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Rethinking – *Design Thinking* – **Health Care**

The Employer Role

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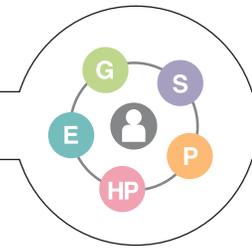
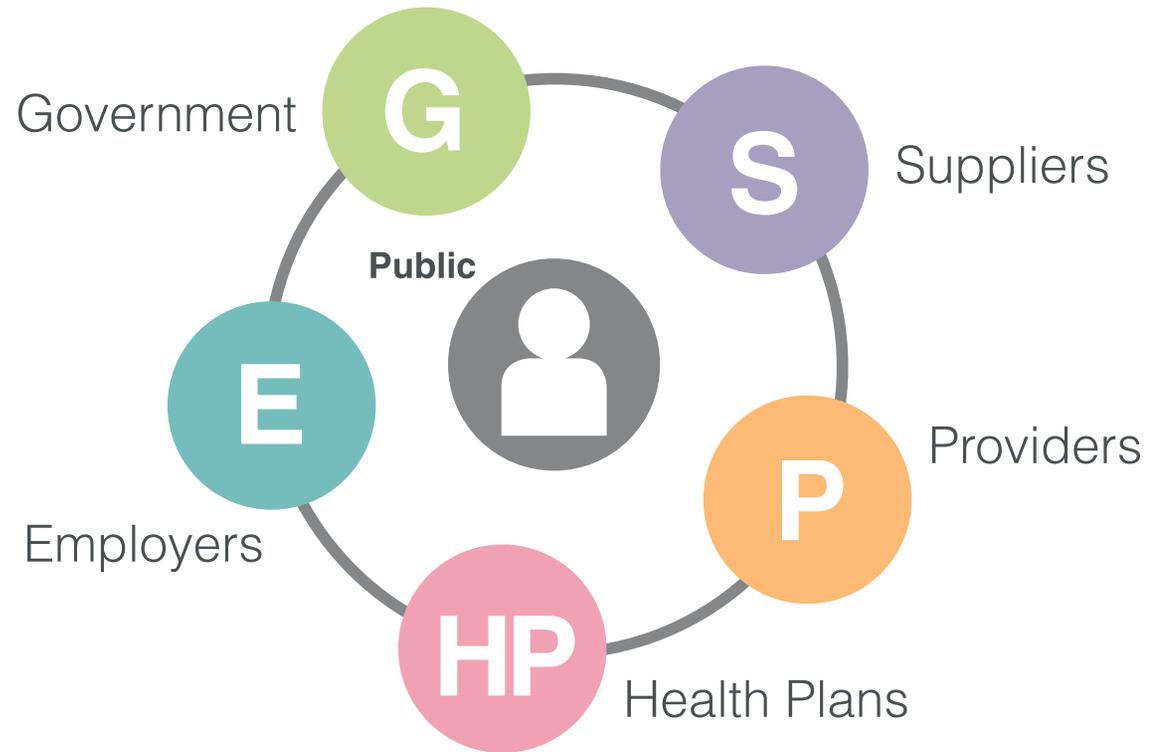
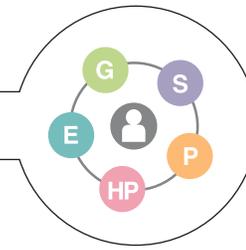


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FIVE MAJOR HEALTH CARE STAKEHOLDERS





Preface

The Problem

Health care is a major priority for Americans. For decades, it has been a matter of national concern; it now demands attention. As health care costs have climbed, concerns about financial failure have joined concerns about quality and access. In 2004, health care nationally accounted for 15.2% of the GDP, far in excess of amounts spent by any other developed country. For this, the life expectancy of Americans born in 2004 was 78 years. In 2007, life expectancy in the U.S. actually declined by .3%, placing the country 44th among industrialized nations. The mediocre level of quality we have purchased we have paid for with far more of our treasure than that spent by any other nation.

The cost of health care in this country must be brought down. Now nearly 2 trillion dollars annually and climbing, health care costs threaten to destabilize the national economy. But we are in no position to allow health care quality to decline; we already trail nearly all of our peers. Health care quality must improve as costs go down. The major health care sectors must find ways to provide services where quality of medical care is the competitive issue, and results are measured at the medical condition level in terms of patient outcome per unit of cost.

Harvard business strategist Michael Porter and colleague Elizabeth Teisberg have analyzed the competitive health care environment from the standpoints of the five major sectors involved: providers, payers/health-plans, suppliers,

employers and the government. Their remarkable conclusions are set forth in a recent book: “Redefining Health Care. Creating Value-Based Competition on Results”. Building on their strategic recommendations, the project described in this report examines how policy proposals might be implemented in the Employers sector.

Design planning and policy planning join effectively in policy design synthesis at the point where policy requires means of implementation. This project proposes design concepts in a system context to implement strategy for Employers as part of a larger construct uniting all five sectors of the health care community.

The Course

The design concepts are results from a project-based course at IIT’s Institute of Design. The semester-long Systems and Systematic Design course is a workshop in which teams of graduate students, deliberately of mixed international origins and different academic backgrounds, apply the computer-supported Structured Planning process to complex design planning problems. The goal for each project is to develop information thoroughly, propose innovative solutions that take maximum advantage of the information, and integrate those ideas into system concepts that can both be evaluated in their own right and (in a real situation) be the comprehensive project specifications for a follow-on detailed development project.



Course Issues

- **Complexity.** What is the nature of “systems” concepts where policy, products, processes, services and communications are organized to act together to achieve multiple goals? What can be done to assure that a system concept is as complete as possible, covering many functions and attaining a high degree of “wholeness” and organic reliability?
- **Design planning methods.** What is Structured Planning and how can its tool-kit of methods be used to collect, structure and synthesize information in projects of greater complexity than can be comfortably dealt with intuitively? How can such methods be used by a team to extend the effectiveness of all?
- **Teamwork.** How do individuals with different cultural origins and different academic backgrounds work together successfully on teams? What roles are there to be played and what difficulties must be overcome?

The Project Team

Twenty two graduate students from the U.S., Germany, South Korea, China, Singapore and India were assigned to five teams for study of the problems of the five

health care sectors. Background experience for team members included degrees in automotive design, history, interior design, industrial design, electrical engineering, control and information technology, computer science, communication design, chemical engineering, environmental sciences & policy, media systems design, graphic design, English, marketing, international business and biotechnology.

Team members for this project team, studying health care services from the Employers’ side, are:

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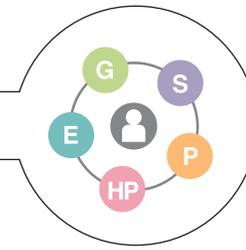
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The Planning Process: Structured Planning

Structured Planning, the systematic planning process taught, is a process for finding, structuring, using and communicating the information necessary for planning. It is a front-end process for developing concepts thoroughly and cohesively.

A number of projects have been undertaken with it and used to further its development. Among over 100 of these, an early published project for Chicago's transit authority (CTA) was *Getting Around: Making the City Accessible to Its Residents* (1971). In 1983, the *House of the Future* project won the Grand Prize in the Japan Design Foundation's First International Design Competition. In 1985, the design of a habitation module for Space Station was undertaken for NASA. In 1987, the *Aquatecture* project won the Grand Prize again in the Japan Design Foundation's Third International Design Competition. In 1991, *Project Phoenix* on global warming was honored as Environmental Category Grand Winner in *Popular Science* magazine's "100 Greatest Achievements in Science and Technology" for the year. In 1993, two award winning projects, *NanoPlastics* and *Aeroteecture*, were widely publicized in Europe and Japan; in 1995, the *National Parks* project developed plans for the future of the U.S. National Park Service. In 2001, *Access to Justice*, a project sponsored by the National Center for State Courts, was implemented for use in state courts across the United States, and in 2005, four projects on *Home, Play, Work*

and *Health* were finalists in four of the five competition categories for Denmark's INDEX Awards, the world's richest design prizes. As the process has evolved, it has become an increasingly useful planning tool for business, institutions and government.

A diagram of the process, shown on the next page in two figures, outlines the activities that make up Structured Planning and the working documents and final products that are produced along the way. While products of the process are discussed here in the abstract, it is possible to see specific examples produced for this project in the appendices that accompany the report.

