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(54) Title: SYSTEM AND METHOD FOR FACILITATING INTERACTION AMONG AGENTS

(57) Abstract

An iterative, feedback driven system and method for facilitating interaction among agents promoting feedback, learning and emergent group genius. The system is applicable to many forms of agents such as software objects.

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SYSTEM AND METHOD FOR FACILITATING INTERACTION AMONG AGENTS

FIELD OF THE INVENTION

The present invention relates to a system and method for facilitating communication and other interaction among agents (humans, machines, groups, organizations and combinations thereof) so as to provide feedback, learning and self-adjustment among the individual agents thereby creating an environment for interaction (consisting of environment, tools and processes) that facilitates emergent group genius in a radically compressed time period.

BACKGROUND OF THE INVENTION

The present inventors have recognized that there are three broad elements that affect the interaction of agents. These may be broadly classified as environment, process and tools. The expression "agent" as used herein refers to individuals, machines, groups of individuals and/or machines and organizations of individuals and/or machines.

In the latter part of the twentieth century, there have been numerous efforts to facilitate interaction among agents as defined herein, especially in the areas of organizational interaction and, more recently interaction between humans and machines and interaction between machines, e.g., artificial intelligence. In connection with human agents, these efforts have focused on group dynamics and learning. Past approaches tend to focus on a specific element such as environmental factors, process factors or tools. Thus, there are numerous "tools" available to enhance personal or group productivity and a plethora of training and consulting services available. Recent examples include tools such as ergonomic office furniture, personal organizers and new office designs. There are various systems based on management theories such as those set out in *"The Seven Habits of Highly Effective People" by* Stephen R. Covey. For example, numerous training sessions have been conducted based on the "habits" discussed in Covey's book, namely Be Proactive; Begin with the End in Mind; Put First Things First; Think Win/Win; Seek First to Understand, Then to be Understood; Synergize; and Balanced Self-Renewal.

There have been some attempts to offer both tools and services. One example of such a system is The Franklin Covey Company, a joint-venture of Franklin Quest and the Covey Leadership Center. The Franklin Covey Company offers tools, training and consulting services.

While these individual tools and programs vary significantly, they share a common trait -- they are narrowly focused on certain aspects that affect interaction among agents or are focused on specific environments or groups of agents.

There has not, to date, been an effort to simultaneously address each of the factors that affect the interaction of agents (e.g., environment, process and tools) in a coordinated and widely applicable way to create an optimal environment for the interaction of agents.

Moreover, to the extent that others have considered "Environment" issues, there has been a focus on the physical environment. There is only limited understanding of the fact that other environments, such as those occurring with a computer, are fundamentally no different from the physical environment. This has become increasingly evident with the advent of object-oriented technologies. It is now known, for example, that computer environments can exhibit characteristics of the physical environment. Nonetheless, there has been no coordinated effort by others to develop a system and process that is adaptable to a broad variety of environments and explore the impact of "environment" in this broad sense.

The narrow focus of others in attempting to address these issues (environment, process and tools) suggests that these elements are independent and affect one another in a linear way. The present inventors have suspected for some time, however, that the interrelationship between each of these elements is non-linear and that it is possible to obtain synergistic effects by simultaneously addressing these elements to create an environment that fosters group genius, i.e., a synergistic outcome that is greater than the sum of the parts.

The present inventors also suspect that synergies can result from a wide variety of multi-agent environments, e.g., environment, process or tools, or other multiple agent synergies such as human-machine interaction.

In short, when multiple agents are interacting with one another, there is the possibility of feedback, self adjustment and pattern emergence.[1]

Testing and implementing this insight presented a significant challenge. Demonstrating behavior of complex systems and interactions of agents, or groups or organizations of agents is very difficult if not impossible without real life experience and testing.

Recognizing this, the present inventors have conducted numerous experiments and demonstrations over a period of about twenty years to demonstrate, prove and refine the present invention. These efforts have been concentrated in limited environments. More specifically, the present inventors have conducted experiments to develop certain tools and processes for improving certain aspects of the integrated environment.

As a result of these experiments and the present inventors' experience certain concepts and system element have emerged, including tools, elements of environments, environments, agents and work or tasks.. To describe some of the concepts underlying the system and method of the present invention, the inventors have coined certain phrases and have developed a language and grammar system. To assist in the description of the present invention, therefore, the following definitions are set forth (generally in alphabetical order) by way of illustration , but not limitation:

ANDMap™ Project Management Tool

The term ANDMap stands for Annotated Network Diagram Map and refers to an invention that synthesizes Gannt charts, network diagrams like PERT, CPM or GERT, and process flow charts. The items on the map are plotted to scale over time and may be collected across a series of horizontal tracks, like Gannt charts. A standard set of symbols are employed to represent a range of activities from the strategic (Landmark, Benchmark) to the tactical (Event, Task), to the conditional decision point (Cusp) to the task level (Milestone). Landmarks and Benchmarks can

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be employed to express large scale ideas like missions, visions and goals. Events are rounded rectangles used to identify activities in points of time. They can be annotated with resource and duration data and used in network diagram fashion. Tasks have symbols representing the start and end of an activity, much the way activities are represented on Gannt charts. The Cusp represents a decision gate that may be found in process charts. Since the ANDMap is laid out with time as one of its axes, loops are usually avoided--currently it's still impossible to go backwards in time--instead a NO decision out of a Cusp will either end in a cessation of the project, an alternative contingency, or an indication that previous work must be redone, and showing this rework extending out along the timeline so the project team can get a visual sense of the impact of the decision. Milestones are used to highlight significant subdivisions of Events or Tasks. All of the symbols are connected by lines that may be coded to represent dependency, parallel processing, or critical information exchange. The symbols and lines may be color coded to provide additional information to the user, and extensive annotations may be written around the symbols on the map to provide explanations.

AUTHOR-TO-AUTHOR

A type of DesignShop module in which each participant has been given a different book to read in advance. At the time of the module, the participants engage in a discussion of the issues facing the enterprise, however, they discuss from the vantage point of the authors they have read. Each participant assumes the personae, knowledge base, vantage point and opinions of the author whose book they were assigned to read. The exercise forces a change of vantage point and introduces new information into the pot. It's a day one or day two exercise.

BREAKOUT

A general activity during a DesignShop when a large group is divided into smaller teams to work on either different issues, or different aspects of the same issue. The space in which this activity takes place is a Breakout Area. The group

undertaking this activity is called a Breakout Team. Breakout activities are variously referred to as Breakout Rounds or Design Rounds.

CAPTURE TEAM

A subset of the KreW of Knowledge Workers in a DesignShop who are assigned to work in a Breakout Area to document, or capture, the discussion in one or more forms: keywords, synthesis (by individual attribution or journalistic summary), graphics from the WorkWalls. The work of this team is published to the DesignShop Journal.

CIRCLE-UP

A ritual for the disciplined sorting of signals to help a Patch (Team) through the process of association and decision-making in support of the next major phase of work. Circle-Up also brings the Patch into unity at a point in time; although unity does not imply consensus in this case. It's also a formal time to acknowledge progress, failures and successes along the Lifecycle of the Web (Enterprise). It's a time to engage the multiple intelligences of the team's members in a process of collaborative design. Commonly a Circle-Up is use to shape the opening and closing of an event. It can put the Patch back in touch with its Vision and the iteration of the work to be done.

CREW

(Also spelled KreW) A team of Knowledge Workers charged with supporting an event such as a DesignShop.

DESIGNSHOP™ EVENT

An event whose purpose is to release group genius in the client, condense the time in which a team moves from Scan to Act by an order of magnitude, completely capture and organize all of the information generated, and do all of this in a

facilitated way by managing not the people involved, but the Seven Domains that regulate collaboration and evolve ingenuity.

DESIGNSHOP SPONSOR

Representatives from the client who usually have a considerable stake in the successful outcome of the DesignShop. They may be project managers, department heads, or CEO's. Sponsors are also participants in the event, although in some cases they may work on the KreW. Some clients have only one sponsor, and others have an entire sponsor team.

DOCUMENTATION TEAM

A subset of the KreW whose work comprises capturing reports and conversations that occur when all of the participants are assembled into one group. (The Capture Teams document reports and conversations that happen in Breakout Teams.)

ENGAGEMENT TEAM

A group of people who are assigned to work with a specific client over the duration of the relationship. They may also include DesignShop facilitators and Knowledge Workers, but this is not necessary.

ENVIRONMENT

Typically a Management Center, especially in the context of a DesignShop. More generally, any space that has been consciously designed and configured to support a process in a flexible and evolutionary manner. Most of us work in "spaces" (office space, work space, etc.) that are devoid of enlightened, conscious design, and therefore very poorly support our lives and the processes that comprise them.

FACILITATOR (SOMETIMES CALLED THE KEY FACILITATOR)

The Facilitator works with the DesignShop Sponsors (which may include members of the engagement team) and the Process Facilitator (representing the KreW) to design the DesignShop before it begins, manage the continuing design and execution of the DesignShop while it is happening, to bring closure to ideas and processes immediately following the event, and to open paths for progress to the next stages of work.

To facilitate means "to make easy." The art of facilitation is the art of bringing clarity and effectiveness to the work process of individuals and groups. The facilitator's mandate is to ensure that the process is designed and implemented in a way that brings out the best thinking of each participant and the best resolution of issues from each group.

Facilitation involves a wide range of actions taken to affect the interaction of agents. It involves bringing order to the universe of thoughts and possibilities about a topic, and giving back to people (or other agents) what they already know, in a way that brings clarity and a foundation for effective action. It involves setting appropriate boundaries (time, physical space, and agreements) within which an individual or group can work effectively. It involves clarifying conditions and goals, through a process we describe as "creating the problem."

Facilitation involves introducing the right "new" information that challenges existing ways of thinking and leads individuals to discover their own unexamined assumptions about a given situation. It involves observation and assessment, and taking actions to ensure that a group's natural biases don't prevent some vantage points from being heard, or certain phases of the creative cycle to skipped. When necessary, the facilitator will interject new challenges to prevent a group from coming to closure on an idea prematurely; and at other times to push a group to closure when the exploration is sufficient and no gain is to be made by working an issue further.

The present inventors reject the notion that the facilitator should be an "objective third party" who does not get involved in content and focuses only on process, performing some kind of umpire or gatekeeper role. The present inventors

don't apply the "facilitator as umpire" model for many reasons, including philosophical considerations: no one can ever be completely unbiased, and as modern physics has shown, even the act of observing a process will affect that process. Moreover, it's our experience that the agreements put in place by this model nearly always function more to protect the facilitator than to produce effective results.

HYPERTILE

The WorkWalls that MG Taylor Corporation manufactures (through Athenaeum international) are made of steel, and therefore accept magnets. Hypertiles are large rectangles of flexible magnetic material, measuring up to 11"x17". It is covered on one side with a sticky surface manufactured by 3M. Large sheets of paper can be adhered to this surface and peeled off without leaving any residue on the back of the. The paper can then be photocopied or scanned for entry into the Knowledge Base.

