluster 2
Data Point 7
Subcluster 2
Data Point 4
Data Point 9
Cluster 1
Data Point 6
Data Point 8
Subcluster 1
Data Point 1
Data Point 10

FIG. 13

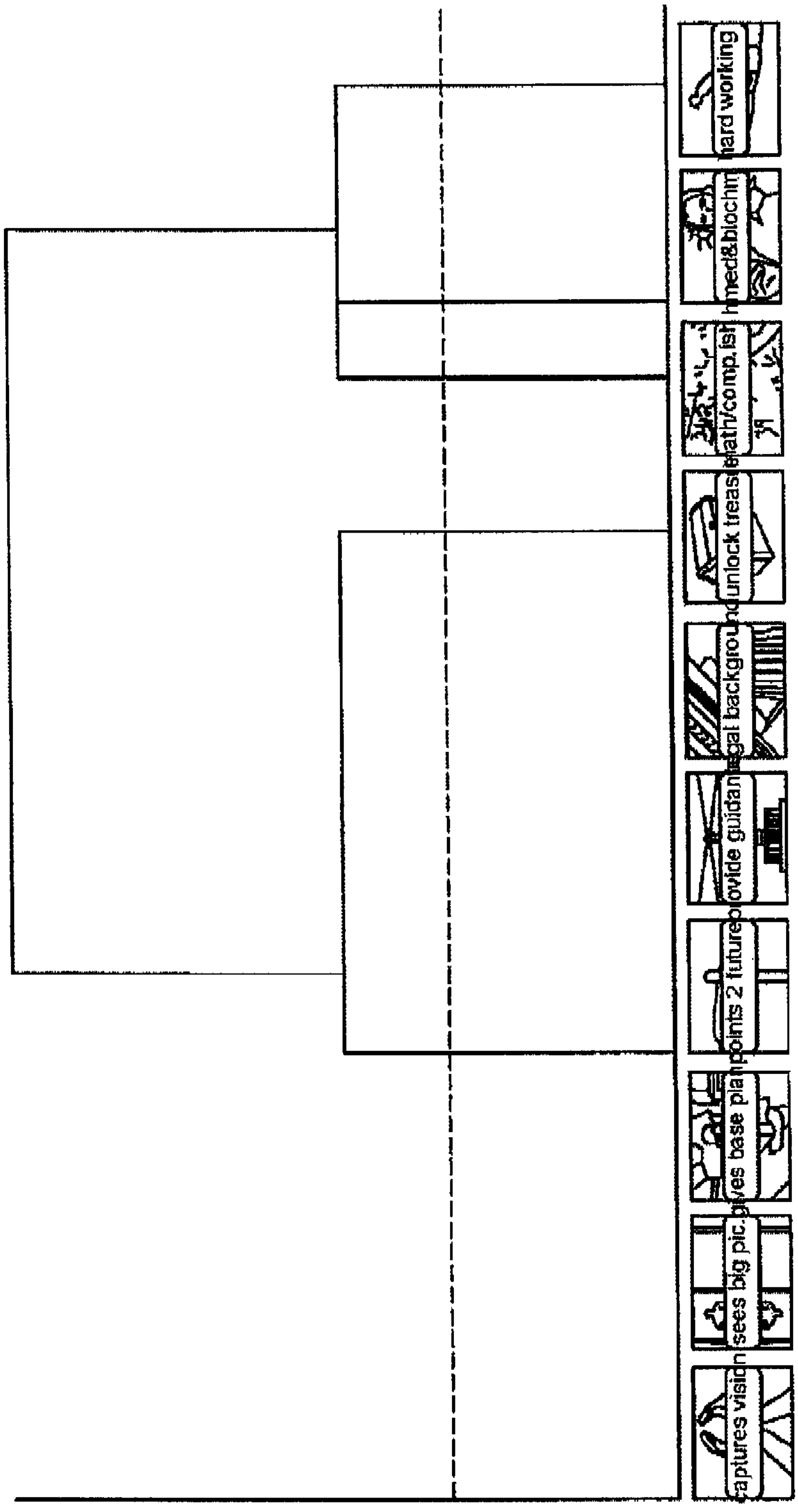

captures vision
sees big pic.
gives base plan
points 2 future
provide guidan
egal backgrou
unlock treas
ath/comp.ish
med&biochm
hard working