I Project Definition

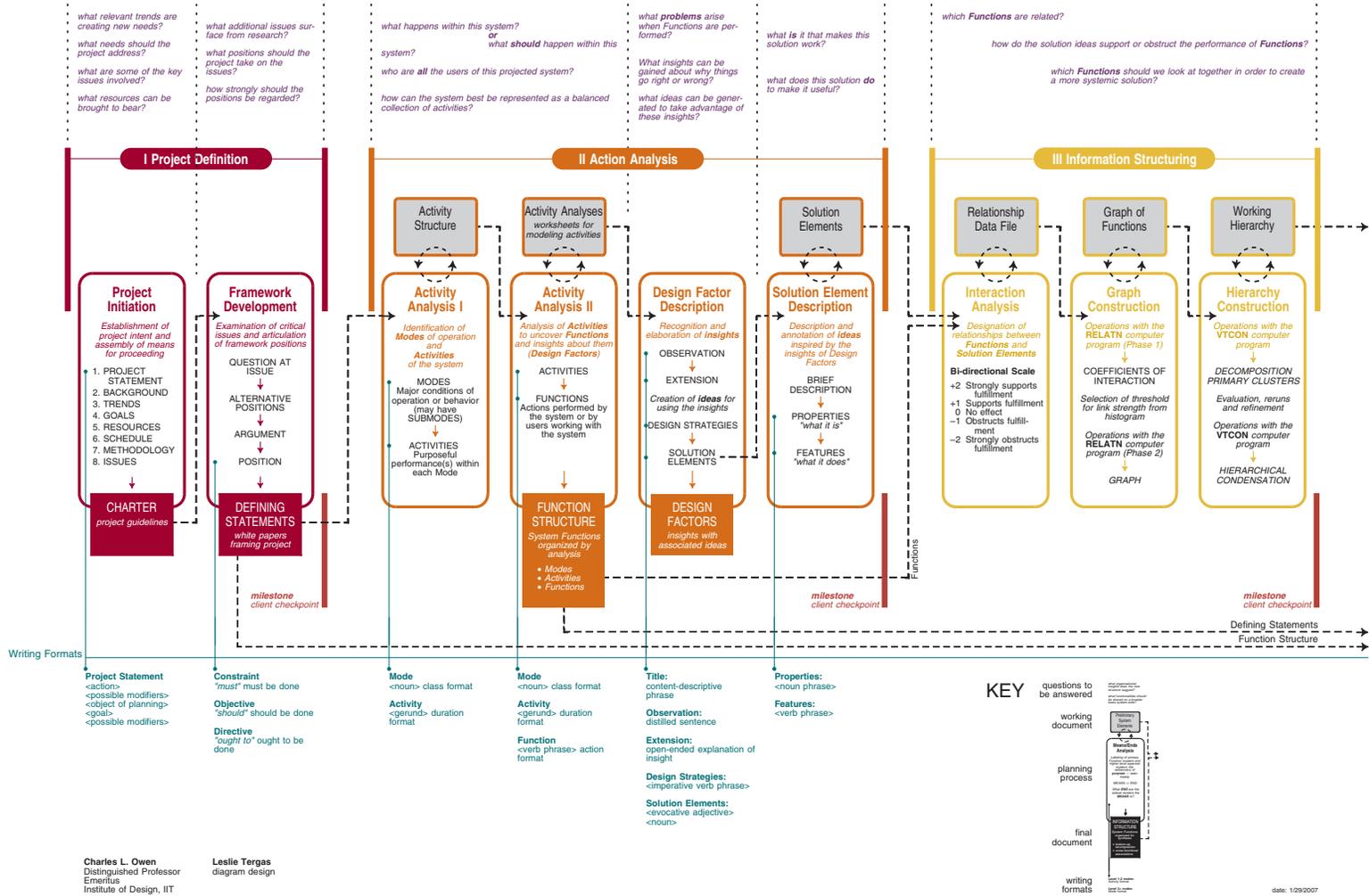
The Structured Planning process begins with Project Initiation and the production of a Charter. This is a "brief" that serves as an initial communication vehicle between client and planners. It contains background, context, basic goals, a project statement that cuts to the heart of the planning task, resources to be used, a schedule and an initial set of issues to be investigated.

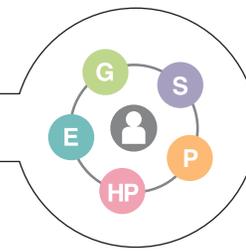
Defining Statements are mini "white papers" produced in the Framework Development portion of Project Definition. They focus the project within the direction of the Charter, concentrating on the issues and arguing specific directions that the project should follow with regard to them. Together with the Charter, they define the project.



The Structured Planning Process (Phases I - III)

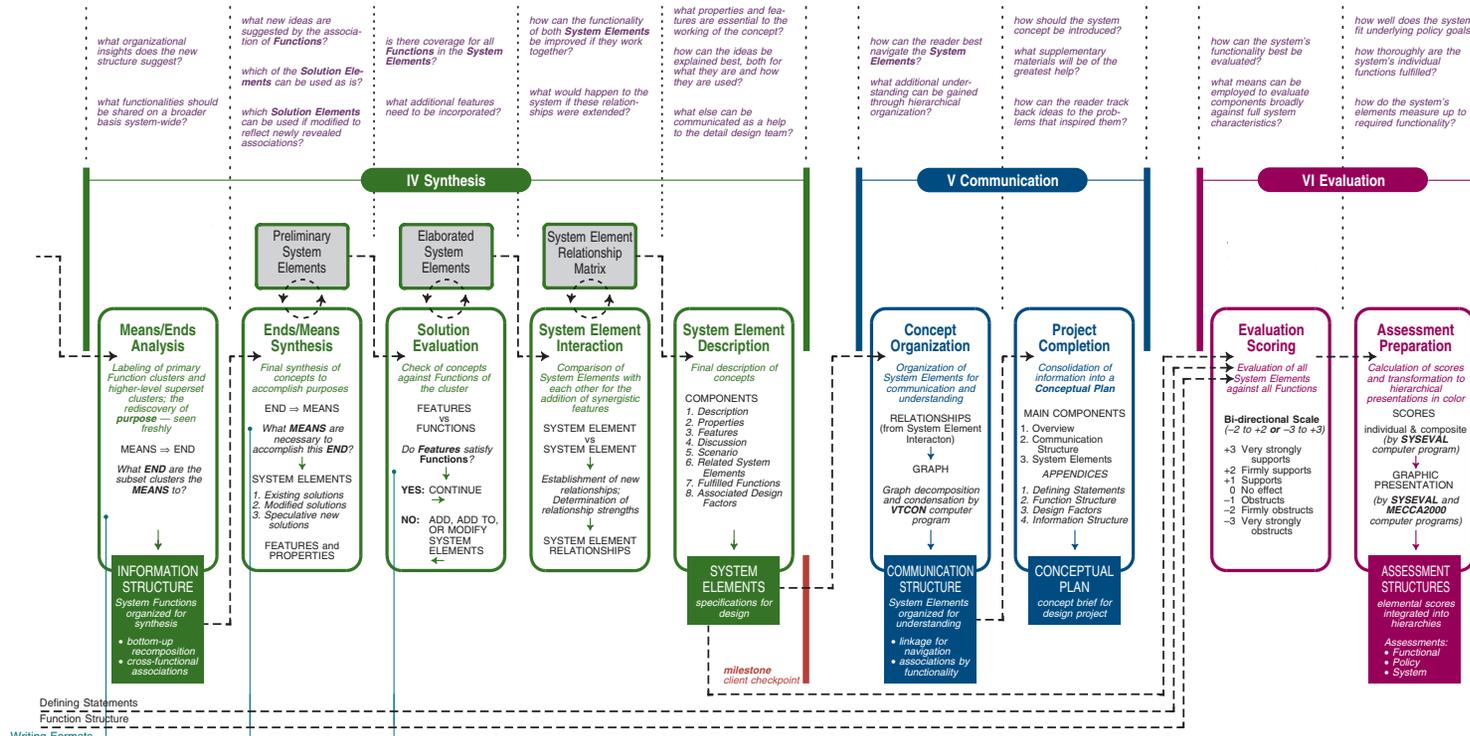
Structured Planning is a front-end, concept development process for finding, and communicating the information necessary for advanced planning





The Structured Planning Process (Phases IV - VI)

Structured Planning is a front-end, concept development process for finding, and communicating the information necessary for advanced planning



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II Action Analysis

Any system can be viewed as a complex entity working with its users in different ways appropriate to its modes of operation. To plan effectively, a planning team must recognize these Modes, identify Activities that occur within them, and isolate the Functions that the users and system perform or are intended to perform within each Activity. The result of the Activity Analyses is a Function Structure.

Half of the purpose of Action Analysis is the enumeration of Functions. The other half is the development of information about these Functions that reveals insight about what happens as they are performed. During Action Analysis, insights are sought about why things go wrong in performing some Functions, and how other Functions manage to be performed well. These insights are uncovered in the Design Factor Description procedure and developed in documents that become part of a qualitative knowledge base. Activity Analyses record information at the Activity level; Design Factors document insights and ideas associated with Functions.

To capture as fully as possible the ideas suggested on Design Factor documents, solution ideas are written up in the Solution Element Description portion of Action

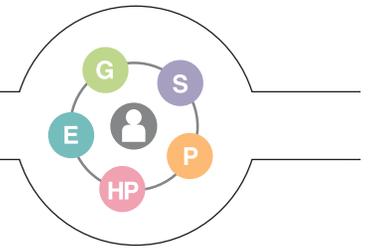
Analysis. This is done on simple one-page forms designed to capture enough detail about ideas to give them substance when they are needed later. They have three important sections: “Description” — a short explanation, “Properties” — what the idea is, and Features — what it does.

The product of Action Analysis is three sets of critical information: a set of Functions (the Function Structure), a set of insights (Design Factors) and a set of preliminary ideas (Solution Elements).

III Information Structuring

Paradoxically, as useful as the Function Structure is for establishing coverage, it is not the best form of organization for developing concepts. Reorganizing information for use in concept development is the job of two computer programs, RELATN and VTCON.

The controlling factor for whether two Functions are associated from the planning standpoint is not whether they are categorically “related” in some manner, but whether a significant number of their potential solutions are of concern to both. Which Solution Elements are of concern to each Function is established in an Interaction



Analysis procedure. The RELATN program uses this information in a Graph Construction process to establish links between Functions.

Another program, VTCON, completes the information structuring process. The graph of Functions and links established by RELATN is not easily arranged for visual comprehension. In the Hierarchy Construction activity, VTCON finds clusters of highly interlinked Functions and organizes them into a semi-lattice hierarchy, a visually understandable, very general form of hierarchy most appropriate for planning. The hierarchy is called an Information Structure.

IV Synthesis

In its form from the VTCON program, the Information Structure is simply a hierarchical organization. Nodal points above the Function level do not have names. The task of Means/Ends Analysis is to create labels for all nodes in the hierarchy. Moving bottom-up from the known Functions in the bottom level clusters, the question is asked, “To what end are these Functions means?” The answering purpose, as a label, in turn is grouped with its siblings and viewed as means to a higher level end. The process continues to a completely labeled Information Structure.

The process is then reversed as a top-down, structured brainstorming procedure: Ends/Means Synthesis. In this process, the planning team asks of high level nodes, “what means do we need to meet this end?” As means are established, they are treated in turn as new ends for which means must be found, until the means become concrete enough to be described as final elements of the system (System Elements). Solution Elements originally conceived for the Functions involved are constantly reviewed as possible end products. Original ideas are modified or combined in the light of the means that evolve, and new ideas are added to fill unmet needs revealed by the Information Structure.