KNOWLEDGE OBJECTS

Pieces of information, usually from outside of the body of knowledge resident in the participants, brought to the attention of the group at the right time to help bring ideas into focus or expand a perception. Knowledge Objects may take the form of articles from magazines or journals, research papers, or databases.

KNOWLEDGE WALL

Management Centers have at least one large wall—sometimes up to 50 feet in length, usually the back side of the Radiant Wall—that is covered with a mildly adhesive surface manufactured by 3M. This wall serves as an oversized European-style kiosk. All sorts of information may be posted to the wall. Sometimes portions of the documentation are placed on it. Photographs, color art work, and diagrams are also posted here. Articles from magazines or the Internet are also displayed for participants to browse through. Information is not displayed haphazardly, rather, a layout is thoughtfully designed, making the wall a structured information event.

KNOWLEDGE WORKERS

The individuals who comprise the KreW that supports an event such as a DesignShop. They are responsible for managing the flow of information temporally through the duration of the DesignShop and spatially within the Environment.

KNOWLEDGE WORKER SPONSOR

A Knowledge Worker of at least Journeyman level who is also a Process Facilitator or Facilitator, and whose purpose is to provide an official, facilitative and welcoming link to the work and philosophy of the organization for one or several other Knowledge Workers in the network.

KREW

Another term for the Crew of a DesignShop or other event. The "K" and "W" in the title refer to the abbreviation "KW", or Knowledge Worker. The "re" can take on most any meaning that seems appropriate to the situation.

KWIB

Knowledge Work Information Broker. Each Management Center or KnOwhere store has a KWIB, usually assigned on a rotating basis, to collect, maintain and disburse information concerning events in the center.

LOGISTICS

The KreW facilitates the flow of matter, energy and information through the DesignShop or the Management Center. Logistics focuses on the flow of matter and energy. This includes providing the physical environment, tools, equipment, materials, food. It also calls for the continual refreshing and maintenance of these elements.

MANAGEMENT CENTER™

Special environment for managing the design and innovation process in the context of expected social-economic change, and for building action plans to accomplish the goals established. By careful facilitation of the elements of environment, information, design and group process, Management Centers decrease the "accident" factor of discovery and synergistic events. Management Centers are "safe" environments in which designers and decision makers can risk exploring and creating new models. Also called "DesignCenters".

METAPHORS EXERCISE

A Breakout Round in which the various teams will compare some "unrelated" system to the situation at hand in a metaphorical way. If the situation concerns a distribution system, a team might be asked to examine how an ant colony manages its distribution system, or how a distribution system might be described in quantum mechanical terms. The purpose is two-fold: (1) to actually learn how other, alien or obscure systems actually manage similar processes, and (2) to see the situation from a radically different vantage point since we know that this is a powerful technique for generating creativity.

PROCESS FACILITATOR

An individual who facilitates the work of the KreW and the Facilitator during the DesignShop. See roles and duties here.

PRODUCTION

The subset of the KreW of a DesignShop charged with keeping track of all of the documentation generated by the DesignShop and assembling it into paper and electronic Journals for distribution to the participants, usually within a few days of the end of the event. Journals may be 500 or more pages in length. The new documentation process allows the Journal to be captured in a database for ease of use in an electronic format.

PROJECT STATUS MAP

A project management tool that employs a matrix of projects listed down one side and days or weeks listed across the top. There are two ways to use a project status map: (1) for each sub task within a project, place a tag along the project's line under the date when the sub task is due. Then track the progress of work on each sub task through a system of visual indicators (green for go, red for holding, blue for completed, etc.); (2) if you're tracking a number of identical projects, advance a single tag along each project's line to indicate the status of the project. Project status maps are most appropriate for projects whose scale and complexity tend to make them linear progressions of tasks. If there are many parallel tasks or the duration of the project runs for many quarters or years, an ANDMap or similar project management tool is more appropriate.

RADIANT ROOM

A large space in a Management Center where the participants gather together as one body to hear reports or have synthesis discussions of some sort. The focus of the Radiant Room is a long WorkWall called the Radiant Wall that may be straight, folding or curving depending on the design of the individual center. Some Radiant Walls stretch to over 40 feet in length. The back side of the Radiant Wall is frequently covered with an adhesive material made by 3M to which paper can be adhered and removed many times over. This is called the Knowledge Wall, although you may hear it called the Sticky Wall by old timers in the network.

The term Radiant Wall comes from Isaac Asimov's idea of a Radiant Cube that he introduces in the third volume of his Foundation Trilogy. The cube is a device that holds the plans for the rebirth of an entire galactic civilization, yet sits unobtrusively on a table top. When a Speaker from the Second Foundation focuses his mind on the cube, it projects the plan on the walls of the room. With further mental effort the Speaker can navigate the plan from start to finish, zoom in to more detail or pull out to a more general landscape, and see the record of all the changes that have been made to the plan and all of the contingencies built into it as well.

RDS

Rapid Deployment System. Also called the Transportable Management Center. An entire kit of WorkWalls, Work Stations, Break-out Tables, lighting, computers, network, video cameras, video technical direction equipment, video editing equipment, supplies, library, games and toys sufficient to support a multiple day DesignShop for a group varying from five to one hundred participants and up to thirty or so KreW. The RDS is shipped in trucks and takes a day or two to assemble and tear down depending on the size of the event.

READ AHEAD

A collection of materials delivered to participants up to a week or so in advance of a DesignShop. The articles and books chosen for a Read Ahead will serve one of two purposes: provide more information concerning the problem to be created and solved during the DesignShop, and to stretch thinking and introduce new ideas that challenge preconceptions. The Facilitator, Process Facilitator, Sponsor and perhaps one or two KreW members handle the selection, assembly and distribution. Books are ordered through the KnOwhere store.

REPORT OUT

After participants have spent some time in Breakout Teams they are often invited to reassemble as a large group to hear each team report their work. To prepare for this report, the teams are asked to recreate (not copy) their work onto paper covered magnetic Hypertiles (11x17 inches) which will adhere to the porcelain steel WorkWalls. The group reassembles in a large room that usually has a very large, curving WorkWall called the Radiant Wall (some are over 40 feet long). The teams group their Hypertiles on this wall either by team or by some other sorting category, or they place them on the wall as they are being discussed. The tiles can be moved about and drawn around to sort, connect and emphasize ideas.

RULES OF ENGAGEMENT

A list of boundaries that must be set on a DesignShop, session, Management Center or NavCenter in order to secure success. The requirement of having no observers or visitors during a DesignShop is an example (everyone either participates or they are on KreW). Another example is the limitation on the conduct of other business by the participants during the DesignShop (it destroys breakout team integrity and compromises the product to have individuals constantly conducting other business away from the team on the phone).

SCENARIO EXERCISE

A module of a DesignShop that is frequently employed to uncover assumptions among the participants regarding how they think about trends, the past and the future. It's usually done in large group on the Radiant Wall. The Radiant Wall is divided horizontally into time frames. Sometimes the Scenario considers the distant past—up to 30,000 years ago, passes through the present (usually the current year plus or minus 5-10 years) and ends sometime in the future. Participants stand before the wall one at a time and state an event they wish to place on the timeline (sometimes further defined by the facilitator's instructions) and perhaps its significance. Then they write that event on the wall under the year it occurred. Then the next participant places their event on the wall. This may continue through all of the participants and through several rounds. The exercise is very flexible in terms of how the wall is laid out, what types of events the participants are asked to place on the wall, and how Sketch Hogs are employed to augment and synthesize the visual display. A good synthesist on the KreW can predict much of the outcome of the DesignShop and the solution to the problem simply by studying a well-executed scenario.

SHARE-A-PANEL

A module of a DesignShop usually preceded by a Take-A-Panel exercise wherein participants assemble into teams and visit each team member's panel—or

WorkWall—in succession to hear a report of the work scribed on that panel. After each team member has reported their individual work, the team usually assembles in a Breakout Area to either synthesize what they've heard, or begin work on another exercise. If the total number of participants in a DesignShop is small, they may all participate in the exercise, which is then called a "Walk-About". After each participant has had an opportunity to share their panel, the entire group may assemble for a synthesis discussion or may be divided into Breakout Teams to begin another round of work.

SKETCH HOG

Also called a scribe. A KreW member skilled in listening to a conversation or presentation and capturing its essence and significance in illustrated and annotated diagrams on WorkWalls, paper, computer, or in a 3D physical model. Sketch Hogs are called upon to support participants in Breakout Teams to illustrate their ideas, work before the large group during synthesis discussions, create finished art and icons to support the production of the Journal, and to create finished art and diagrams to support ANY FOLLOW-ON WORK PRODUCTS.

SPONSOR (CLIENT)

(See also DesignShop Sponsor.) An individual or small group who hold primary responsibility or a principal stake in the outcome of a DesignShop, NavCenter, Management Center, or session. Often the sponsor is the champion of the idea which the shop or center is designed to address. The sponsor may also be a manager or executive. Often a sponsor team is assembled made up of representatives from various constituents who comprise the participants in the DesignShop.

SPONSOR (KNOWLEDGE WORKER)

An experienced individual (usually of Journeyman level) who assists and supports another Knowledge Worker through the transition into, through, and out of the ValueWeb™ system. The sponsor is not necessarily a mentor, and is usually

chosen my mutual agreement—never assigned. Assigning sponsors would violate the pattern of "Stepping Up" or self-selecting tasks and projects from the work to be done. Sponsors are literally individual transition managers.

SPONSOR (NAVCENTER)

An individual, or most commonly a team who champions the purpose, mission and existence of a NavCenter. Since NavCenters are established to support a particular project or purpose, the Sponsor may also be the project manager. Because a NavCenter represents a way of work which radically departs from the behavior of the rest of the organization, the Sponsor should have a position of authority within the organization as well.

SPONSOR SESSION

Usually a three or four hour session attended by the client sponsor (individual or team), the key facilitator, the process facilitator, and supported by one or more KreW. The purpose of this session is to develop clear objectives for the DesignShop, work on assembling the right participant list, decide on general logistics arrangements, take a first cut at the design of the DesignShop process, and get a general idea of what sort of products should be generated during and after the DesignShop.

STRAWDOG

Before each DesignShop, the Event Facilitator (Key Facilitator) and/or the Process Facilitator generates a first cut at the design of the event. Sometimes this process is completed formally in a Sponsor Session with the DesignShop Sponsor, the Facilitator and Process Facilitator. These sessions are documented. The Strawdog summarizes the planners' thinking in terms of the purpose of the DesignShop, the desired outcomes and the individual modules that comprise the design. Usually the first half of the shop is outlined in detail; the rest cannot be designed until the shop is underway.

SYNERGY

In *Synergetics*, R. B. Fuller notes the following with regard to Synergy:

Synergy means behavior of whole systems unpredicted by the behavior of their parts taken separately.

Synergy means behavior of integral, aggregate, whole systems unpredicted by behaviors of any of their components or subassemblies of their components taken separately from the whole.