FIG. 14

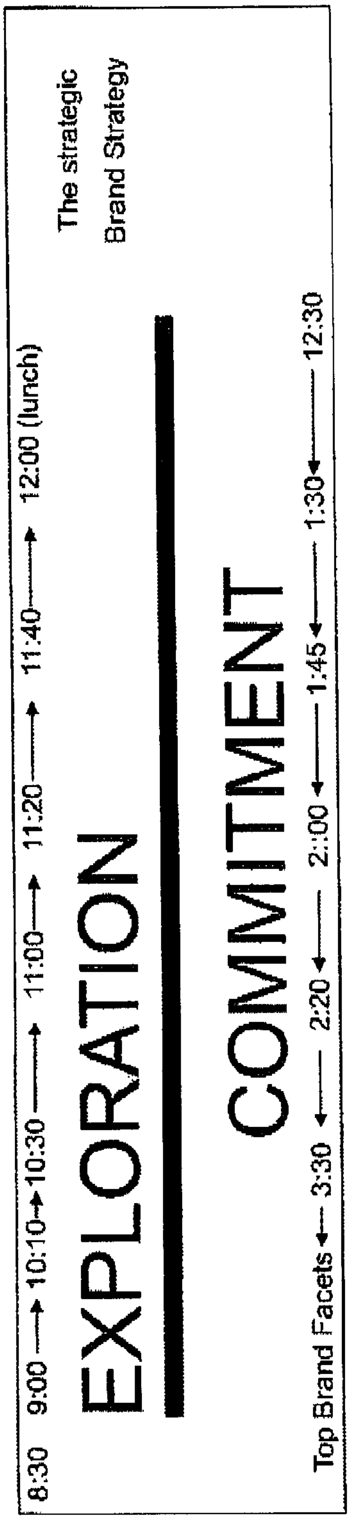

8:30
9:00 → 10:10 → 10:30 → 11:00 → 11:20 → 11:40 → 12:00 (lunch)
EXPLORATION
The strategic
Brand Strategy
COMMITMENT
Top Brand Facets ← 3:30 ← 2:20 ← 2:00 ← 1:45 ← 1:30 ← 12:30

FIG 15

	Data Point 1	Data Point 2	Data Point 3	Data Point 4	Data Point 5	Data Point 6	Data Point 7	Data Point 8	Data Point 9	Data Point 10	Voter Mode
User A	1	1	2	1	1	1	3	2	1	1	1
User B	1	2	1	3	2	2	3	1	2	2	2
User C	1	1	4	2	2	1	1	1	3	2	1
User D	1	1	2	2	1	1	2	1	2	2	1
User E	2	1	2	3	2	1	2	1	2	2	2
User F	3	2	3	3	3	3	2	2	1	3	3
User G	3	1	4	3	1	1	3	2	2	2	3
User H	1	3	2	3	2	2	3	1	2	2	2
User I	4	3	4	3	2	3	3	3	3	3	3