System Element Interaction compares System Element with System Element in a search for additional synergies that can contribute to systemic qualities. More than simply recognizing relationships, the planning team proactively seeks out ways for System Elements to work together — to the extent of modifying one, the other, or both. Changes and additions are incorporated in the properties and features of the individual System Elements.

The last task, System Element Description, completes the write-up of System Elements as specifications, including a succinct description, all relevant — now essential — properties and features, and extensive Discussion and



Scenario sections that contain detailed expositions of the ideas in both conceptual and operational terms.

V Communication

Because the result of the Structured Planning process is a complex system, usually with a number of System Elements, a Communication Structure is frequently included as an aid to understanding. This is created during Concept Organization by the VTCON program from an assessment of how important the System Elements are to each other's operation. Using this structure, the reader can understand the system more easily and navigate its concepts with efficiency.

The product of the Structured Planning process, assembled in the Project Completion section, is a Conceptual Plan, made up of an Overview that provides background and introduces the system, the System Elements that describe the ideas and their relationships, and Appendices that contain all relevant support information, including the Defining Statements, Design Factors, Function Structure and Information Structure.

VI Evaluation

Structured Planning incorporates evaluation among the steps of the process, most notably during Synthesis. It also offers an optional full-system evaluation technique that can be employed to evaluate final results against policy-level and/or function-level criteria. Used for this, it provides merit values hierarchically for the system, its component parts and individual system elements. It can also create similar hierarchical evaluations for the assessment of functional performance and policy performance. Used to compare systems, it can provide system, functional and policy assessments for multiple competitive candidates measured against common function and system structure frameworks.

Introduction

Current Role

Employers play a considerable role in the current U.S. health care system and have a deep investment in its success. Over the past half-century employees have increasingly received health insurance through employers, who today cover over 60% of the U.S. population under age 65. The financial burden to employers, about \$420 billion, constitutes over 1/5 of the total U.S. expenditures for insurance premiums for employees and their dependents. As health care costs have continued to rise, employers have been forced to reduce their health care spending in order to remain financially viable and competitive in the marketplace.

Some employers have resorted to cost-shifting practices, essentially moving a portion of the financial burden to their employees. Others have joined forces and wielded their bargaining power to negotiate lower health care prices, shifting the costs to smaller employers. Still others have cut health benefits altogether, leaving their employees to navigate the health care system alone and pay the exorbitant costs of individual health policies. While these practices may reduce costs in the short term and benefit individual employers, they fail to address or seek to improve the causes of increasing health care prices.

Recently, employers have begun to understand that even if their direct health care costs have been reduced, they are still incurring the indirect costs of a disjointed health care system. Poor employee health leads to reductions in productivity levels and increased absences from work.

Caring for sick dependents or elders and managing a complex health care network further deplete time and energy from employees, resulting in lower productivity. Factoring in lost work time due to disease, and even premature death, increases the sum of indirect costs. Per employee, estimates of these indirect costs are higher than the actual cost of health care benefits. Employers have a real incentive to help improve the health care system.

Unique Position

Employers also hold a unique role in the health care system and in the lives of individuals interacting with the system. Combined, employers constitute the largest health plan purchase group in the United States. This power gives employers a profound influence to direct and motivate the other stakeholders within the system to create change. Employers can use their collective bargaining power to change the nature of competition within the system by promoting value-based competition.

Employers can also contribute to competition by supporting stakeholders who provide accessible and necessary information to the system. Improving the information flow among all of the health care players is a pressing, and perhaps the most essential, need for a redesigned health care system. As one of the main stakeholders, employers should provide information to the system such as overall health benefit offerings, costs, and results. In addition, employers have an opportunity to contribute relevant information such as employee health

care preferences, satisfaction, and usage data that can help improve the system.

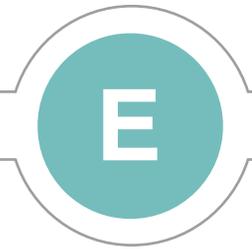
Due to close contact with employees, employers may be in the best position not only to provide employee information, but also to encourage employees to provide additional information. While employers could potentially collect a great amount of data from individuals, employees may not be willing to allow their employer access to sensitive health information. Many individuals are concerned about the privacy of their personal health records and fear that health information might be used against them to limit job opportunities. The importance to the system of certain information is too great to create solutions that require information to pass through the hands of the employer.

In addition to encouraging information contribution to the system, employers can provide incentives and tools for employees to manage their own health and make better health care choices. As the trend in health care moves to one that is more consumer-centric and individualized, employers can assist in this transition by supporting employees as they adjust in their new role. Motivating employees to improve health and to understand the importance of preventive care are initial steps that employers can make. Employers can also provide incentives for improved health and tools for individualized health management.

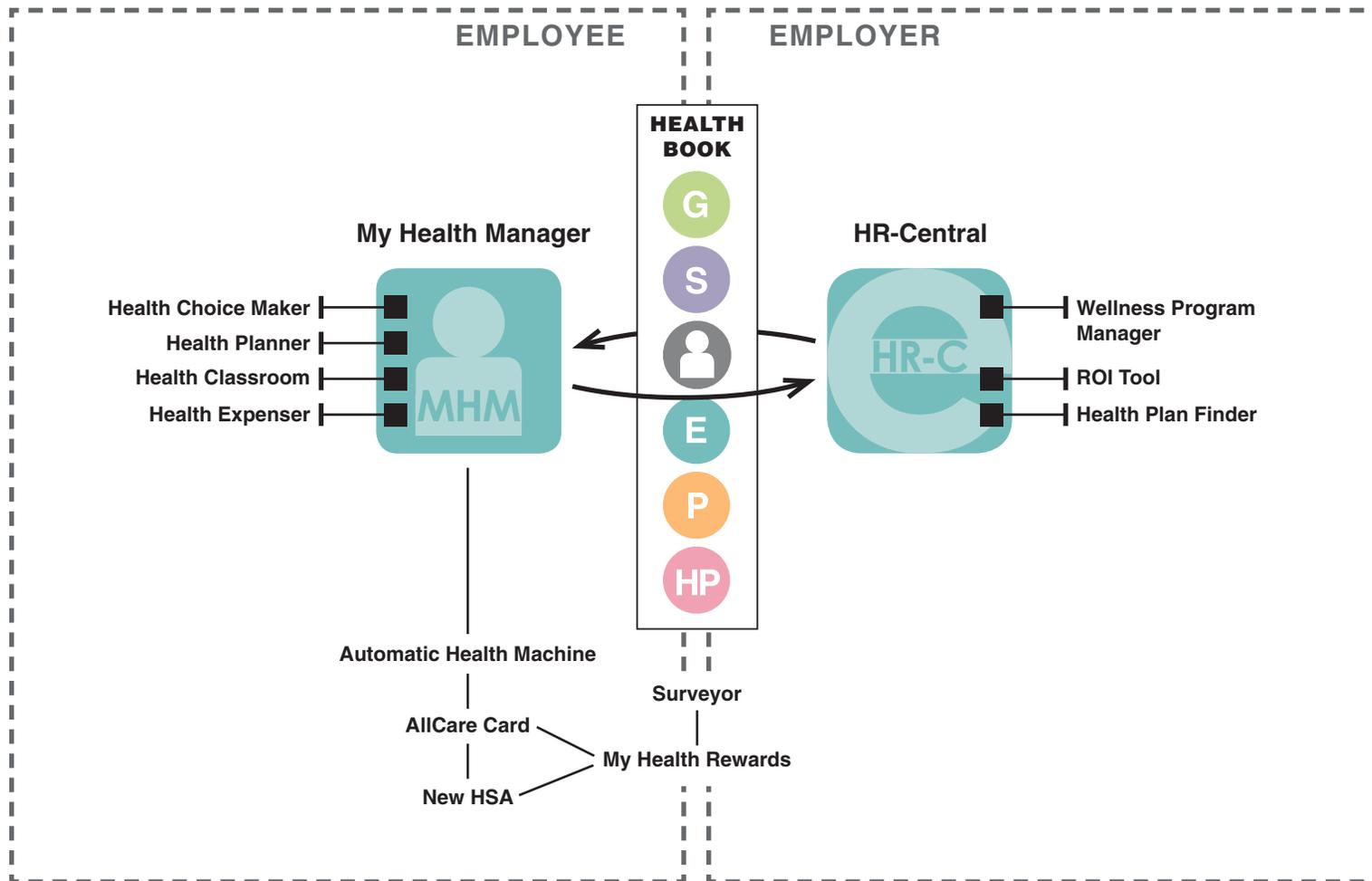
The Future

Through close examination of the employers' current role and unique position in health care, we were able to see the potential employers have to help create and implement a new system. Detailed in this report are concepts that show elements of that potential system, containing concepts geared to both employee and employer. While developing these solutions, we realized the importance of creating a flexible system that allows the employer to play a large role, small role, or no role at all. If employers are no longer active participants in the future health care system, as some people believe may be the case, the system will still be viable and will allow the individual to remain connected to the other stakeholders.

Throughout this report, we will explain how the system elements work together and interact with other stakeholders in the system. An emphasis is placed on the flow of information from one element to another, and from one stakeholder to the next. The communication structure on the next page provides an overview of the relationships between the system elements. While developing these concepts, our design strategies focused on empowering the individuals or the employers to make value decisions in health care and improving information flow among stakeholders and the patients.



Communication Structure





Health Book

SUBSET ELEMENTS

HR-Central
My Health Manager
Health 500

RELATED ELEMENTS

Health Choice Maker
Surveyor

FULFILLED FUNCTIONS

21. Publish comprehensive health benefits offerings
22. Report employee coverage and usage
23. Disclose health care financial data
25. Publish employee overall satisfaction results
26. Provide health plan results
27. Publish company wellness program results
28. Release overall company health status

ASSOCIATED DESIGN FACTORS

18. Information disclosure standards unclear
19. Information disclosure benefits unclear

Description

A secure network storage site for identification profiles — for health plans, providers, employers, pharmacies, and individuals — that are used within the health care system.