A stone by itself does not predict its mass interattraction for and by another stone. There is nothing in the separate behavior or in the dimensional or chemical characteristics of any one single metallic or nonmetallic massive entity which by itself suggests that it will not only attract but also be attracted by another neighboring massive entity. The behavior of these two together is unpredicted by either one by itself. There is nothing that a single massive sphere will or can ever do by itself that says it will both exert and yield attractively with a neighboring massive sphere and that it yields progressively; every time the distance between the two is halved, the attraction will be fourfold. This unpredicted, only mutual behavior is synergy. Synergy is the only word in any language having this meaning.

The phenomenon synergy is one of the family of generalized principles that only co-operates amongst the myriad of special-case experiences. Mind alone discerns the complex behavioral relationships to be cooperative between, and not consisting in any one of the myriad of brain-identified special-case experiences.

The words synergy (*syn*-ergy) and energy (*en*-ergy) are companions. Energy studies are familiar. Energy relates to differentiating out sub-functions of nature, studying objects isolated out of the whole complex of Universe - for instance, studying soil minerals without consideration of hydraulics or of plant genetics. But synergy represents the integrated behaviors instead of all the differentiated behaviors of nature's galaxy systems and galaxy of galaxies.

Chemists discovered that they had to recognize synergy because they found that every time they tried to isolate one element out of a complex or to separate atoms out, or molecules out, of compounds, the isolated parts and their separate

behaviors never explained the associated behaviors at all. It always failed to do so. They had to deal with the wholes in order to be able to discover the group proclivities as well as integral characteristics of parts. The chemists found the Universe already in complex association and working very well. Every time they tried to take it apart or separate it out, the separate parts were physically divested of their associative potentials, so the chemists had to recognize that there were associated behaviors of wholes unpredicted by parts; they found there was an old word for it - synergy.

Because synergy alone explains the eternally regenerative integrity of Universe, because synergy is the only word having its unique meaning, and because decades of querying university audiences around the world have disclosed only a small percentage familiar with the word *synergy*, we may conclude that society does not understand nature.

In addition, there is a corollary of synergy known as the Principle of the Whole System, which states that the known behaviors of the whole plus the known behaviors of some of the parts may make possible discovery of the presence of other parts and their behaviors, kinetics, structures, and relative dimensionalities.

The known sum of the angles of a triangle plus the known characteristics of three of its six parts (two sides and an included angle or two angles and an included side) make possible evaluating the others. Euler's topology provides for the synergetic evaluation of any visual system of experiences, metaphysical or physical, and Willard Gibbs' phase rule provides synergetic evaluation of any tactile system.

The systematic accounting of the behavior of whole aggregates may disclose discretely predictable angle-and-frequency magnitudes required of some unknown components in respect to certain known component behaviors of the total and known synergetic aggregate. Thus the definitive identifications permitted by the Principle of the Whole System may implement conscious synergetic definition strategies with incisive prediction effectiveness.

TAKE-A-PANEL

A module of a DesignShop wherein the participants take one panel of a WorkWall (about 6' tall by 4' wide) each and compose on it answers to an

assignment. The exercise allows all of the participants to be heard, to express their ideas in whatever visual fashion they wish, and have their ideas available to be viewed by other participants and captured by the DesignShop KreW. This exercise is usually succeeded by a Share-A-Panel exercise.

WALKTHRU

A session during which the DesignShop is designed, including all of the modules, assignments, and team configurations. Day one is rigorously designed, day two a little less so, and day three may be rather sketchy at this point. The Client Sponsors, Facilitators, Process Facilitators and KreW participate in the WalkThru.

WAWD TEAM

A consortium of knowledge workers, or enterprises of one, who are linked together in a vast value web, and whose expertise, skills, and passions can be focused on helping clients imagine visions and then implement them anywhere on the globe.

WRITING TEAM

A subset of the KreW and Sponsors of a DesignShop charged with crafting the assignments that participants will work on in their Breakout Teams. The term "craft" is key here. Assignments are not composed without considerable thought. When you consider that a single assignment will consume perhaps 1/6 of the duration of a DesignShop and that the reports from such an assignment will steer the entire content and tone of the DesignShop, it's easy to understand their importance.

WORK PRODUCT

A synthesis or evolutionary product of the DesignShop whose purpose is to either crystallize some concept, detail and illustrate some plan, or take the participants beyond the information of the DesignShop into new realms they may not have considered yet. Its purpose is not to simplify, but to present the complicated

and obtuse in a way that is merely very complex—so that it may be understood, but not watered down.

WORKWALLS™

Panels of light colored porcelain steel which accept a variety of marking materials such as chalks, dry erase markers, water colors, India ink, pastels, and water based markers. They are used by participants and KreW as a tool to support collaboration. A typical Management Center may have more than 3,000 square feet of this surface available. Large or small groups can illustrate complex issues and detailed plans all within plain view of the entire group, and all easily editable. The amount of information that can be manipulated on these wall systems and the flexibility of erasing or adding to it, dwarfs the capabilities of butcher paper, flip charts, or projection systems. The walls are typically six or more feet high and may be any length. Rolling walls come in lengths from four to sixteen feet in length, some of which are folding. WorkWalls may also be permanently installed within the Environment. The walls are manufactured by Athenaeum International for MG Taylor and distributed by Athenaeum International or through MG Taylor Corporation's chain of KnOwhere stores.

In addition, over the past 20 years, present inventors have developed a visual language consisting of diagrams annotated with labels and glyphs and supported by accompanying text --in short, a visual grammar and symbology to assist Transition Managers in the collaborative design, building and use of Knowledge-based enterprises. The models collectively form a loose grammar and lexicon for people to use when talking about the qualitative dynamics of enterprises undergoing the transition from mechanistic bureaucracies to organic, collaborative networks.

The models have been used in a diagnostic fashion to assist the system and process of the present invention by, for example, helping enterprises determine where they are, what's happening and why, and what possible paths may be taken. The

models may also be used as templates and design tools for creating collaborative processes.

Although the models can be studied and applied individually, their full power is only unleashed when considered in an interconnected and collective manner. The present inventors have borrowed the subtitle of Hermann Hesse's masterwork Magister Ludi: The Glass Bead Game as a metaphor for describing how to use the models together. Thus, Facilitators and Knowledge Workers play Glass Bead Games by translating current conditions into design solutions by using the models as catalysts and filters.

Modeling language speakers must develop an easy familiarity with the language for it to be of most value. Just like learning a foreign language, at some point they lay aside the dictionaries, grammar books and begin to think in the new language and use the language itself as a vehicle for learning more of it.

The terms that describe the models and their components are purposefully general. Many people begin working through the modeling language with a study of the etymology, or linguistic roots, of the terms. Then, when the terms are linked together within and across models, powerful insights become available.

The models comprise part of an evolving art form that seeks the measure, rhythm and harmony—a synthesis of the features of the complex world of the evolving enterprise. Each model has several features:

- a number of components expressed as terms and symbols (glyphs)
- a spatial arrangement of these components relative to each other and perhaps to some axis such as time ;

additional connections between the components that indicate flow or dependency.

With this background in mind, the experiments and demonstrations that the present inventors have conducted over a period of about twenty years to demonstrate, prove and refine the present invention may be grouped into a Business of Enterprise model that includes all of the clients, the knowledge worker network (past and present), KnOwhere Stores, client centers and a larger environment of vendors. Specific "products" include DesignShops, Management Centers and NaviCenters. In

the field of management consulting, for example, the present inventors have recognized that the world is going through the largest and most rapid transition in known history. It is the shift from the industrial to the post-industrial or information age. As this shift occurs, high performance executives, i.e., transition managers, are grasping the implication of these changes and are taking responsibility for steering them with craft and excellence. Thus, to test the applicability of the present invention to a single environment, the present inventors have developed management centers to research, design, prototype, and market new management systems to empower transition managers.

The information age will require new capabilities for the creation and application of information and knowledge. These capabilities will result from dramatic expansion in the performance of the intellectual resource - both human and computer-based - available within an organization. Accordingly, the present inventors have designed, developed and delivered tools, processes and environments that facilitate individuals and organizations in their transition to a knowledge-based world.

Moreover, to develop, augment and refine the process of the present invention, the present inventors have conducted a series of Design Shops. Specifically (and with reference to the definitions set forth herein) the Design Shops, which have been conducted and evolved hundreds of times over the last twenty years, are events whose purpose is to release group genius in the client, condense the time in which a team moves from Scan to Act by an order of magnitude, completely capture and organize all of the information generated, and do all of this in a facilitated way by managing not the people involved, but the Seven Domains that regulate collaboration and evolve ingenuity. The success of these design shops is evidenced by both consumer feedback and by the fact that sophisticated public companies are willing and eager to pay large amounts of money to participate in these DesignShops.

For the last twenty years, MG Taylor has tested the DesignShop concept hundreds of times with hundreds of organizations and thousands of people. What the DesignShop event has allowed these organizations to do has been to solve their most

pressing problems. Groups have used DesignShop events to complete mergers, develop marketing plans, instill new cultures, redesign entire organizations, create shared visions of what is and what can be, resolve seemingly deadlocked union struggles, and design solutions that would have taken months or years of "business as usual" to create, if indeed "business as usual" could have designed a solution at all. An experience of a very different way of working, the DesignShop event proves its value in the results that it produces.

For a DesignShop event, all of the key stakeholders, decision makers and interested parties are brought together so that the decisions that need to be made can be made. During the event, participants rigorously explore their current conditions and their visions of the future, co-design multipleproblems associated with the issue being explored, assess the merits of their different problem examples, and decide which problem best represents the issue at hand. Using the power of parallel processing—looking at various issues from different vantage points and synthesizing the results of that examination—participants can deal with the tremendous complexity involved in planning for the future. A large group brings diversity of opinion, knowledge, experience and vantage point, enabling the DesignShop process to release their dynamic group genius. The design of the event follows the Scan Focus Act process:

During the SCAN phase, the participants confront and process a vast body of information and knowledge. Participants build models of emerging social and economic trends. They establish a common language for the group, identifying terms of art, uncovering assumptions, and discovering the unexpected. A context emerges for the area of focus. Judgment and argument are withheld during this time so that ideas can flow freely. The scan phase is based on the DesignShop axiom, "Creativity is the process of eliminating options." Wise elimination assumes that rich, dynamic, timely options have been explored. The variety of ideas created by thirty, sixty or ninety people multi-tasking allows the participants to design from many different vantage points simultaneously.

In the FOCUS phase, participants use parallel processing to systematically examine the ideas generated during the scan. The market, financial, cultural, organizational, and social dynamics of the potential paths are explored by modeling and 'Spoze. Through these exercises, participants set aside prejudices, work through "stretch" models and scenarios as if they were true, then step back and to examine the viability of the different options they have created. Scenarios using convergence possibilities are examined. Participants have said that the focus day is hundreds of percentage points more productive than a typical meeting day. Each successive round of the iterative process provides more discrimination and clarity to the designs and ideas that the group creates. By the end of FOCUS, participants have a clear vision of the route they will be taking.