FIG. 16

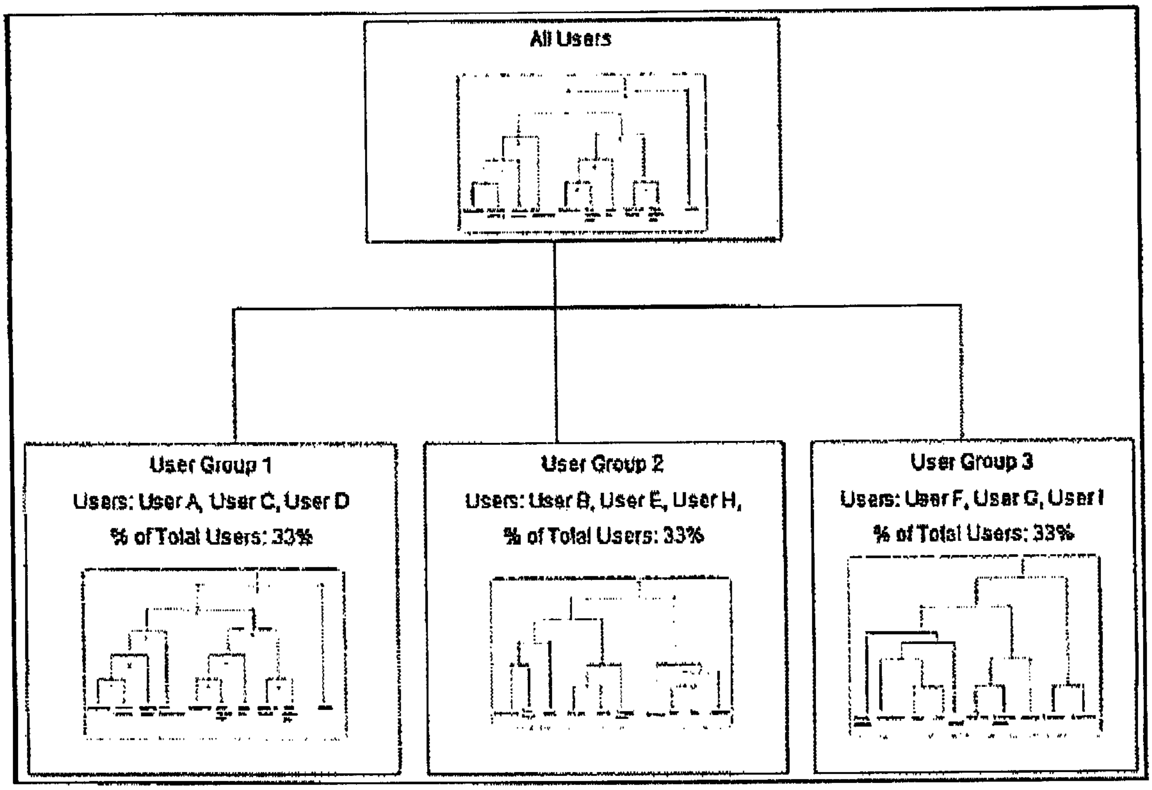

All Users
User Group 1
Users: User A, User C, User D
% of Total Users: 33%
User Group 2
Users: User B, User E, User H,
% of Total Users: 33%
User Group 3
Users: User F, User G, User I
% of Total Users: 33%

FIG. 17

	Data Point 1	Data Point 2	Data Point 3	Data Point 4	Data Point 5	Data Point 6	Data Point 7	Data Point 8	Data Point 9	Data Point 10
Data Point 1	2	2	2	2	-1	1	1	2	1	2
Data Point 2	2	2	-2	2	2	2	-1	-1	2	2
Data Point 3	2	-2	2	2	-2	-1	2	2	2	2
Data Point 4	2	2	2	2	2	2	2	1	1	2
Data Point 5	-1	2	-2	2	2	-2	-2	-2	-2	-1
Data Point 6	1	2	-1	2	-2	2	2	1	1	1
Data Point 7	1	-1	2	2	-2	2	2	2	2	2
Data Point 8	2	-1	2	1	-2	1	2	2	2	2
Data Point 9	1	2	2	1	-2	1	2	2	2	2
Data Point 10	2	2	2	2	-1	1	2	2	2	2

FIG. 18

	Data Point 1	Data Point 2	Data Point 3	Data Point 4	Data Point 5	Data Point 6	Data Point 7	Data Point 8	Data Point 9	Data Point 10
Data Point 1	18	7	0	2	1	15	4	15	-5	17
Data Point 2	7	18	-1	12	15	5	-5	8	3	13
Data Point 3	0	-1	18	9	-1	6	4	2	3	5
Data Point 4	2	12	9	18	6	9	12	10	16	11
Data Point 5	1	15	-1	5	18	3	-13	7	-11	10
Data Point 6	15	9	0	9	3	18	11	16	4	15
Data Point 7	4	-5	4	12	-13	11	15	7	15	9
Data Point 8	15	8	2	10	7	15	7	18	2	17
Data Point 9	-5	3	3	16	-11	4	15	2	18	3
Data Point 10	17	10	5	11	10	15	9	17	3	15