Properties

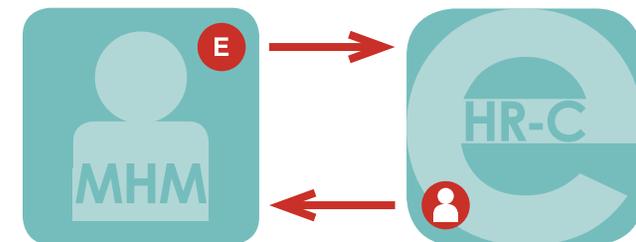
- Network storage site
- Secure database with data encryption
- Individual information codes
- Publicly-accessible website

Features

- Stores health care network profiles
- Allows profile updates and additions
- Queries government evaluation database for updated information
- Permits affiliated profiles to submit ratings
- Provides information about health care stakeholders to the public

Discussion

Health Book is a platform that supports various functions in the information technology exchange of the health care system. Its main function is to store identification profiles of two main types: public health care stakeholders such as health plans and providers, and private individuals. Each profile contains information about the profile owner and has varying degrees of privacy depending on who owns it. The profile owner is designated by a code within the system that can be added to the account of other profile owners in compatible network applications, such as **My Health Manager** and **HR-Central**. Once two profile owners have accepted each other in the network, information can be exchanged between them.



Added profiles allow network connection.

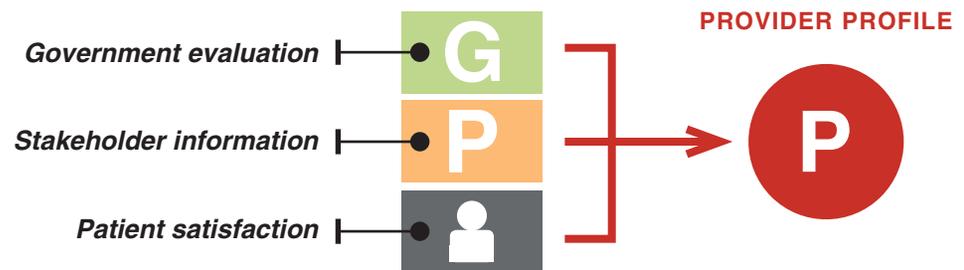


The profiles that are owned by individuals are completely secure and private. Once a network connection is made with another profile, the individual designates the level of information access for the other profile owner. For example, if a person adds another individual, such as a caretaker or parent, to their profile then the privacy settings can be adjusted to allow full access if needed. If a person adds a doctor's profile to his or her network, privacy settings can be adjusted to allow the doctor selective access to information. On the other hand, the individual can see all of the information contained in the doctor's profile because it is a public stakeholder profile.

The stakeholder profile is one owned by a commercial or non-profit entity such as a health plan, provider, or employer. These profiles are publicly viewable to allow individuals to compare different health care stakeholders. The information contained in them comes from three different sources: the profile owner, the government database that stores benchmarked evaluations, and individuals who submit satisfaction ratings about the stakeholder. The profile owner only has control over the information that they submit. The government evaluation and public ranking information cannot be altered or deleted by the profile owner. Public satisfaction ranking can only be done by individuals whose profiles are connected to the stakeholder profile. This guarantees, for instance, that an individual ranking a doctor is actually

a patient of that doctor. The balance of information from three different places — the stakeholder, the government, and individuals — helps to ensure an accurate portrayal of the stakeholder.

The stakeholder profiles can be viewed and compared by individuals through a searchable public website. The website uses an algorithm to rank the various stakeholders in their respective industry, creating **Health 500**, essentially a Fortune 500 for health care. Stakeholders can view their own profile to see how their government evaluation and public satisfaction ratings compare to other industry stakeholders. This transparency of information is particularly essential to promote competition among



Three sources of information ensure unbiased reporting.



Health Book (continued)

stakeholders in the health care system. The information in the profiles can also be utilized in different applications and tools built to work with the network such as **My Health Manager** or the **Health Choice Maker**, which are both discussed in greater detail in this report.

Scenario

David interviewed at several companies recently and has been offered a job by two of them. He is particularly concerned about making sure that the employer he chooses has excellent health care benefits because he was not satisfied with his previous employer's options. David recently heard about the **Health Book** website and decides to check it out.

David accesses the website online and searches for the two employers. When he pulls up the employer profiles, he can compare them side-by-side. Both employers have submitted detailed information about their health care benefits. David can see the health benefits the employer offers, the health plans they use, the types of preventive care programs they support, and the amount of money that employees have to pay for different plans. The employers have also submitted information on their own costs dedicated to health benefits and the productivity and health improvements that have been made over the last

year. The contact information of the profile administrator is also available for further questions.

David is pretty impressed by both of the descriptions submitted by the employers, so decides to read the evaluations given to the employers by the government. The government has looked at the various offerings, costs, and results of the employers' benefits in comparison to benchmarks for each company's industry, size, and geographic location. Again, both companies are fairly equal in the ratings.

Lastly David reviews the satisfaction ratings given by actual employees at the company. He can see an overall ranking for both and detailed rankings about various aspects of the health care benefits. One of the employers has a significantly lower satisfaction rating in the health plan option area, so David clicks to see more details. David is able to see a further breakdown of why the ranking is so low and even comments that employees have made. It becomes apparent that the employer has recently switched to a new health plan that covers fewer preventive care options, creating a lot of upset employees.



My Health Manager

Description

An individually owned website with tools that work with a Personal Health Record (PHR) to enable a person to plan and manage his or her own health care.

Properties

- Website with data encryption
- Secure login using password and profile
- Software tools for health management
- Open application programming interface (Open API)
- Data algorithm for filtering information
- Online connection to network databases

Features

- Provides centralized access point for health care needs
- Accesses PHR to store information
- Creates individualized **Health Information Code** to filter content
- Displays updated health statement
- Allows individually specified privacy settings
- Connects employee to self-designated network
- Allows addition of customized applications and tools built for PHRs

Discussion

My Health Manager provides a centralized online location for individuals to access their health care information and to communicate with other entities involved in their health care such as a provider or health plan. **My Health Manager** accounts are owned by the individual and can be completely private. Incoming and outgoing data is customizable and filtered through options specified by the individual. Accounts must be set up through a series of initial steps that gather information about the individual.

The purpose of the initial set up of **My Health Manager** is to create a **Health Information Code**. This electronic code works behind the scenes to filter information to the individual and helps guide all of the applications and tools working within **My Health Manager**. The code is stored in the individual's PHR and is updated when pertinent data changes. **My Health Manager** contains a software tool with a data algorithm that calculates and designates the Code for each individual.

In order to create the Code, the tool collects and evaluates data from a number of sources including a PHR, a health screening or check-up, a Health Risk Assessment, and a wellness survey. The evaluated data includes information on an individual's health status and risks, demographics, lifestyle, and psychological, material, and social well-being related to both work and personal life. It takes into

SUPERSET ELEMENT

Health Book

SUBSET ELEMENTS

Health Information Code
Health Choice Maker
Health Planner
Health Expenser
Health Classroom

RELATED ELEMENTS

HR-Central
Surveyor
Automatic Health Machine

FULFILLED FUNCTIONS

1. Survey employee wellness
6. Record employee demographics and lifestyle
37. Assemble information on employee health lifestyles
55. Collect employee wellness data



My Health Manager (continued)

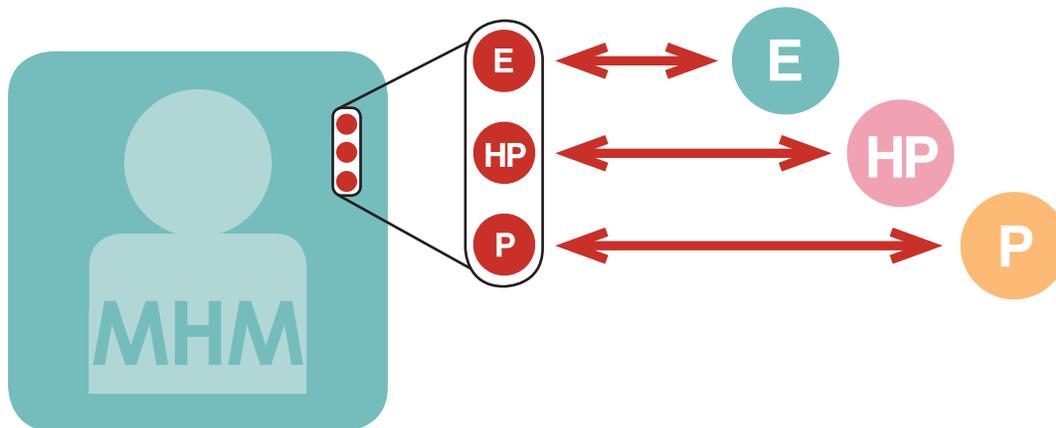
account race, ethnicity, age, life experience, culture, health and caregiver status, education, and income.

Once the initial set-up is complete and a Code has been generated, **My Health Manager** also creates a wellness statement for the individual on an ongoing basis. Essentially a summary of an employee's health, the wellness statement provides easily understood graphics and detailed information about the individual's health status and score, improvements, future risks and recommendations. A health score is given so that an individual can see their health status relative to others

in their demographic, but it is not the emphasis of the statement. The wellness statement works like a bank statement to show changes in health status by day, month, and year. It can be read online, printed or made into a PDF, emailed to necessary parties, or shared with people within the individual's **My Health Manager** network.