During the ACT phase, the ideas and design from the first two phases converge. Throughout the process, ideas have either gained strength and developed or fallen away naturally. The strong components remain, and design ideas turn into programs and projects which are laid out over time. The group reaches a common vision and engineers a comprehensive plan of implementation through group genius. From the rich body of knowledge developed over the previous two days, the group chooses those elements most critical to their organization's particular needs.

In addition, the experience of the past several days becomes the model for a new way of working. As a stand-alone event, the DesignShop can be used to design solutions to tremendous problems. Its greatest value, however, can be found in the pattern of work that the DesignShop process represents. By taking the Ten Step Knowledge Management process with them when they return to their organizations, participants discover that productivity levels of a DesignShop event can be replicated at home.

In another example of an application of some of the elements of the present invention to a specific discrete use, the present inventors have also developed and sold management centers that integrate work process design, innovative architecture, technical systems and information management—tools, process and environment. Management centers represent a systematic reinvention of the way people think,

decide and work together to accomplish organizational goals. Management centers provide organizations with an enhanced capacity to anticipate, plan, and act. In short, management centers provide Transition Managers with the proper tool to manage what the present inventors have identified as all of the Seven Domains as a total system:

- growing and adapting the body of knowledge required to model the internal and external environment and then create appropriate organizational responses
- facilitating the processes of decision making, design, the way work gets done individually or with others in order to release group genius—the genius that provides the enterprise with a competitive and cooperative edge
- creating education systems to help organizations explore beyond their current boundaries of performance and invention, and training systems to set the memes of new performance standards quickly throughout the complexities of the value web;
- employing environments that allow individuals and groups to see the whole picture and the details, to collaborate effectively, work individually, and change configuration within a matter of minutes to accommodate the expansion or contraction of ideas, groups, plans and designs
- using technical systems to leverage education systems and more rapidly adapt the body of knowledge to the external business, social, technological and political environment—so much so that truly effective organizations have a greater hand in creating the external environment, and doing so in a responsible, healthy way
- managing projects collaboratively with less waste, more innovation, and an ability to see into the "white space" between activities—the place where unanticipated opportunities are mined and unforeseen disasters averted ; and
- managing the entire value web as a venture, including dozens or thousands of individuals and other organizations into a synergistic whole, each part maintaining its identity and ability to lead sapientially, while contributing to the work of the whole and the other parts.

Management Centers were invented to address the specific technological, social and economic conditions and opportunities facing organizations now and in the future. In their broadest terms, these conditions are characterized by a rapid and accelerating rate of change, and the inability of most organizations to effectively respond to that rate of change through traditional (typically incremental and linear) approaches. To this end, the management centers provide:

- the ability to anticipate and track internal and external changes
- the ability to respond quickly and appropriately to new conditions, and thus "turn turbulence into opportunity"
- the ability to readily reconfigure internal operations to meet changing demands
- the ability to align members of an organization to address new challenges
- the ability to design new processes and develop the conditions to support high-performance
- the ability to master complexity, and continually be able to discern the critical events and trends in an era of information overload; and
-

the ability for each individual to see the whole as well as the parts, and to apply a systems perspective to their work.

In addition, the present inventors have developed used and sold a specialized form Management Center known as a NavCenter. NavCenters use combinations of Environments, Processes and Tools (see the Seven Domains model) similar to those found in Management Centers. The difference between Management Centers and NavCenters is the very specific purpose of the NavCenter. While a Management Center is designed to support numerous, large groups doing a variety of work, and NavCenter is designed with a specific purpose in mind. Nested inside a specific company, the NavCenter is the focal point for the entire fulfillment of the company's purpose.

The four key elements of the NavCenter that serve to realize its purpose are Dialogue, Grok, Align and Act. "Grok" comes from Robert Heinlein's novel, Stranger in a Strange Land. Literally, "to drink". The metaphorical meaning is "to understand, usually in a global sense." In a NavCenter, knowledge is available in

ANDMap™, Project Status Map, Time & Task Map, Infolog, WorkWall™, and Knowledge Wall™ systems, and available on the Internet. This information allows any viewer to Grok the whole project and the ways in which the components progress and interact. Each project must be aligned with the purpose of the company and of the NavCenter. As the hub, the NavCenter is the ideal vantage point from which to examine the relationships of the parts to the whole. Alignment does not imply that there will always be agreement—in fact, differences in opinion and vantage points provide the creative tension by which solutions are generated. ActCarry out action steps that are aligned with the larger goals. Each act will be efficient, effective and will bring the goal of the company closer to reality. The first stages are vital for effective Actions, but the first stages are meaningless without the Actions that they produce.

In these experiments, the participants are not taught the underlying aspects of the invention, but are rather exposed to discreet embodiments of the process at a high level. This is sufficient to test and prove the process without revealing the underlying concepts or the scalability and applicability of the system and process to ther areas. Thus, notwithstanding the public use and testing of these components, the underlying concepts are still not understood.

SUMMARY OF THE INVENTION

The experiments and demonstrations that the present inventors have undertaken have demonstrated that the interrelationship between environment, process and tools is, as suspected, non-linear and that it is possible to obtain synergistic effects by simultaneously addressing these elements to create an environment that fosters group genius, i.e., a synergistic outcome that is greater than the sum of the parts. In particular, the inventor's past experience has confirmed the usefulness and demonstrated the possibility of the system and process for facilitating communication and other interaction among agents (humans, machines, groups, organizations and combinations thereof) so as to provide feedback, learning and self-

adjustment among the individual agents thereby creating an environment for interaction (consisting of environment, tools and processes) that facilitates emergent group genius in a radically compressed time period.

Thus, where the experiments and demonstrations conducted to date have empirically shown that certain elements of the invention can be applied by highly trained individuals to discrete environments, there remains a need for an automated, widely applicable and easily scaleable system and method for applying the inventor's insights.

The present invention has been developed through the process, demonstrations and refinement described previously. Specifically, the present inventors have developed an integrated process that is self-adjusting, provides feedback and is emergent. Moreover, by demonstrating the scalability and applicability of this process in a variety of situations, the inventors have demonstrated that this process can be applied to a wide variety of applications involving the interaction of agents (people, computers, groups, organizations).

It is a further object of the present invention to use the inventors' insights and the empirical evidence and experience gained through the experiments and demonstrations described above to develop a system and method which, among other things, facilitates and automates application of the invention to specific environments and widely applicable embodiments . The system is applicable to many forms of agents both human and machine agents such as software objects.

In general, the system and process of the present invention address environment, process and tools in a way that creates an improved environment for group interaction. At the highest level, these areas are each addressed through description, explanation and specific physical examples. At a deeper level, the elements are addressed through high-level manuals written in a language that can be understood by the agents. At a still deeper level, the essential concepts involved can be described in models and/or glyphs. The glyphs are original artistic expressions of concepts relating to group dynamics. Collectively, the glyphs, when used in connection with a grammar system, constitute a separate language somewhat analogous to a fourth-generation language. At a still deeper level, the present

invention makes use of a series of rules or algorithms that effect an environment, process and tools.

As mentioned above, the inventors have developed a language and grammar system to describe some of the concepts underlying the system and method of the present invention. To assist in the description of the present invention, therefore, the following definitions are set forth:

Ten Step Knowledge Management: The engine for processing information from events through a knowledge base, into distribution, into design, and on to subsequent events.

Scan-Focus-Act: A basic representation of the creative process in three stages (plus a feedback element).

Business of Enterprise: The network-based architecture for linking the functions of production, investment, consumption and management in the Knowledge-based enterprise.

Stages of an Enterprise: The Lifecycle of the enterprise including special situations such as overshoot and collapse, turnaround, the entrepreneurial button.

5 E's of Education: The necessary and sufficient components of a complete educational package.

Vantage Points: Seven shells of context from philosophy to task that must be in place for enterprises to maintain homeostasis.

Seven Domains: The seven areas that are managed in every enterprise and every activity of the enterprise. When managed properly they ensure corporate health and allow Knowledge-based organizations to grow and profit.

Seven Stages of the Creative Process: The most complex of the creativity models developed by the present inventors, this model explains how problems are created and then solved in a process that is recursive, fractal, cyclic and nonlinear in character.

'Spoze: The 'Spoze model holds the secret for allowing systems to evolve in rapidly changing environments and yet maintain their own homeostasis and identity.

Enterprises use 'Spoze to innovate without having to grab on to every new idea that passes by.

Appropriate Response: Every stage of the Creative Process involves producing a result. Superior results can be obtained by filtering or testing competing designs through the six elements of this model.

Three Cat: We all build mental concepts of how things work by observing reality. But to cement the learning, we must build models that exemplify our concept and test these models against what we observe to confirm our understanding.

Design Build Use: The unfolding of a project or creation over time is an interactive, iterative game between the designer, builder and user. However, when we make the process linear, discrete and focused on being "finished", the outcome is a nonliving one.

Creating the Problem: This model explores the relationship between vision and condition that creates the "problem." It continues with a description of the tug and pull of creative tension that brings the vision and conditions together to create a new condition.

The Learning Path: Five Points of Mastery: Instead of the three traditional roles of education (student, teacher, administrator), we present five: the learner, the sponsor, the expert, the facilitator, and the steward. In high performance environments each individual moves from role to role sometimes in rapid succession and sometimes in cycles that span years.

The Four Step Recreative Process: The creative process has many facets and can be understood and practiced from many different vantage points. The Four Step model emphasizes the activity of recreation between each stage of the creative process and shows this recreation as a wave and a particle phenomenon—linear and non-linear approaches.

Each of these essential concepts can be described in models and/or glyphs. The glyphs are original artistic expressions of concepts relating to group dynamics. Collectively, the glyphs, when used in connection with a grammar system, constitute a separate language somewhat analogous to a fourth-generation language. The use of glyphs in the modeling language has several intents:

- To convey some additional, deeper sense of each component of a model.

This is done by researching the etymology of the word and searching for symbols that support certain meanings that we wish to emphasize. For example, the 5th E of Education is EXPLORE. The root of the word means "to search out; cry out aloud." The symbol chosen to represent EXPLORE is an open fan. The fan represents imagination, air and wind. You can envision the fan as a sail of the mind with the human spirit filling it with wind, and the imagination crying aloud for new vistas.

- To add a measure of play, fun and interest to the modeling language.

In sum, the present invention provides a system and method that is self-addressing and self-correcting and results in an emergent system, that can be applied to a large variety of situations involving interaction between agents. In this way, the present invention facilitates interaction between agents to promote feedback and self-adjustment to obtain synergy.

The individual experiments and simulations that applicants have conducted over the past two decades have demonstrated that the concept works in a wide variety of contexts and is not restricted or limited to only a single environment. Based on these experiments, therefore, it is reasonable to assume that the present invention can be applied to a wide variety of enterprises to promote group genius and synergy.