FIG. 19

	Data Point 1	Data Point 2	Data Point 3	Data Point 4	Data Point 5	Data Point 6	Data Point 7	Data Point 8	Data Point 9	Data Point 10
Data Point 1	0	1	2	2	1	1	1	0	2	9
Data Point 2	1	0	2	1	9	1	0	2	2	1
Data Point 3	2	2	0	1	2	1	2	2	2	1
Data Point 4	2	1	1	0	1	1	1	0	1	1
Data Point 5	1	9	2	1	0	2	1	3	1	2
Data Point 6	1	1	1	1	2	0	1	1	1	1
Data Point 7	1	0	2	1	1	1	0	1	0	1
Data Point 8	0	2	2	0	3	1	1	0	2	9
Data Point 9	2	2	2	1	1	1	0	2	0	3
Data Point 10	1	1	2	1	2	0	1	1	2	9

FIG. 20

Level of Agreement

User	Agreement Level with Final Clustering Results
User C	91%
User F	89%
User B	78%
User D	66%
User G	64%
User H	59%
User I	55%
User A	49%
User E	31%

2 users agree more than 80% with final results
5 users agree 50 – 79% with final results
2 users agree less than 50% with final results

FIG. 21

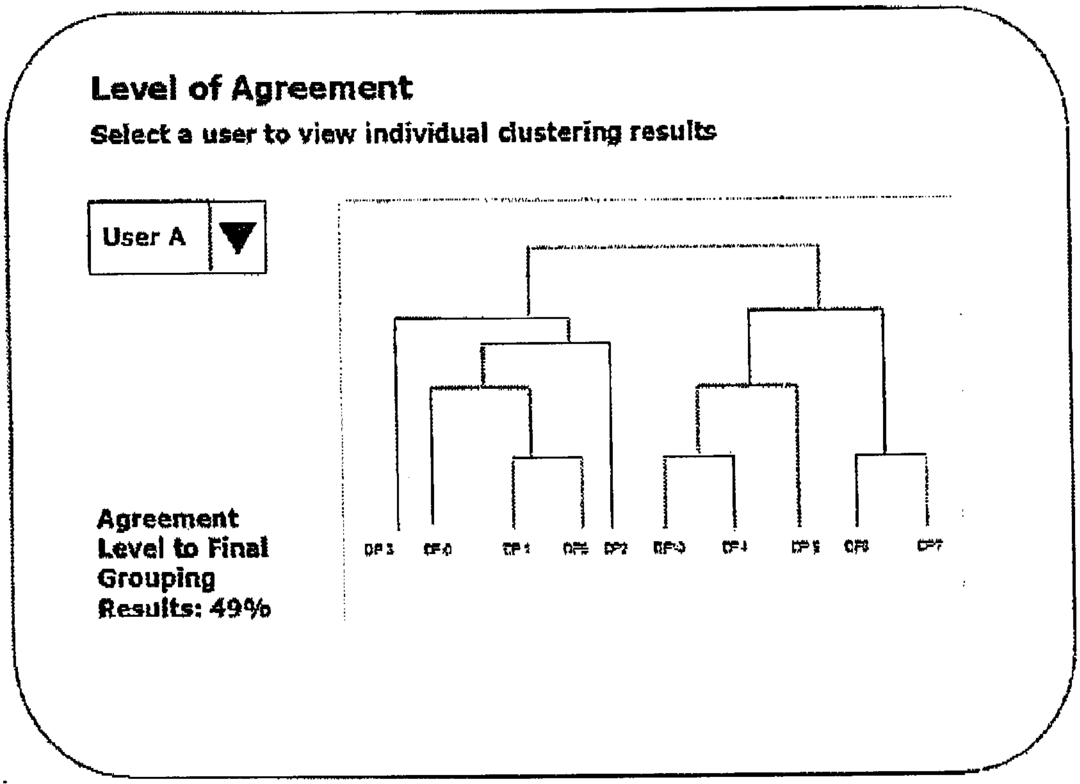

Level of Agreement
Select a user to view individual clustering results
User A
Agreement Level to Final Grouping Results: 49%