A **My Health Manager** network is a personalized selection of entities involved in an individual's health care. The network is created as an individual adds profiles — which may include their employer, health plan, providers, pharmacy, and other individuals such as caretakers and parents — to their account. Once the chosen profile has accepted the network request, the profile is added to the individual's network. The individual can then exchange information electronically with anyone in his or her network. For instance, a provider can send treatment instructions and a prescription directly to the individual's **My Health Manager** account. Individuals also control the privacy level of information that is accessible by each entity in the network; they can choose to allow certain data to be collected or can choose to have no data collected.

In addition to building a health care network, individuals can also utilize the software within **My Health Manager** to assist in their health management. Several standard tools are available to individuals including the **Health Choice Maker, Health Planner, Health Expenser, and Health Classroom**. The details of these tools are discussed in further detail within this report. Individuals can also add



Once profiles are added, information can be exchanged electronically.



additional applications and tools built by third parties to their account. This allows further customization to the preferences and specific health care needs of individuals. For instance, an individual can add an application that displays information from a blood glucose monitoring device that allows them to track their status online.

The **My Health Manager** account can be continually used throughout an individual's lifetime. It helps streamline the health care process, allows immediate connection to an individual's health care network, and provides filtered information that is relevant to the individual. From the employer's perspective, this tool provides an important step in empowering individuals to manage their own health. It also allows employers to connect directly with employees and provide updated accessible information regarding their health care benefits through a companion tool, **HR-Central**, which is discussed in further detail in this report.

Scenario

David has just begun a new job and received an invitation to start a **My Health Manager** account from his employer. He accesses the website online and creates a user name and password. Once he has completed the login, **My Health Manager** walks David through a brief tour of the interface features and provides information about privacy and security of personal data. He is shown a short

checklist of items he needs to complete in order to fully utilize his account.

David allows access to his Personal Health Record (PHR) by entering the necessary identification information, and fills out a Health Risk Assessment form and a wellness survey. **My Health Manager** informs David that the health-check data pulled from his PHR is recent enough to be used to finish the set-up process. David is directed to the main page of his personal health account.

The first thing he notices is his health statement. He easily reads through it and is pleased to see his health score is just above average for his demographic. Next he checks his health network page. David's employer has sent a request to be added to his network. David accepts the request and is prompted to set privacy filter settings. He decides to allow the employer to send him information, but blocks the employer from seeing all of his information except for his health score.

David browses some of the tools in **My Health Manager** and customizes the layout so the features he likes most are at the top of the screen. He sees that there are a number of additional applications he can add including a Wellness Program tracker application that was developed by his employer. He decides to return to his **My Health Manager** later to choose his health plan and providers for his network, so he logs out and goes to lunch.

ASSOCIATED DESIGN FACTORS

1. Important factors not measured
2. Issues relevant to individuals overlooked
6. Employees unwilling to provide necessary information
26. Specially trained staff is needed
27. No standard for methods of collecting information
39. Response rate is too low
40. Covered retirees are ignored
41. Hard to interpret employee reporting language
42. Privacy issue arises
45. Test and surveys are not frequent enough to track health
46. Qualitative data not collected
47. Uniform material not tailored to specific demographic group



Health Choice Maker

SUPERSET ELEMENT

My Health Manager

FULFILLED FUNCTIONS

30. Collect employee health plan satisfaction
32. Collect employee out-of-pocket expense
38. Survey employee's criterion to choose provider and supplier
41. Identify employee's criteria for health care decision
49. Provide employee demands for new health plan options

ASSOCIATED DESIGN FACTORS

22. No limits to what questions to be asked
23. No qualification system on the subject of collecting information
24. Collected data may be inaccurate or inconclusive
25. No guideline to keep employee unbiased
28. Collected data may not cover all existing information
29. Mistakes could be made in calculations
38. No evidence of information trustworthiness

Description

An application in **My Health Manager** that takes employees through a series of steps to help them choose their health plan, providers, and employee wellness programs.

Properties

- Personal health application
- Software that guides health care choice
- Software that tracks health decision criteria

Features

- Aids employee in health-care choice making
- Helps employee to choose their health plan, providers, suppliers and wellness program
- Filters information to the individual
- Accesses **Health Book** profile information
- Utilizes information from employer about wellness program options
- Collects data from decision-making process
- Tracks criteria for making health choices

Discussion

For value-based competition in the health care system, information accessibility and understanding of people's decision making is essential. The **Health Choice Maker** provides information about other stakeholders to employees and supports employee's decision making about their health care choices. The tool guides an employee through the process of choosing a health care network.

The **Health Choice Maker** utilizes profile information stored in **Health Book**, and allows employees to sort through the profiles by their priority or preferences. Once an employee has selected his or her preference, a small number of profiles are shown allowing an individual to easily compare the resulting choices. These profiles allow an employee to see information about other stakeholders, such as the options, quality ratings, and prices. This transparency of information encourages competition among the stakeholders. The chosen profile is then stored in the individual's **My Health Manager** network.

The **Health Choice Maker** also utilizes information within an individual's network to further filter choices. For instance, once an individual has added an employer to his or her network, the **Health Choice Maker** knows which health plans and wellness programs the employer offers. Then, when the employee uses the **Health Choice Maker** to choose a health plan, the employer's options are at the top of the list. This doesn't mean, however, that an



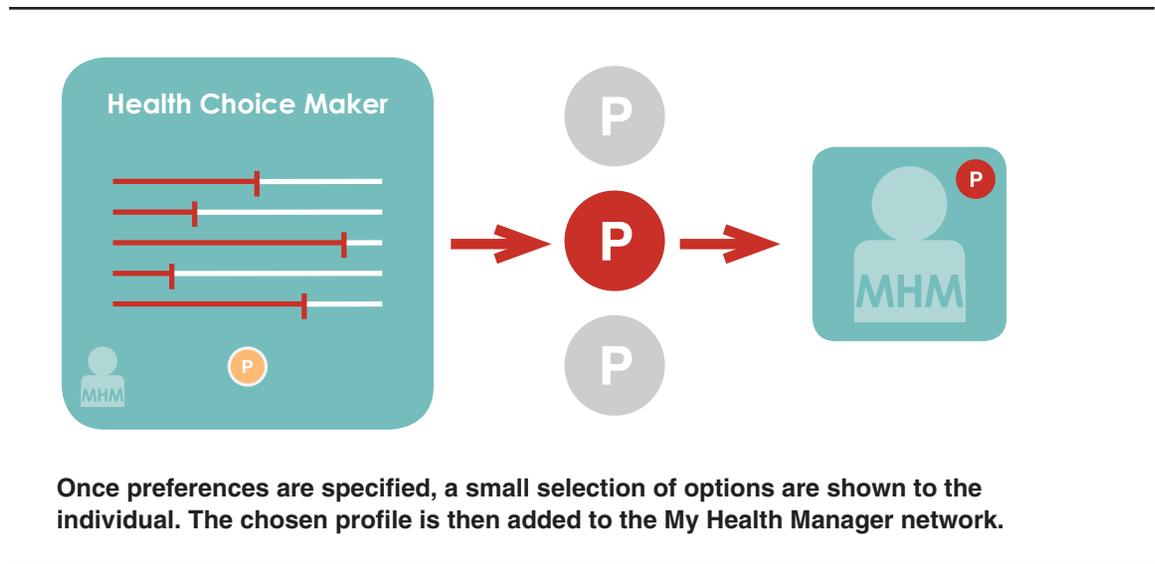
individual could not still see other options. An employee could still use the tool to compare and choose his or her own health plan outside of the employer’s offerings.

The **Health Choice Maker** also tracks the pattern of employee’s decision-making criterion and provides that information to other stakeholders if the employee permits it. The information exchange through the **Health Choice Maker** identifies and communicates the employee’s preferences in order to help the stakeholders improve their value for individuals.

Scenario

David is an office worker who was recently diagnosed as pre-diabetic from his regular health check-up. Since diabetes is a chronic condition, he wants to keep track of his health status with a good provider who specializes in diabetic treatment. He logs into **My Health Manager** at his office. He clicks **Health Choice Maker** and searches for a provider with a specialty in diabetes. David can search provider profiles by his preference and priorities, such as location of the office, gender, price, and wait time. He can compare several providers based on their options, quality rating, and price. He chooses a provider that suits his needs and makes an appointment with the doctor through the **Health Planner**.

After his visit to the doctor, he logs into **My Health Manager** again. He notices that there is a survey that asks



about his satisfaction with his last visit to the provider. Because of the reward points he can get by submitting the survey, he voluntarily shares his thoughts through the survey. He also knows that his answer will be part of the provider rating. Another survey about his decision making process is also in his account. He knows that this helps the other stakeholders in the health care system to understand how and what they should improve. It ultimately improves their value to him. After the survey, he makes another appointment for his next check-ups and logs out of **My Health Manager**.



Health Planner

SUPERSET ELEMENT

My Health Manager

SUBSET ELEMENTS

Wellness Planner
Treatment Planner
Treatment Evaluator
Risk To-day

RELATED ELEMENTS

Health Choice Maker
Surveyor
My Health Rewards
AllCare Card
Automatic Health Machine
HR-Central
Wellness Program Manager

FULFILLED FUNCTIONS

- 27. Publish company wellness program results
- 35. Gather employee's rehabilitation cycle and expense
- 43. Recognize employee's rehabilitation pattern
- 52. Share employee's rehabilitation pattern
- 61. Survey drug usage
- 62. Track patient recovery data
- 63. Measure treatment adherence
- 65. Evaluate overall provider performance

Description

A comprehensive software package to help employees set up and follow their customized wellness and treatment plans.