To achieve the stated and other objects of the present invention, as embodied and described below, the invention includes a method for fostering creativity comprising the steps of identifying a number of agents and selecting a subset of these agents based on certain determined criteria and other methods. An environment for creative interaction is prepared, and the agents selected are placed within this environment. Work is then performed on these agents in order to develop a result. The result is then evaluated, which produces a first new agent. This first new agent produced is then tested.

Further, the first new agent may be added as an agent to the existing environment, added as an element of the environment, or added as additional work to be performed in the environment by the agents, and the process of the present invention is then repeated with this new element to produce a second new agent.

In addition, the first new agent may be added to an external environment, wherein the first new agent is altered and may return or produce a third new agent for return, in which case, the altered first new agent or the third new agent is added as an agent to the existing environment, added as an element of the environment, or added as additional work to be performed in the environment by the agents, and the process of the present invention is then repeated with this new element to produce another new agent.

The pattern is consistently repeated until a pattern appears. This pattern can be readily identified and discussed using the specific language developed by the present inventors.

BRIEF DESCRIPTION OF THE DRAWINGS

In the figures:

Figure 1 is a block diagram of a single iteration of an embodiment of the present invention.

Figure 2 shows a block diagram of the process of a decision point element contained in the block diagram of a single iteration of an embodiment of the present invention.

Figure 3 is a block diagram illustrating the plurality of agents and their functions.

Figure 4 is a block diagram showing elements of the environment.

Figure 5 is a block diagram illustrating important components of the performing work element of an embodiment of the present invention.

Figure 6 presents examples or elements of the altered or output agent produced by iterations of an embodiment of the present invention.

Figure 7 contains examples or elements of the output agent and new environment interaction.

DETAILED DESCRIPTION

An embodiment of the present invention is described in figures 1-7. Figure 1 provides a block diagram overviewing a single iteration of the method of the present

invention. The steps of the present invention are not intended to occur in a particular order; they may occur simultaneously or in an orderly fashion, but not necessarily in the order illustrated in Figure 1. Moreover, the specific stops shown are illustrative, not exhaustive. The process system can include other steps.

The method shown in Figure 1 illustrates only a single iteration of an embodiment of the present invention. An important aspect of the present invention is that the process occurs on multiple levels of recursion. Thus, it is contemplated that other iterations can, and preferably do, occur consecutively or in a chain-like manner, such as feeding the resultant agent or product of an iteration into a subsequent iteration; in addition, simultaneous multiple iterations can occur at different levels of interaction. For example, some agents within a particular iteration, such as a facilitator, may also conduct additional iterations relating to any particular step in the process or mirroring part or all of the iteration.

The system and process of the present inventors are most productive when there are multiple levels of recursion and feedback occurring simultaneously. The use of an interactive process that includes multiple levels of recursion, feedback and self-adjustment yields a system and process that can be used to facilitate the interaction among agents such that synergistic results occur. In solving complex problems, for example, the system and process need not address the entire problem at once, but instead evolves toward a solution. In short, problems are dissolved, not solved.

In the single iteration shown in Figure 1, in step S1, a group or pool of agents for potential use with the system are identified. This identification step can be performed by a user of the system or by persons or systems outside the system of the present invention. These agents can include, for example, intelligent agents, persons, documents, computer software, firmware, living things, computers, and other objects. Collection by a system or person outside the system of the present invention could include, for example, a company selecting particular intelligent agents, documents, programs, and people as potential agents to be included for a particular iteration.

In step S2, an operation is conducted upon these agents. In an embodiment of the present invention, this operation includes selecting particular agents fitting a

predetermined cross-section of skills or other creativity elements designed to foster operation of the present invention. The predetermined cross-section is dependent on the scope of the iteration; for example, if a particular problem is attempting to be solved for a particular group of agents, the nature of the problem and group suggests an appropriate cross-section. In addition, an embodiment of the present invention contains factors that support develop of a generic cross-section, which is alterable using iteration-specific information.

The selection process of step S2 can include, for example, querying the pool of agents for responses used in determining their amenability for the particular iteration. The querying can be intended to illicit characteristics about the agent that correspond or mesh with those characteristics identified for the predetermined cross-section. In addition, the substance of the responses themselves are useful in developing the cross-section.

In step S3, the agents selected as a result of the process of step S2 are added to an environment that has been created in step S4. Adding the agents can include connecting computers or agents via a network or other electronic or other coupling. It can also include collecting persons or groups of persons in a particular place.

Creating the environment of step S4 also includes such things as creating a particular network, designing a particular workspace, programming a computer, or other methods of collecting agents. In addition, other elements of the environment may be created. In particular, if the environment includes persons, the environment can include particular amenities designed to foster effective operation of the present invention. For example, the environment may include sectioned areas for collecting groups, wall surface writing and drawing capabilities to allow the agents to continuously maintain information in an easily viewable area, computers for use of agents, television or other video capabilities, and toys, games, books, and other tools designed to assist agents in communicating ideas and performing other functions that comprise the function of the present invention.

In step S5, the user or agents within the system perform work. The type of work performed by the agents can include a variety of tasks or exercises designed to encourage identification and detailed definition of problems or issues specific to the

iteration using methods of approaching the problems or issues that are outside the agents' usual scope of problem solving patterns. The exercises and tasks can include collecting information, role playing, game playing, research, analysis, and reporting, model building, illustration of issues using three dimensional objects and tools, and other problem-solving activities.

The results of the processes of steps S3, S4, and S5 are production of new agents, such as documents, computer programs, suggested problem approaches analogous to issues at hand, and proposed solutions. In step S6, a sophisticated decision process occurs, which is further detailed in Figure 2, described below. The outcome of the decision process produces one of two outputs to other steps. In the first output branch, the resultant new agent is fed back to the current iteration. The first step of the feedback process is to test the new agent in step S7. In step S8, a decision is made as to whether to input the new agent as a perform work function for step S5. Alternatively, the system proceeds to step S9, in which a decision is made whether to input the new agent to the environment, step S4, thereby effectively creating a new environment, or to input the new agent as another agent in the system, step S3.

In the second output branch, the output of step S6 serves as input, step S10, to a new environment. In step S11, the agent is then altered as a result of its incorporation into the new environment. In step S12, the altered agent is evaluated in a sophisticated decision process similar to step S6, as described in more detail in relation to Figure 2 below. The results of this decision process are either to feed the resultant newly altered agent back to the current iteration, via step S7, or to exit the agent from the iteration.

The exit of the agent from the current iteration can serve a variety of functions. For example, the exiting agent can provide input to another iterative process using the present invention. The exiting agent can also simply exit the process.

Two examples of the operation of an iteration of the present invention as described in Figure 1 follow. These examples are intended to be illustrative only. The examples are not intended to limit the application of the system to a particular

set of agents, a particular iteration, or a particular environment. The examples are also not intended to imply that a single iteration or a particular order of steps are necessary.

The first example illustrates a facilitated creativity workshop process. In a workshop using the present invention, some number of steps of the workshop are automated, such as computerized, using the method and system of the present invention. In this example, referring to Figure 1, in step S1 a group of persons are identified as a pool of potential agents to assist in solving a particular problem; in this example, both the pool of people and the particular problem are identified by a company.

In step S2, persons in the pool are provided with information and queried by a user, such as a facilitator, who also serves as an agent, in a targeted manner designed to illicit information about their potential amenability to the problem identified and the set of skills selected by the user. A computerized matrix of skill needs matched to the problem at hand is used to select from the pool; the matrix is partially fulfilled using a selection process. In this example, this process of matching skill results, problem-specific issues, and a matrix are automated. In addition, other agents are identified, such as intelligent agents designed to obtain particular information from the Internet. These intelligent agents can be either commercially available or specifically designed and tailored to the particular problem at hand. Also as a part of step S2, either separately or as an element of the pool selection process, a set of documents and other informational items are provided to the agents.

In step S3, the persons and intelligent agents selected are collected in a common environment, which is created in step S4. The environment can include furniture conducive to creativity, moveable walls that participants can write on, toys, games, video displays, computers, and other tools for creatively producing examples and illustrating points.

Contemporaneously with steps S3 and S4, exercises or other tasks are selected for performance by the agents as step S5. These exercises can include collecting information, such as automatically searching the Internet, role playing, game playing, analysis, reporting, or other problem-solving activities. These

exercises are designed to encourage the agents to function or think about problems in a way that facilitates identification and detailed definition of the problem at hand using methods outside the scope of the usual problem solving of the agents. For example, a subgroup agents may be assigned to study and system in nature that may be suggestive of the problem at hand. The subgroup then provides their analysis and results to the selected group as a whole, which is then used for additional analysis and problem clarification. An intelligent agent may be assigned to obtain information about elements of nature when the problem is focused on a business issue.

In step S6, a decision is made as to whether the results are fed back, step S7, to the current iteration, as additional work performance, step S8, or into the environment or as additional agents, step S9. Alternatively, the results may be passed to an outside environment, step S10. In this example, the decision process is facilitated via input and evaluation using a computer program.

Following step S10, the agent is altered by the outside environment in step S11. The altered agent is then tested in step S12, in a manner similar to that of step S6, and a decision is made as to whether to exit the agent from this iteration, or to return the agent or additional information obtained as part of the altered output agent process to the current iteration through step S7.

As an example feed to an outside environment in steps S10 and S11, an initial proposal regarding the problem at hand could be sent via an agent to the management of the company. The management of the company could then provide feedback to the agent, who then returns to the environment of the current iteration to continue the iterative process.

In the second example, much more of the process is automated, such as by computer program and computerized intelligent agents. In this example, in step S1, a group of intelligent agents, each having specific functions and missions, are developed, step S2, by a user at a terminal to solve a particular problem. The functions and missions of these intelligent agents are identified or developed based on cross-indexing of preselected creativity traits and the scope of the problem at

hand. In this example, an automated process assists the user with developing this cross-index.

The agents are then connected and communicate with the user via computer connection, which serves as the environment, step S4. As the user performs work, step S5, the agents provide a variety of inputs based on their assigned functions. For example, an agent could be assigned to search the Internet for associative ideas based on use of particular keywords by the user. Thus, as the user word processes and creates keywords some agents would continuously search and display results associated with keywords or combinations of keywords.

As the user works on the problem, the results of the keyword combinations are fed back in steps S7, S8, and S9, as additional work and to other intelligent agents performing other functions; the results of these functions are also continuously provided to the user as part of the environment. In this way, a continuous feedback loop of information from the various agents, including the user, would serve as a growing set of information that is simultaneously displayed in the user's environment. At some point the user outputs the results, step S10, alters the results outside the process, step S11, and then makes a decision, step S12, as to whether the outputted result is sufficient to solve the problem for the user's needs or whether the result should return to the process, step S7, for further iteration.