FIG. 22

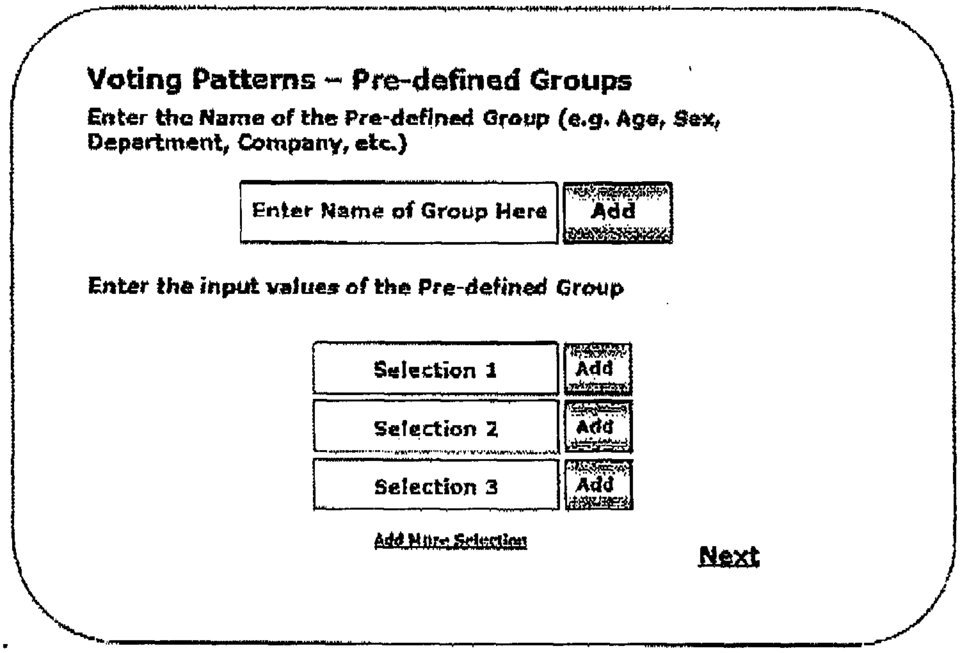

Voting Patterns – Pre-defined Groups
Enter the Name of the Pre-defined Group (e.g. Age, Sex, Department, Company, etc.)
Enter Name of Group Here
Add
Enter the input values of the Pre-defined Group
Selection 1
Add
Selection 2
Add
Selection 3
Add
Add More Selection
Next