Properties

- Plug-in application bundle for **My Health Manager**
- Computer program that accesses individual PHRs
- Tool accessible by the internet and smart phones
- Secure data storage capability to ensure privacy
- Extensive data collecting ability through related elements
- Algorithm to assess collected data

Features

- Builds customized employee wellness plans
- Suggests programs based on employee profile.
- Gathers workout data (**AllCare Card**)
- Tracks adherence to wellness plan
- Informs employee about plan progress
- Surveys satisfaction with wellness program
- Rewards employees for wellness improvement (**My Health Rewards**)

- Sends data to **Wellness Program Manager** for program evaluation
- Communicates wellness improvements to health plan (**Risk To-day**)
- Makes appointments with selected doctor
- Sets up treatment plans
- Provides patient calendar for treatment
- Alerts patient to take medicine
- Collects patient adherence information
- Collects patient feedback about doctors and products (**Surveyor**)
- Evaluates treatment value (**Treatment Evaluator**)

Discussion

The **Health Planner** is a comprehensive software tool that helps individuals set up and customize their wellness plans and treatment plans. It keeps the individuals organized and connected throughout the process. In the background, it collects health related data from the individuals and aggregates it, and sends it to the related parties. This information is sent to the different health care players to promote healthy competition among the parties and provide them with information about the needs and preferences of the individuals using the **Health Planner**. The **Health Planner** works with the individuals through two application modules, the **Wellness Planner** and the **Treatment Planner**.



Wellness Planner is a module that individuals use on a daily basis. The **Wellness Planner** starts working after the individual signs into the **My Health Manager**. According to the **Health Information Code** generated by the existing Personal Health Record data and the profile information entered by individuals, the **Wellness Planner** will filter through the available options and identify the ones that best fit each individual. The resulting options are provided as recommendations. The individuals decide which option they prefer and then set up their own wellness plans with short-term and mid-term goals. A wellness plan may include fitness center exercises, dietary plans, smoke cessation plans, weight control plans, regular health checkups and other lifestyle changing plans. After a wellness plan is set up, a wellness schedule is created and loaded into the calendar that comes with the **Health Planner**.

The **Wellness Planner** monitors individuals adherence to the wellness plan in various ways. Fitness center visits, food purchases and health checkups are monitored through the use of the **AllCare Card** which collects wellness adherence when swiped at fitness centers, grocery stores and doctor's offices, respectively. Other tracking methods are available through the plug-in functions of the **Wellness Planner**. The **Wellness Planner** evaluates the collected data and displays the progress made by individuals. Upon completion of the wellness plan, the **Wellness Planner** triggers the **Surveyor** to prompt surveys to collect satisfaction about the fitness center

programs that are provided by third parties. Adherence data, satisfaction and comments are aggregated and sent to the related parties to evaluate the effectiveness of each program. Individuals are awarded for proper adherence and for reaching the goals they have set for themselves. The **Wellness Planner** connects with **My Health Rewards** to add points into the reward accounts of the individuals.

The **Treatment Planner** activates as soon as individuals seek medical treatment. After the individuals use **Health Choice Maker** to choose a doctor, the **Treatment Planner** will help individuals make an appointment with the chosen doctor. After an appointment is made, individuals have the option to share their PHR with the doctor and indicate to the doctor the reason for the visit. The appointment date and time as well as associated information are sent to the doctor prior to the visit.

After the doctor's visit, prescription data and treatment recommendations made by the doctor are sent to the **Treatment Planner** account of the individuals. A treatment plan is then set up, and the schedule is loaded into the calendar. The calendar send emails, SMS or digital voice messages to alert the individuals to adhere to the treatment plan. Adherence is tracked when the individuals check off completed activities.

When an individual's medical condition is serious and complicated, the doctor will advise the patient to use the **Treatment Planner Plus** during the recovery period. The **Treatment Planner Plus** is an extension of the **Treatment**

66. Evaluate provider performance on specific medical condition level
69. Evaluate employee recovery
70. Evaluate employee adherence
72. Summarize employee satisfaction
74. Provide current wellness program data
77. Provide patient recovery tracking data
78. Provide patient treatment adherence data
80. Provide medicine consumption data
83. Provide insight for barrier of health
84. Measure employee recovery rate
86. Measure employee product needs
87. Measure employee product preferences
91. Measure prescription adherence
92. Assess employee satisfaction with suppliers
93. Assess employee needs from suppliers
94. Assess employee usage of supplier goods
99. Evaluate employee recovery rates
100. Submit employee-supplier satisfaction
103. Provide employee recovery rates based on supplies
104. Report employee drug compliance
106. Report employee product need



Health Planner (continued)

ASSOCIATED DESIGN FACTORS

19. Information disclosure benefits unclear
22. No limits to what questions to be asked
23. No qualification system on the subject of collecting information
24. Collected data may be inaccurate or inconclusive
33. No means to set limits of evaluation
35. No standard system of sharing information
37. No regulation on the range of sharing information
38. No evidence of information's trustworthiness
39. Response rate is too low
40. Covered retirees are ignored
41. Hard to interpret employee reporting language
42. Privacy issue arises
44. Off-site behavior of employees is hard to track
46. Qualitative data not collected
51. Lack of common/easily understandable standard to assess health
52. No standard benchmark to evaluate recovery rate
53. Reason of disobeying recommendation ignored

Planner. It is a compact plug-in module to be used with a cell phone. The functions of **Treatment Planner** are included on the hand-held device. A key function of the **Treatment Planner Plus** is the ability to make different health checks with real time monitoring. The monitoring is done with a set of sensors worn on the wrist of the individual. It measures the blood pressure, blood content, pulse, sleep time, and body temperature of the patient. The data is captured by the sensors on the hand-held device and is transmitted wirelessly to the **Treatment Planner**.

The **Treatment Planner** calendar marks the refill schedule for the individual. Refill orders are sent to the pharmacy designated by the individual. When the order is ready for pick-up, the pharmacy will notify the individual.

At the end of each treatment plan, the **Surveyor** is triggered. Surveys requesting feedback about individual's satisfaction with the doctor, hospital, treatment plan and the medical products used are sent to the individuals. Collected feedback is sent back to the provider or the supplier to self-evaluate the services and the products. User generated comments and ratings are added to the doctors' and suppliers' profiles for reference of future patients. These ratings are also aggregated and sent to the associated health plans in order to generate provider and supplier evaluations.

The **Treatment Evaluator** is a subset tool of the **Treatment Planner**. It is used to comprehensively evaluate an individual's health treatment. The **Treatment**

Evaluator takes into account the adherence of the patient, recovery rates, direct and indirect costs incurred, patient satisfaction, and improvements in health knowledge. The evaluation is more qualitative than quantitative, and serves as a complementary factor for other evaluations generated by health plans, government and third parties. Detailed treatment evaluation is available only to the individuals. De-identified information is aggregated and sent to related parties for future improvement.

The **Health Planner** can communicate with health plans about the everyday health of individual plan members. The **Risk To-day** module evaluates health data and converts it into an individual's health risk. The updated risk is then communicated with the health plan. Better health leads to lower risk. The health plan may lower the premium of the healthier individual in the near future to provide incentive for better health. Newly uncovered health problems lead to higher risk. Health plans can raise premiums to promote awareness of the individual. New health plan options can also be provided to the individual to cover the related medical procedure related with the new health problem.

Scenario

David comes to work for the first day at a new job. In the office, he logs into his **Health Planner** using his computer. Almost all the options remain the same except several new wellness program options provided by the new employer



are highlighted. David picks a new body building plan to begin once he finishes his current session that he began while at his former employer. Adhering to the fitness schedule in his **Health Planner** calendar, David goes to the fitness center. After swiping his **AllCare Card**, he starts the last session of his current wellness plan. Before long, the screen on the treadmill shows him that he has successfully completed his current plan and that the new plan will begin tomorrow. After his workout, David logs back into his **Health Planner**. His calendar indicates that David has a general checkup scheduled for tomorrow at a nearby hospital.

During his check-up, David receives some bad news. His blood pressure has risen. The doctor advises David to take medicine to control the blood pressure and eat healthier, less fattening food. 'It is not so bad if it is properly monitored,' says the doctor. The doctor has access to David's health data and knows that David has no family history of hypertension. This is the first time David has ever had high blood pressure.

Back at home, David is alerted by an SMS on his cell phone notifying him that it is time to take his medicine. According to the recommendation listed in David's **Health Planner**, David logs into his **Wellness Planner**, and suspends the new body building plan for two weeks and adds a two week low-intensity treadmill workout plan to do in conjunction with taking his medicine. After two weeks, David goes to an **Automatic Health Machine**

(**AHM**) for a blood pressure check. Via a plug-in tool in the **Health Planner**, David sends his health results to his doctor who later tells him that his blood pressure is back under control.

Satisfied with the treatment, David completes the prompted surveys about the doctor and the medicine. David gives this doctor a five star rating. He also posts his comments about the treatment and the doctor on the doctor's profile page. 'The pills could be better designed though for ease of use...' writes David in the survey for the medicine. He also discovered that there is another survey about the completed wellness program waiting for him. Before logging out, David is awarded 15 points for completing the satisfaction surveys and for excellent adherence to his treatment program. New events are added automatically into David's calendar. One is a weekly blood pressure check in the on-site **AHM**. 'Yeah, I probably should do that,' thinks David, 'I don't want it to get out of control and become a chronic condition.'

55. Satisfaction not comparable across providers/employers/employees
56. Uncovered employee and retiree data not included
57. No emotional connection between patients and providers
58. Report lacks common standard and does not support comparison
59. Wellness program report detached from the special situation of each employer
61. Audience diversity causes different needs for reporting
62. Qualitative data hard to communicate
63. Barrier of health insights are not synthesized and integrated
64. Inability to closely track employee recovery
65. Standard surveys and tests unable to gather rich feedback
66. Feedback is incomplete without collaboration
68. Instant and direct communication with suppliers not available
70. Privacy of personal data not guaranteed
71. Inconclusive, incomplete or inaccurate quantitative data
72. Difficult to obtain complete data from supplier companies



Health Classroom

SUPERSET ELEMENT

My Health Manager

RELATED ELEMENTS

Surveyor
Wellness Program Manager
Health Planner

FULFILLED FUNCTIONS

2. Test employee health care knowledge
29. Share employee health care knowledge
36. Gather data of employee's knowledge level of self-health management
44. Summarize data of employee's self-health care knowledge
64. Test employee health care knowledge
82. Provide employee health care knowledge data
83. Provide insight for barrier of health

Description

A customizable, self-adapting, searchable database for individuals to learn and manage new health related knowledge.