The decision step S6 is a complex process that may in itself incorporate an entire iteration of the process shown in Figure 1. As shown in Figure 2, this process includes the following steps. In step S20, the original state model applicable to the iteration at hand is inputted, and in step S21 a current state model is inputted. In step S22, these two models are compared to develop a differential or delta between them. In step S23, a matrix and set of rules applicable to the issue of the iteration are developed. In step S24, the matrix and set of rules are inputted with the delta. In step S25, a first combination of the matrix and rules are applied to the delta. In step S26, subsequent combinations of the matrix and rules are iteratively applied to the delta until a provisional dissolve of the delta is reached. This process can include agents, an environment, and performance of work, as described in relation to Figure 1. In step S27, the agent produced by the combination of matrix and rules is applied

to the delta to produce a provisional dissolve. In step S27, this agent is shipped either back into the current iteration, or out to a new environment, or both. A similar process occurs with regard to step S12 of Figure 1, and can occur with regard to steps S8 and S9.

Figures 3 through 7 comprise block diagrams illustrating elements supporting the various steps shown in Figure 1. In Figure 3, the plurality of agents and their functions 1 include people 2, machines 3, computers 4, software 5, firmware 6, living things 7, objects 8, input and output both among agents and external to agents 9, and an operating system 10.

In Figure 4, elements of the environment 20 include one or more agents 21, architectural components 22, objects 23, variable boundaries 24, information 25, location (micro and macro) 26, tools 27, energy 28, input and output 29 both among elements of the environment 30 and to external elements from the environment 31, and an operating system 32. Variable boundaries can include, for example, the porosity of the environment. This variable is matched to the environment based on the agents, the scope and nature of the work, and the influence of other environmental factors. Important influences on the agent or agents in relation to the environment include energy 33, the physical nature of the agents 34, the knowledge and intellectual properties of the individual agents 35, the agents' psychological makeup 36, and the knowledge base of agent characteristics 37, both for the agents as individuals 38 and as a group 39.

Figure 5 illustrates important components of the performing work element 45 of the present invention. These components include identifying or developing a goal model 46, such as an end state model that enables the problem to be created and dissolved, acquiring experience 47, reframing 48, recognizing patterns 49, building models 50, simulating 51, selecting 52, testing 53, deciding 54, and iterating 55. In addition, input and output 56 among the components and from the components to external components and an operating system 57 make up aspects of the perform work element 45 of the present invention.

Figure 6 presents examples or elements of the altered or output agent 60 produced by iterations of the present invention. The output agent 60 consists of one

or more of an altered input agent 61, altered environment elements 62, new agents 63, such as work products or non-autonomous agents, and agent mission maps 64. In addition, input and output 65 among the components and from the components to external components and an operating system 66 make up aspects of the output agent element 60 of the present invention.

Figure 7 presents examples or elements of the output agent and new environment interaction 70. These elements include the output agent medium 71, such as a document or a program, mission 72, output agent feedback and communication 73, and new environment feedback and communication 74. In addition, input and output 75 among the components and from the components to external components and an operating system 76 make up aspects of the output agent and new environment interaction element 70 of the present invention.

CLAIMS

1. A method for fostering creativity comprising the steps of:

identifying a plurality of agents;

selecting a subset of said agents;

creating a first environment for creative interaction of said subset of agents;

adding said subset of agents to said first environment;

performing work on said first environment containing said subset of agents to develop a result;

evaluating said result;

producing an alternate agent using said result; and

testing said alternate agent relative to said result.

2. The method of step 1 further comprising the steps of:

determining whether to add said alternate agent to said subset of agents;

determining whether to add said alternate agent to said first environment;

determining whether to perform said work on said alternate agent;

if said alternate agent is added to said subset of agents, repeating the steps of claim 1;

if said alternate agent is added to said first environment, repeating the steps of claim 1; and

if said work is performed on said alternate agent, repeating the steps of claim 1.

3. The method of step 1 further comprising the steps of:

adding said alternate agent to a second environment;

altering said alternate agent based on said second environment; and

if said altered alternate agent has input for said iteration, repeating the steps of claim 2.

4. The method of step 1 wherein said evaluating step comprises the steps of:

a) inputting a first model;

b) inputting a second model;

c) comparing said first and second models to produce a differential;

d) developing a matrix and rules relating to said first and second models;

e) inputting said matrix and rules;

f) applying said matrix and rules to said differential; and

g) repeating steps d) through f) until said matrix and rules said differential converge.

5. The method of claim 1 wherein said agent comprises one from the group of person, machine, computer, software, firmware, living things, and objects.

6. The method of claim 1 wherein said first environment comprises at least one from the group of agent, architectural component, object, information, and tools.

7. The method of claim 1 wherein said performing work step comprises identifying a goal model.

8. The method of claim 1 wherein said performing work step comprises acquiring experience.

9. The method of claim 1 wherein said performing work step comprises reframing.

10. The method of claim 1 wherein said performing work step comprises recognizing patterns.

11. The method of claim 1 wherein said performing work step comprises building models, simulating, selecting, testing, deciding or iterating.

12. The method of claim 2 wherein said altered agent comprises at least one from the group of altered input agent, altered environment element, new agent, and agent mission map.

13. The method of claim 3 wherein said second environment comprises the output agent medium.

14. The method of claim 3 wherein said second environment comprises a mission.

15. The method of claim 3 wherein said altered alternate agent comprises feedback information from said alternate agent.

16. The method of claim 3 wherein said altered alternate agent comprises feedback information from said second environment.

17. The method of claims 1, 2 or 3 wherein said steps are performed in any order.

18. As system for performing the method of any of claims 1-17, comprising comprising means for performing each of the steps.

19. An iterative, feedback driven system for facilitating interaction among agents promoting feedback, learning and emergent group genius in a radically compressed time period.optimizing interaction amon agents acting on multiple levels , the system comprising:

a plurality of real agents each real agent having a plurality of characteristics;

means for allowing at least some of the agents to control the degree to which data corresponding to characteristics is revealed to other agents ;

means for allowing agents to control other agents, including themselves;

means for allowing the agents to posses access or use privileges with respect to access or use of other agents;

means for measuring actual performance of agents;

means for inputting expected performance of agents;

means for comparing actual performance of agents to expected performance of agents;

means for modifying agents based on the difference between actual performance of agents and expected performance of agents; and

means for allowing communication between agents limited to what the agents reveal about themselves.

1/7

FIG. 1

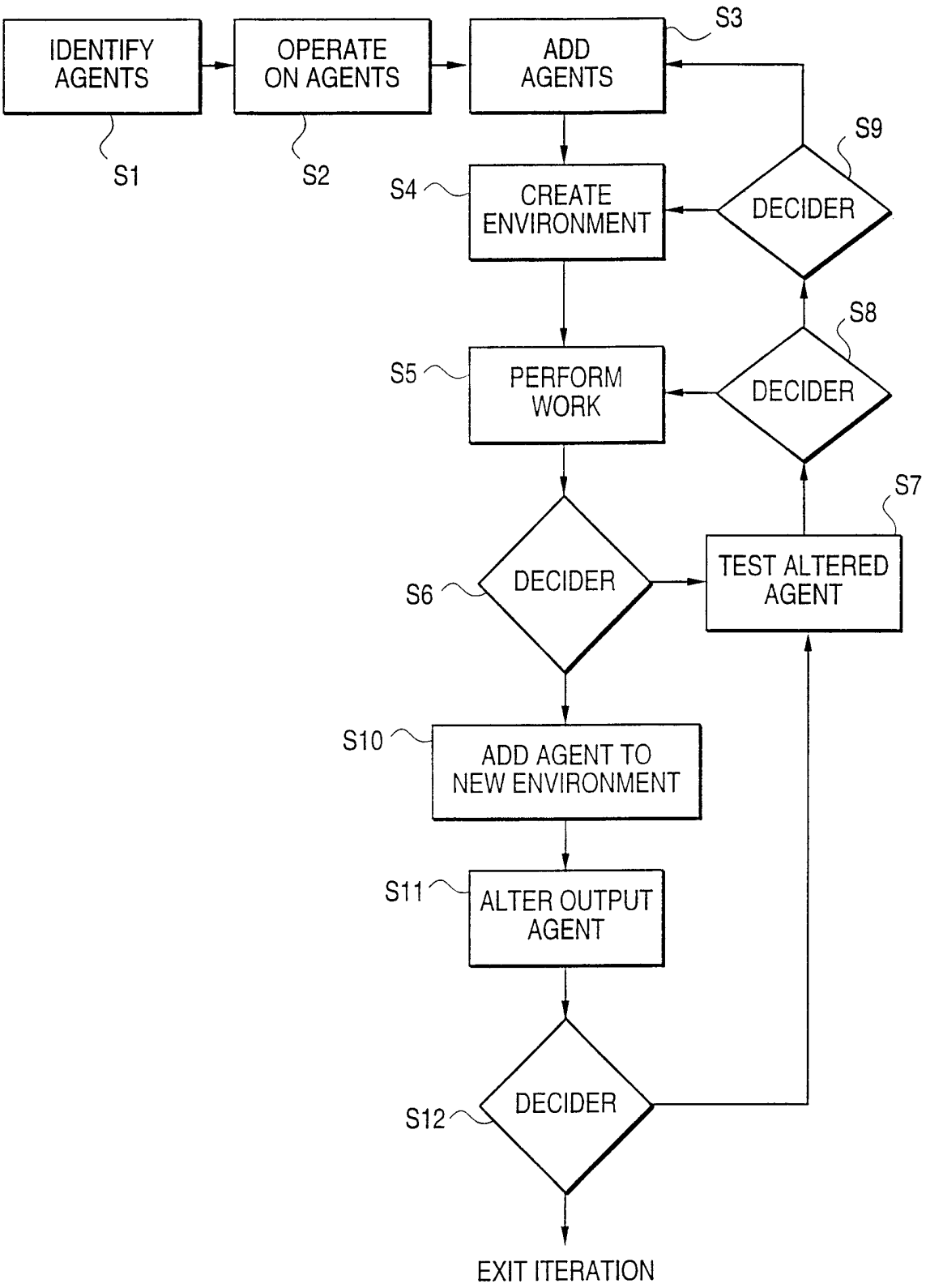
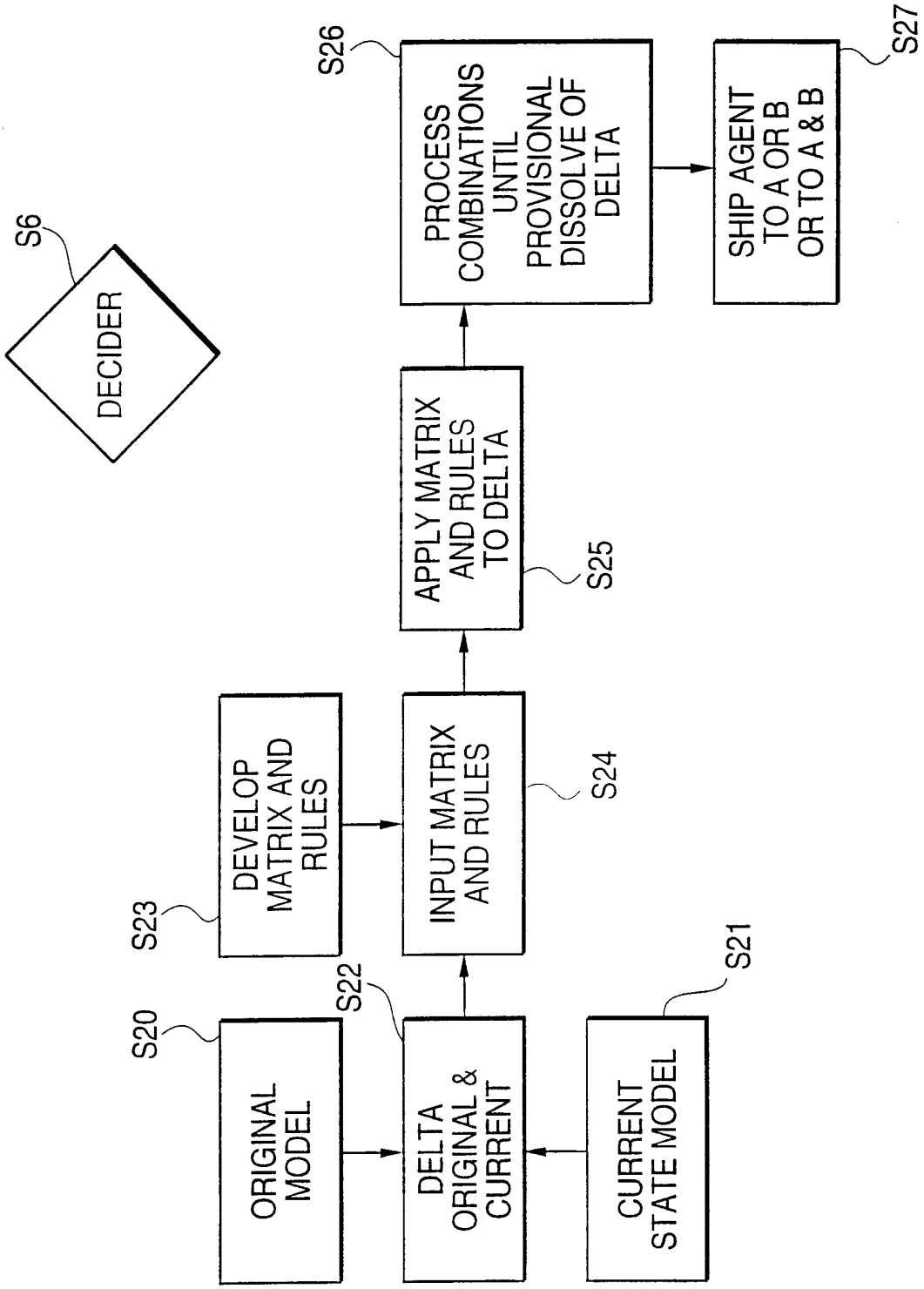