FIG. 23

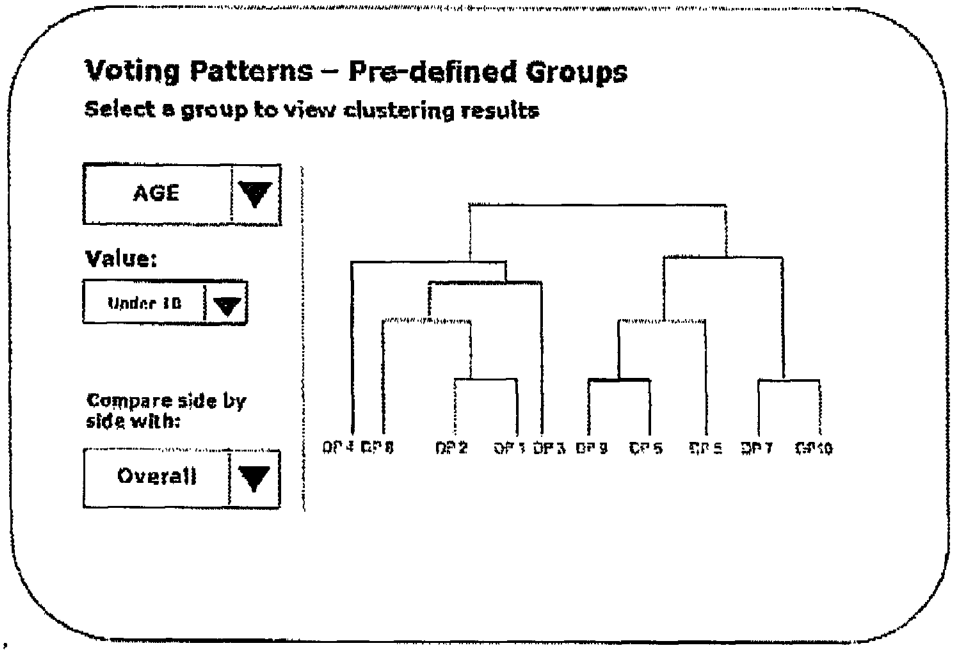

Voting Patterns – Pre-defined Groups
Select a group to view clustering results
AGE
Value:
Under 18
Compare side by side with:
Overall

FIG. 24

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CA2011/001138

A. CLASSIFICATION OF SUBJECT MATTER
IPC: ***G06Q 10/00*** (2006.01) , ***G06Q 10/06*** (2012.01) , ***G06Q 30/00*** (2006.01) , ***G06Q 30/02*** (2012.01)
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: ***G06Q 10/00*** (2006.01), ***G06Q 30/00*** (2006.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5124911 A (Sack) 23 June 1992 (23-06-1992) *abstract; col. 4, lines 25-61; col. 5, lines 1-5; col. 7, lines 28-35 *	1-13
Y	US 2005/0033807 A1 (Lowrance et al) 10 February 2005 (10-02-2005) *pars. 0028, 0034, 0040, 0055; Fig. 1*	1-13
A	US 6629097 B1 (Keith) 30 September 2003 (30-09-2003) *abstract*	4
A	US 7308418 (Malek et al) 11 December 2007 (11-12-2007) *col. 6, lines 26-40*	1-13
A	"Cluster Analysis in Marketing Research: Review and Suggestions for Application" (Punj et al) Journal of Marketing Research, Vol. XX (May 1983), pp. 134-148 *Table 2*	5-13

[ ] Further documents are listed in the continuation of Box C. [X] See patent family annex.

* Special categories of cited documents :
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"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
16 December 2011 (16-12-2011)	21 December 2011 (21-12-2011)

Name and mailing address of the ISA/CA	Authorized officer
Canadian Intellectual Property Office Place du Portage I, C114 - 1st Floor, Box PCT 50 Victoria Street Gatineau, Quebec K1A 0C9 Facsimile No.: 001-819-953-2476	Howard Sandler (819) 994-0483

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CA2011/001138

Patent Document Cited in Search Report	Publication Date	Patent Family Member(s)	Publication Date
US 5124911 A	23 June 1992 (23-06-1992)	WO8910598A1	02 November 1989 (02-11-1989)
US 2005033807 A1	10 February 2005 (10-02-2005)	US2007226296A1	27 September 2007 (27-09-2007)
US 6629097 B1	30 September 2003 (30-09-2003)	None	
US 7308418 B2	11 December 2007 (11-12-2007)	AU2005248807A1	08 December 2005 (08-12-2005)
		CA2566943A1	08 December 2005 (08-12-2005)
		CN101014935A	08 August 2007 (08-08-2007)
		EP1763835A2	21 March 2007 (21-03-2007)
		EP1763835A4	20 January 2010 (20-01-2010)
		JP2008500660A	10 January 2008 (10-01-2008)
		US2005261953A1	24 November 2005 (24-11-2005)
		WO2005116896A2	08 December 2005 (08-12-2005)
		WO2005116896A3	15 March 2007 (15-03-2007)