Properties

- Personal Health Application
- Medical knowledge sharing platform
- Discussion board for Q&A
- Online tool and widget
- Program that connects with the **Surveyor**
- Open source health knowledge storage database

Features

- Links to health resources based on **Health Information Code**
- Provides certified health information from providers
- Stores favorite information sources
- Allows individual to post questions to providers
- Shares knowledge and experiences for care seeking
- Allows individuals to interact in a community with others

- Tracks information that an individual is searching for or concerned about
- Disseminates health literacy surveys to test health knowledge
- Adjusts contents based on results of health literacy testing done by **Surveyor**

Discussion

Health Classroom is a Personal Health Application (PHA) that holds a centralized source of customized, updated health and wellness knowledge. It includes access to officially certified information from providers and health institutions. The knowledge is easily searchable with the help of a powerful search engine built into the database. The search engine can interpret “plain” English that the patients use to describe their health problems and correlate the natural language with the jargon and terminology of the medical world. For example, individuals can describe their physical feelings and search for an accurate medical definition for that health problem.

Based on the personal **Health Information Code** the **Health Classroom** can prioritize the necessary medical and health knowledge needed for certain demographic groups and for those with certain health issues. The **Health Classroom** would also trigger the **Surveyor** to send out health literacy testing surveys to test the necessary knowledge that the individuals should understand based on their **Health Information Code**.



The result of the health literacy tests will be assessed on an individual basis. Recommended knowledge suggested by the test results will be listed in the **Health Classroom**. The **Health Classroom** would also adjust the displayed contents according to the individual's ongoing wellness plan and treatment plan. Related materials and links are listed for further reading and exploration.

Health Classroom allows an individual to store favorite links and information sources. Individuals could add their favorite resources and take their own notes in the **Health Classroom**. The **Health Classroom** provides them with tools to organize collected information so that they can always go back to the link and their notes conveniently.

Health Classroom contains a Q&A section that allows the individual to post questions that are answered by licensed providers. Individuals can not only explore the knowledge available in the database, they can also ask questions about their own specific health problems. Questions can be posted on the public discussion board. Each discussion board has a licensed host physician who is in charge of answering all the posted questions. Although the host physician cannot give prescriptions or treatments, he or she can provide guidance for the individuals about valuable resources for reference. If posted publicly, all the other individuals can discuss the problem and share their own experiences about the related topic. Questions can also be sent to the host physician as a private message.

The discussion board functions as a health community. People with similar health problems can keep in touch with one another and even arrange events to gather and meet offline. The group may exchange their stories and experiences during treatments and recovery periods.

Scenario

David is an office worker who has recently been bothered by increased thirst and frequent visits to the restroom. He never thought it was an issue until one day when he learns something new from his **Health Classroom**. He knew there was a cool feature in there that can interpret natural language and translate it into a medical term related to the symptom described. He decides to try this feature out and see what results. He enters the following words into the search box: 'Frequent urination and I am increasingly thirsty.' After a second, results appear. The top relevant hit is diabetes. Stunned, David reads the passage and navigates through the links listed. He reads through several essays describing the symptoms of diabetes and he grows more concerned because he is suffering from more than half of the listed symptoms.

David is worried and does not know what to do at this point. After staring at the screen for about five minutes, he realizes that he is staring at a link that says 'Q&A, ask a certified physician, NOW! And get an answer within one business day.' He clicks on the link and posts a question

ASSOCIATED DESIGN FACTORS

2. Issues relevant to individuals overlooked
20. Communication channel unclear
25. No guideline to keep employee unbiased
30. No standard terminology
39. Response rate is too low
40. Covered retirees are ignored
42. Privacy issue arises
47. Uniform material not tailored to specific demographic group
58. Report lacks common standard and does not support comparison
61. Audience diversity causes different needs for reporting
62. Qualitative data hard to communicate
63. Barrier of health insights are not synthesized and integrated



Health Classroom (continued)

on the discussion board. Within minutes of submitting his post, several other users identified with nicknames reply to his post and try to comfort him. A while later, the host physician replies and suggests that David schedule a comprehensive check-up with his physician immediately because his symptoms are indicative of diabetes. The host physician also suggests that he look at several resources about diabetes. After reading the suggested materials, David's stress-levels decrease but he remains concerned. He schedules an appointment immediately.

David comes back from the doctor's office. He now has a glucose monitor, some prescription medicine, and lots of useful advice and information from his doctor. No longer scared, David decides to create a plan to fight diabetes. Still grateful for **Health Classroom**, David logs into it again expecting to find out more. To his surprise, the **Health Classroom** has been updated when he logs in. On the front page, several links for the leading diabetes support groups are listed. There is even a link for beginners with a tutorial about how to use the glucose monitor. The tutorial includes illustrations and photos for the exact model he received from his doctor. He now recalls that the doctor mentioned that his **Health Information Code** was updated after the health check. That is how **Health Classroom** knows his current health issues.

The next day, David comes back from the gym to begin his new wellness plan. He takes a health literacy survey from the **Surveyor** to share his initial impression of the new program with his new found friends in the **Health Classroom** community. The survey is all about knowledge of diabetes. David tries his best recalling the information he learned in the past several days from **Health Classroom**, but he is still feeling overwhelmed and confused. The results of the test confirm this. He did well in the general knowledge section, but he needs to improve on understanding the details of diabetes. His friends in the community recommend a book to him for more comprehensive understanding of the disease. It seems that David is prepared to live with diabetes and fight it together with his support team.



Health Expenser

Description

A financial application that helps an individual plan, track, and manage health care expenses.

Properties

- Secure online financial application
- Statement of current health expenses
- Evaluation tool to categorize expenses

Features

- Shows an individual's comprehensive health care expenses
- Inputs costs from provider, purchases made with the **AllCare Card**, and deductions from payroll for health care
- Shows transactions made from Health Savings Account (HSA)
- Stores electronic receipts from health care purchases
- Allows manual input of additional out-of-pocket health expenses
- Gathers cost information to predict upcoming expenses
- Sets up a financial plan based on predicted costs
- Shows total cost of health care (i.e. employee cost vs. employer costs)

Discussion

The **Health Expenser** allows individuals to handle their health care finances. It is an application located in the employee's **My Health Manager**. This software allows employees to track and manage out-of-pocket health care expenses, and plan for future expenses. It receives the digital receipts from health purchases made with the **AllCare Card** and **New HSA**. It can also send an aggregated financial report to the other stakeholders if the employee chooses to do so. The **Health Expenser** makes organizing health finances convenient.

The **Health Expenser** creates databases from the electronic receipts submitted for health care purchases. These databases are organized by different categories such as out-of-pocket costs and purchases covered by health plans. The **Health Expenser** also archives into the database what items or services were purchased, when and where the items were purchased, and how much was spent on the purchases. Furthermore, if any health care purchases are paid directly out of the employee's pocket, this information may be entered manually by the employee and added to the database.

Moreover, it helps employees to manage their upcoming health expenses. Based on the employee's purchasing trends, and predicted health care costs for the coming year, the **Health Expenser** is able to help employees manage their health care cost budgets in a easy to follow,

SUPERSET ELEMENT

My Health Manager

RELATED ELEMENTS

My Health Rewards
AllCare Card
New HSA

FULFILLED FUNCTIONS

9. Track employee out-of-pocket expenses
17. Assess cost burden to individuals
23. Disclose health care financial data
32. Collect employee out-of-pocket expenses
85. Compile quantity of products purchased
90. Collect out-of-pocket cost for health supplies
96. Identify purchasing trends for products
107. Report product purchasing trends
108. Report employee out-of-pocket cost for health supplies



Health Expenser (continued)

ASSOCIATED DESIGN FACTORS

- 9. Difficult to track
- 15. Important assessment factors not available
- 18. Information disclosure standards unclear
- 22. No limits to what questions to be asked
- 23. No qualification system on the subject of collecting information
- 24. Collected data may be inaccurate or inconclusive
- 68. Instant and direct communication with suppliers not available
- 69. Feedback and results not sent to one centralized hub
- 72. Difficult to obtain complete data from supplier companies
- 74. Knowledge barriers create poor evaluations for suppliers
- 75. Product trend assessments not conclusive

convenient way. Data sent by the employer and other stakeholders such as health care cost history is another valuable piece of information that improves the accuracy of health expense planning.

Scenario

After a busy day of work and errands, David logs into his **My Health Manager** and accesses his **Health Expenser** to review his day's purchases. In his **Health Expenser**, David can access his HSA information, purchase history, co-pay information and out-of-pocket costs. In his purchase history, he sees that the medicine he purchased earlier that afternoon is already recorded. The transaction indicates that the co-pay has been approved by his health plan.

Additionally, it indicates the amount of the purchase cost that the health plan covered, how much of a co-pay was paid from David's HSA, as well as which medicine was picked up. David is prompted to share the medicine purchase data with the supplier and his doctor he decides to share it with both stakeholders. For doing so, he receives **My Health Rewards** points that are transferred to his HSA. When David refreshes the **Health Expenser**, he sees his new HSA balance.



My Health Rewards

Description

An incentive program that encourages employees to be proactive in their health care and to share their personal health data with other health care stakeholders.

Properties

- Program that encourages employee contribution
- Program that awards points for information sharing
- Program that awards points for personal health improvement
- Points system that calculates rewards into monetary sums for the HSA (Health Savings Account)

Features

- Awards adherence to a wellness program
- Awards dedication to preventive care
- Collects and saves employee health care points based on employee participation
- Creates incentive for employees to share personal health data
- Converts points into HSA money for future health care spending
- Offers customized options based on individual preferences

Discussion

The **My Health Rewards** program provides a method for employers and other stakeholders to encourage individuals to participate in the improvement of the health care system. **My Health Rewards** provides a means to obtain qualitative and quantitative data from employees based on their experiences with products, services and health plans. In this program, for example, the employer can reward employees for participation in the employer's wellness programs, for making healthy lifestyle changes, and for providing feedback about benefits packages.