IDENTIFY AGENTS
S1
OPERATE ON AGENTS
S2
ADD AGENTS
S3
CREATE ENVIRONMENT
S4
PERFORM WORK
S5
DECIDER
S6
TEST ALTERED AGENT
S7
DECIDER
S8
DECIDER
S9
ADD AGENT TO NEW ENVIRONMENT
S10
ALTER OUTPUT AGENT
S11
DECIDER
S12
EXIT ITERATION

FIG. 2


S6
DECIDER
S26
PROCESS COMBINATIONS UNTIL PROVISIONAL DISSOLVE OF DELTA
S27
SHIP AGENT TO A OR B OR TO A & B
APPLY MATRIX AND RULES TO DELTA
S25
DEVELOP MATRIX AND RULES
S23
INPUT MATRIX AND RULES
S24
S20
ORIGINAL MODEL
S22
DELTA ORIGINAL & CURRENT
S21
CURRENT STATE MODEL

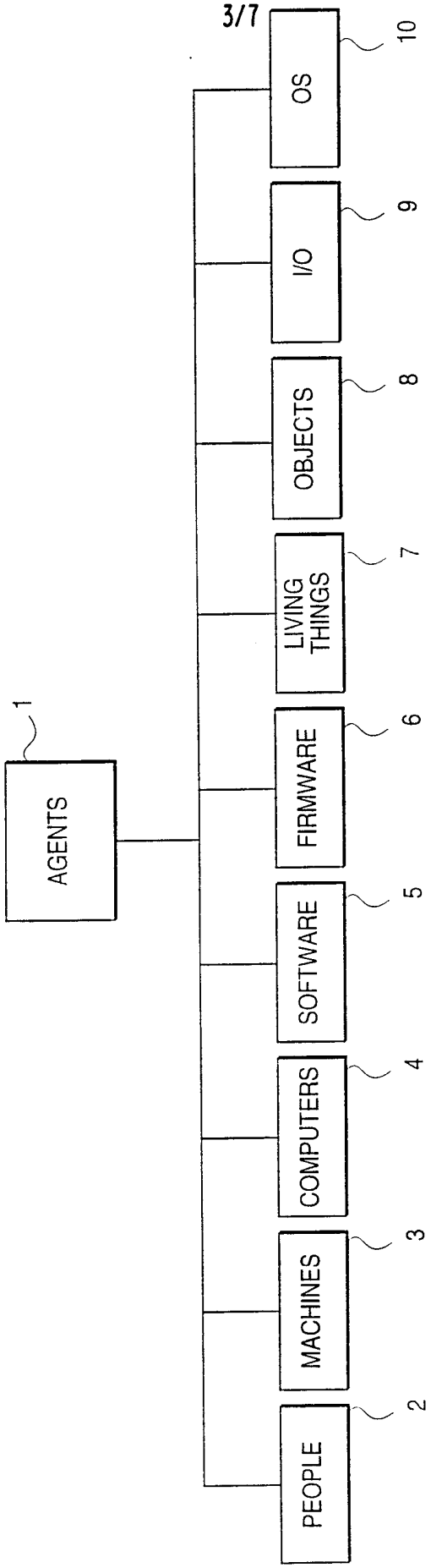

AGENTS
1
PEOPLE
2
MACHINES
3
COMPUTERS
4
SOFTWARE
5
FIRMWARE
6
LIVING THINGS
7
OBJECTS
8
I/O
9
OS
10

FIG. 3

FIG. 4

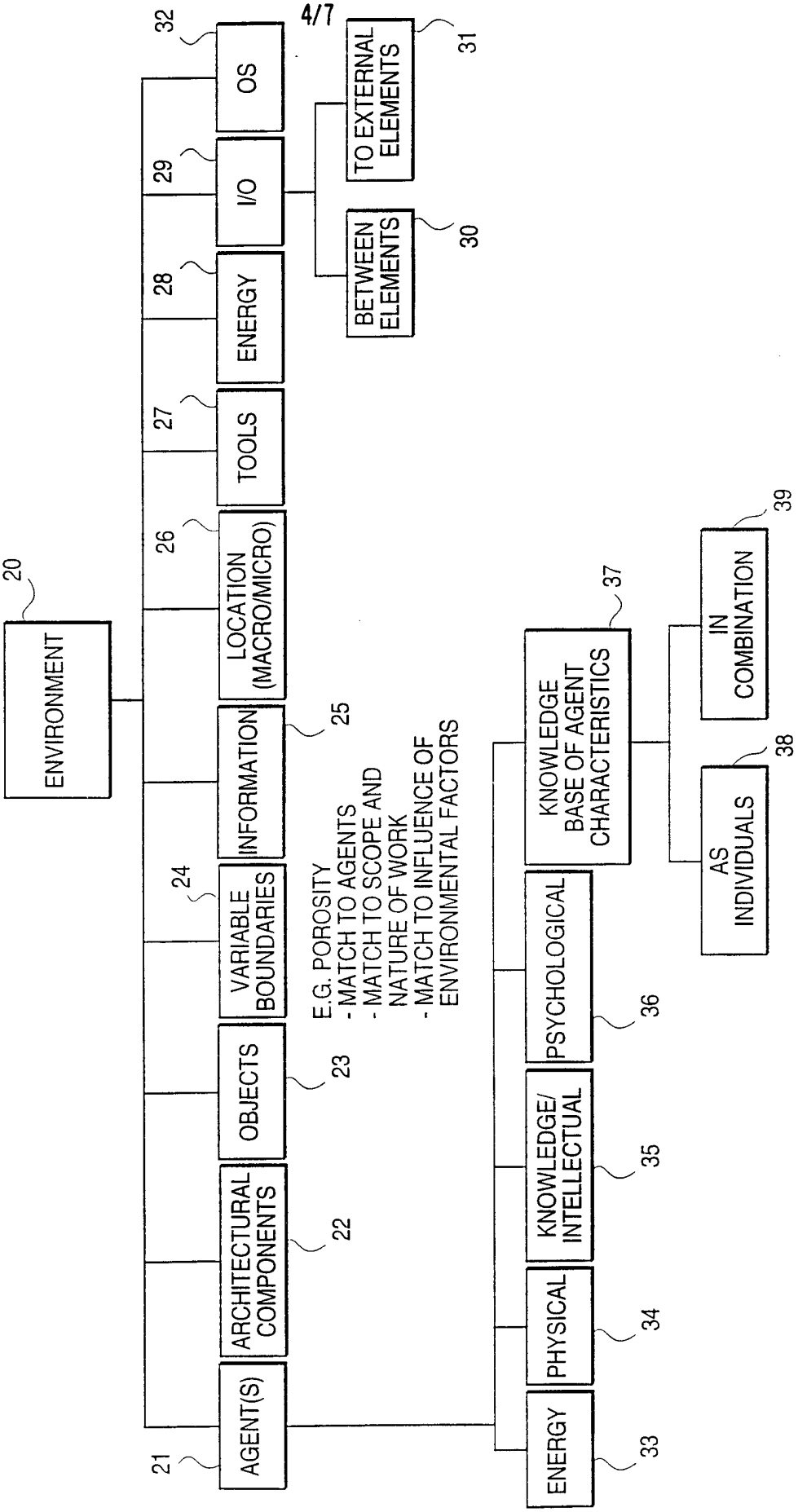

ENVIRONMENT
20
AGENT(S)
21
ARCHITECTURAL COMPONENTS
22
OBJECTS
23
VARIABLE BOUNDARIES
24
INFORMATION
25
LOCATION (MACRO/MICRO)
26
TOOLS
27
ENERGY
28
I/O
29
OS
32
BETWEEN ELEMENTS
30
TO EXTERNAL ELEMENTS
31
E.G. POROSITY
- MATCH TO AGENTS
- MATCH TO SCOPE AND NATURE OF WORK
- MATCH TO INFLUENCE OF ENVIRONMENTAL FACTORS
ENERGY
33
PHYSICAL
34
KNOWLEDGE/ INTELLECTUAL
35
PSYCHOLOGICAL
36
KNOWLEDGE BASE OF AGENT CHARACTERISTICS
37
AS INDIVIDUALS
38
IN COMBINATION
39

FIG. 5

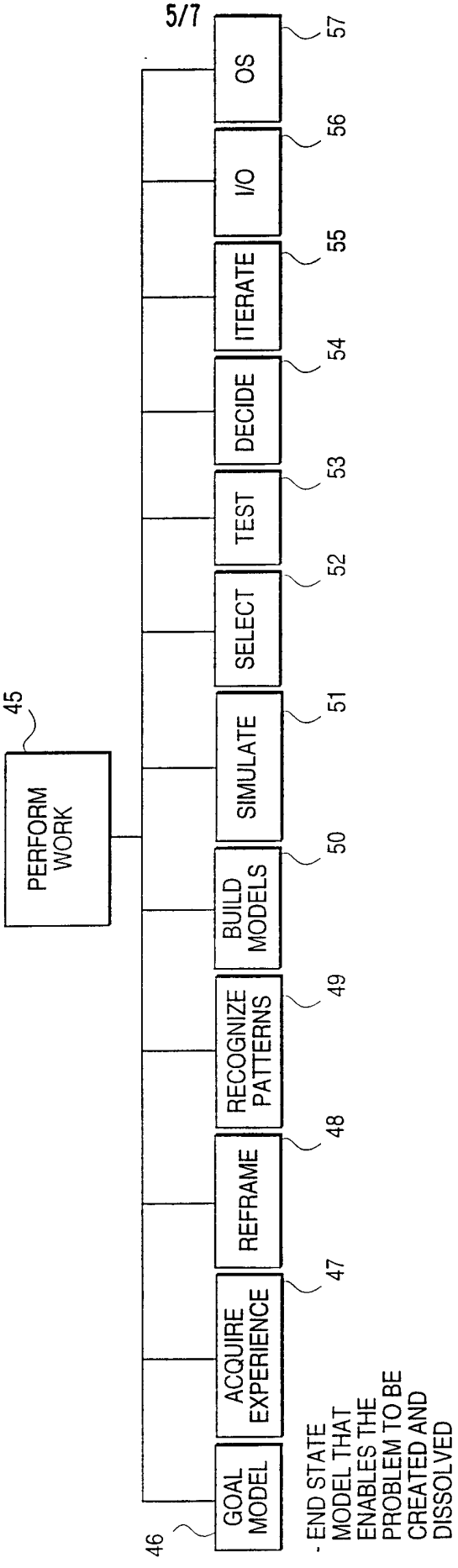

PERFORM WORK
45
GOAL MODEL
ACQUIRE EXPERIENCE
REFRAME
RECOGNIZE PATTERNS
BUILD MODELS
SIMULATE
SELECT
TEST
DECIDE
ITERATE
I/O
OS
46
47
48
49
50
51
52
53
54
55
56
57
- END STATE MODEL THAT ENABLES THE PROBLEM TO BE CREATED AND DISSOLVED

FIG. 6

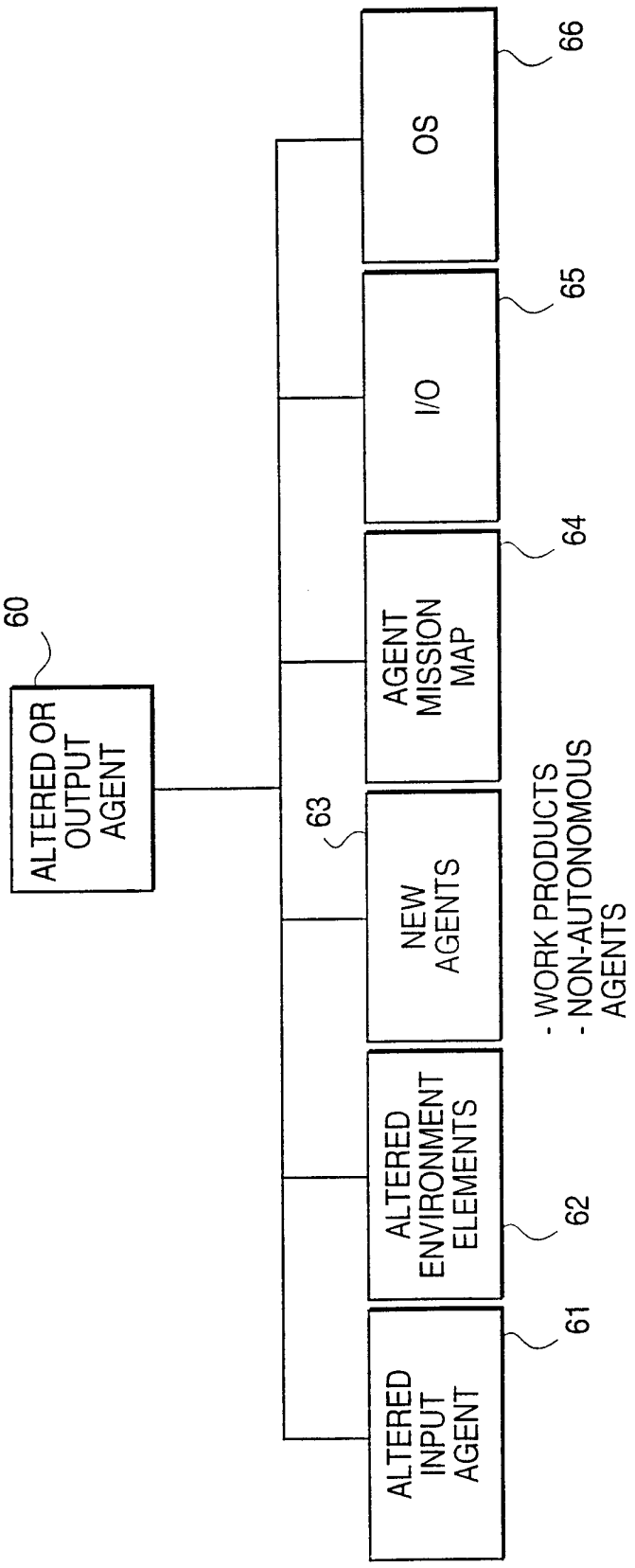
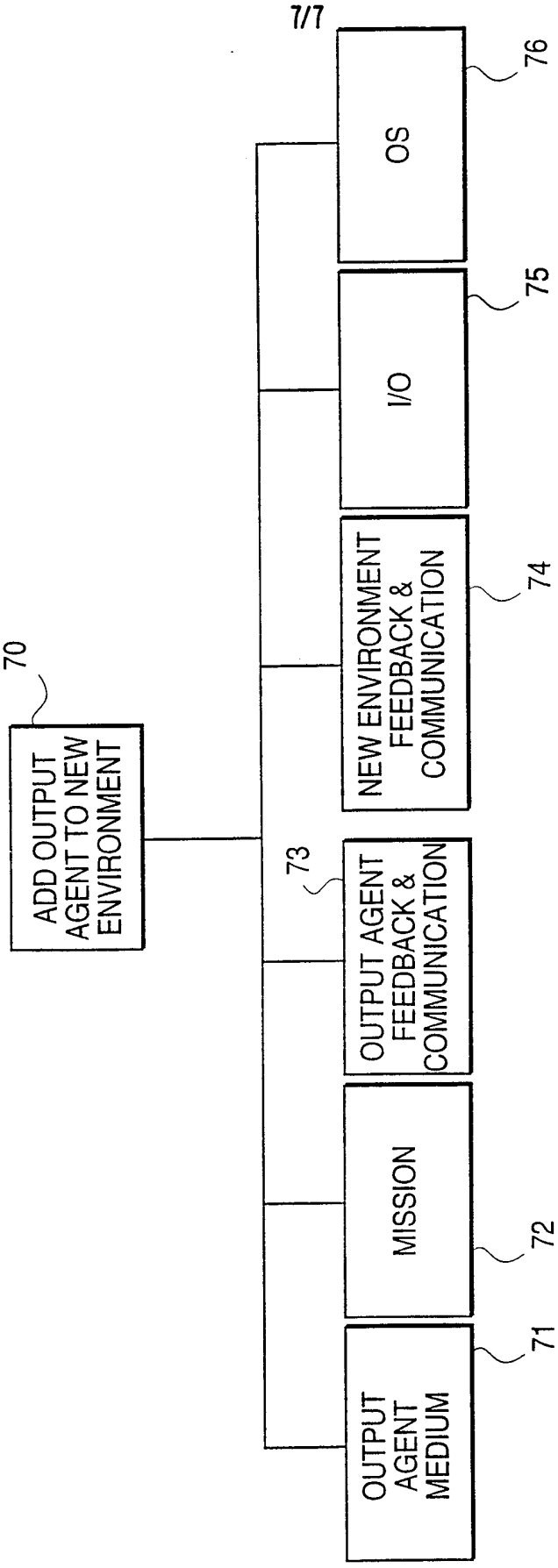

60
ALTERED OR OUTPUT AGENT
63
NEW AGENTS
- WORK PRODUCTS
- NON-AUTONOMOUS AGENTS
AGENT MISSION MAP
64
I/O
65
OS
66
ALTERED ENVIRONMENT ELEMENTS
62
ALTERED INPUT AGENT
61

FIG. 7


ADD OUTPUT AGENT TO NEW ENVIRONMENT
70
OUTPUT AGENT MEDIUM
71
MISSION
72
OUTPUT AGENT FEEDBACK & COMMUNICATION
73
NEW ENVIRONMENT FEEDBACK & COMMUNICATION
74
I/O
75
OS
76

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/16541

A. CLASSIFICATION OF SUBJECT MATTER
IPC(6) : G09B 19/00
US CL :434/236
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)

U.S. : 434/236, 235, 237

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

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

APS: brainstorm?, creativity, idea#

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,318340 A (HENRY) 07 June 1994	1,2-7,9,10,18,19
A, P	US 5,765,038 A (FLANNERY ET AL.) 09 June 1998,	1,5-7,10,18 ,19
A, P	US 5,664,183 A (CIRULLI ET AL.) 02 September 1997	1,5-7,18,19
A, P	US 5,732,200 A (BECKER ET AL.) 24 March 1998	1,5-7,18,19
A, P	US 5,790,847 A (FISK ET AL.) 04 August 1998,	1,5-7,18,19
A	US 5,590,360 A (EDWARDS) 31 December 1996	1, 19
A	US 5,587,935 A (BROOKS ET AL.) 24 December 1996	1, 19

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

*	Special categories of cited documents:	"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
"A"	document defining the general state of the art which is not considered to be of particular relevance	"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
"E"	earlier document published on or after the international filing date	"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
"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)	"&"	document member of the same patent family
"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		

Date of the actual completion of the international search
05 NOVEMBER 1998

Date of mailing of the international search report
25 JAN 1999

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Sheila Veney
Paralegal Specialist
Technology Center 3700

Form PCT/ISA/210 (second sheet)(July 1992)★

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/16541

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,442,788 A (BIER) 15 August 1995	1, 19
A, P	US 5,662,478 A (SMITH, JR.) 02 September 1997	1, 19