In a similar manner, the other stakeholders can also participate in the **My Health Rewards** program. These stakeholders can request specific feedback from individuals and provide rewards points corresponding to the level of contribution. For example, a doctor can request feedback from a patient about a recent visit and submit a certain number of points to the patient's reward account. The rewards points are translated into a monetary value, similar to a credit card rewards program. The converted funds are deposited into the employee's **New Health Savings Account (HSA)** for future health care spending.

Points can also be collected at various locations using the **AllCare Card**. When the card is swiped at participating locations, points are automatically added. For example, an employee may receive points each time the card is swiped at the gym or health food store. They may also receive

SUPERSET ELEMENT

My Health Manager

RELATED ELEMENTS

Health Expenser
AllCare Card
New HSA
Surveyor

FULFILLED FUNCTIONS

1. Survey employee wellness
2. Test employee health knowledge
8. Survey employee satisfaction with all health benefits
30. Collect employee health plan satisfaction
33. Survey employee ideas for new health plan options
48. Provide employee satisfaction data
60. Survey employee satisfaction of providers
64. Test employee health care knowledge
87. Measure employee product preferences
89. Measure employee product satisfaction



My Health Rewards (continued)

ASSOCIATED DESIGN FACTORS

1. Important factors not measured
2. Issues relevant to individuals overlooked
8. Qualitative data may be lost
22. No limits to what questions to be asked
25. No guideline to keep employee unbiased
38. No evidence of information's trustworthiness
39. Response rate is low
40. Covered retirees ignored

points for visits to their doctor or the **Automatic Health Machine**. Employees can receive a monthly statement by mail or email that shows their current point status. They can also see much of the converted money has been used in the past and what it was used to purchase. Employees can also access their reward point information through **My Health Manager** to track their progress.

My Health Rewards is an entirely optional program in which employees and stakeholders can participate. This rewards program offers options to fit each individual's needs. Employees can choose which stakeholders they want to share data with and which they want to block from receiving their personal data. Furthermore, the purpose of the rewards program is not solely to focus on receiving the points, but rather to get employees comfortable with sharing their personal health data. Individuals are very protective of their personal data and want to avoid having their data used against them. However, through the **My Health Rewards** program, individuals are given complete control of their personal health information. Giving them the choice helps individuals feel empowered to play an active role in their health care; the rewards are just the carrot at the end of the stick. As the program expands, employees will hopefully see the value that their feedback and information provide to an improved health care system.

Scenario

When David logs into his **My Health Manager** account the day after a doctor's visit, he receives a prompt to complete a survey sent by the doctor. The doctor created the survey with customized questions in order to gather accurate feedback from David about the visit. The survey prompt states that David will receive five rewards points for completing and submitting the survey. He agrees to take the survey, completes it, and submits it back to the doctor electronically. After the doctor receives the survey, he authorizes the allotted amount of rewards points to be transferred to David's **My Health Rewards** account. The points are converted and money is sent directly to his **New Health Savings Account**.



AllCare Card

Description

An HSA (Health Savings Account) card, rewards program card, and health identification card combined. Records health care purchases and wellness program usage.

Properties

- Health account debit card
- Health identification card
- Multi-purpose care card

Features

- Accesses HSA for out-of-pocket expenses
- Accesses health plan for purchases covered
- Accesses the health plan and PHR during provider visits
- Collects points for **My Health Rewards**
- Allows access to health plan information for doctor's visits and medication purchases
- Provides access to PHR in case of emergency.
- Tracks expenses and sends data and e-receipts to **My Health Manager**

Discussion

The **AllCare Card** is used over multiple platforms to streamline patient information collection and access. It acts like a debit card to access the employee's HSA to purchase health supplies and medication that are not covered by insurance or benefits. Employees also use the card for health plan verification and co-pay during doctor visits and at pharmacies. It can also be used to collect points when purchasing healthy food from the on-site cafeteria or when entering the health center. It identifies the employer at pharmacies without additional ID and eliminates the need for paper prescriptions. Based on the frequency of use, the card will award free meals or discounts for medicine purchased.

The card can also be linked to the PHR if the employee chooses. Instead of having to fill out paperwork and look through files, all the information will be located on a health care database that can be accessed for each individual using their **AllCare Card**. This allows patients to visit multiple providers and have continuous access to his or her information. The patient will need to use a special pin to activate the card.

Since the card transmits transaction data to the **Health Expenser**, employees can keep track of their "favorite" companies, brands and providers. Electronic receipts for these purchases are sent back to the **Health Expenser** where the employee can access them. Furthermore, the card can send important data to the other stakeholders

SUPERSET ELEMENT

My Health Manager

RELATED ELEMENTS

Health Expenser
My Health Rewards
New HSA

FULFILLED FUNCTIONS

7. Track employee adherence with internal health programs
85. Compile quantity of products purchased
96. Identify purchasing trends for products
107. Report product purchasing trends

ASSOCIATED DESIGN FACTORS

7. Employees unmotivated to provide necessary information
68. Instant and direct communication with suppliers not available
69. Feedback and results not sent to one centralized hub
72. Difficult to obtain complete data from supplier companies
74. Knowledge barriers create poor evaluations for suppliers



AllCare Card (continued)

ASSOCIATED DESIGN FACTORS

1. Important factors not measured
2. Issues relevant to individuals overlooked
8. Qualitative data may be lost
22. No limits to what questions to be asked
25. No guideline to keep employee unbiased
38. No evidence of information's trustworthiness
39. Response rate is low
40. Covered retirees ignored

and **My Health Manager**. As it records health care purchases and wellness program usage, this data is sent to pre-approved stakeholders that the employee has specified. Although allowing the other players to access this data is not required, the employees will receive additional rewards point for their contribution.

Scenario

After receiving a prescription, David's medicine pick-up process is streamlined with the use of the **AllCare Card**. Since David's doctor sent the prescription wirelessly to his preferred pharmacy earlier that day, there is no need to submit a paper prescription or wait a few hours for the medicine to be prepared. David can check his **Health Planner** to see if the medicine is ready. Once he is notified that the medicine has been prepared, he goes to his pharmacy. At the counter David swipes his card, activating his account. The card identifies who he is, which prescription has been prepared for him, his health plan coverage, and how much co-pay needs to be deducted from his HSA. The medicine is then paid for automatically. This helps to simplify the process of picking up medication. Furthermore, upon purchase, the card records that David has picked up the medication and sends this data to the **Health Planner**.



New Health Savings Account

Description

An HSA (Health Savings Account) that accumulates over a lifetime to become part of an individual's estate and is transferable to others.

Properties

- Secure financial account
- Tax-free money
- Extended model of current HSA program
- Year-to-year balance rollover

Features

- Covers purchases of health care related items
- Transfers as part of an individual's estate
- Offers customization and options based on an individual's preferences
- Allows employers to contribute money
- Collects earnings from **My Health Rewards**
- Links to an individual's **Health Expenser**

Discussion

The **New HSA** is designed to help individuals save for future qualified medical and retiree health expenses on a tax-free basis. It is a replica of the current HSA system used in the U.S. health care system, however it has adopted some new features. This account not only has rollover for the balance accrued each year, but also may be kept and added to during the duration of the account holder's life. The account can be included in the individual's estate and may be bequeathed to someone else. Also, funds may be used on HSA approved health care purchases for spouses and dependents. Furthermore, the range of health care purchases is broadened with the **New HSA**. Funds in the account can be used to make health food purchases, to sign up for a health center membership, and to pay for various preventive care offerings.

The **New HSA** can be used in conjunction with an individual's **AllCare Card** and **Health Expenser**. The **AllCare Card** lets the user make HSA-approved purchases with the swipe of the card. The purchase data is then sent electronically to the **Health Expenser**. This streamlines the approval of health-related purchases. Individuals will no longer need to keep receipts and request reimbursement from their HSA after making purchases. All of the information will be available digitally and easily accessible to the necessary parties. If something is not approved for purchase with the HSA, the transaction will be terminated.

SUPERSET ELEMENT

My Health Manager

RELATED ELEMENTS

Health Expenser
My Health Rewards
AllCare Card

FULFILLED FUNCTIONS

9. Track employee out-of-pocket expenses
32. Collect employee out-of-pocket expenses
96. Identify purchasing trends for products
107. Report product purchasing trends



New Health Savings Account (continued)

ASSOCIATED DESIGN FACTORS

- 9. Difficult to track
- 22. No limits to what questions to be asked
- 23. No qualification system on the subject of collecting information
- 24. Collected data may be inaccurate or inconclusive
- 68. Instant and direct communication with suppliers not available
- 69. Feedback and results not sent to one centralized hub
- 74. Knowledge barriers create poor evaluations for suppliers

Scenario

David decides to run some errands after work to pick up a few items for the house. While shopping at his local super store, he remembers that his family is out of chewable vitamins. These vitamins are important for his daughter's preventive care measures. He picks up a bottle and heads to the checkout line. When purchasing his other goods, he includes the vitamins in the purchase. David pays for the purchase using his credit card, but also hands the cashier his **AllCare Card**. When the **AllCare Card** is swiped, it indicates that the vitamin purchase is covered by the **New HSA**. When he gets home, he logs into his **My Health Manager** to access **Health Expenser** and view his most recent transaction.



Automatic Health Machine

Description

An secure, enclosed health care kiosk that allows an individual to privately receive a basic health check-up and connect to his or her **My Health Manager**.

Properties

- Modular kiosk with built-in privacy features
- Physical health factors measurement tools, such as body composition analyzer and scale, blood pressure monitor, CBC blood test tools and processor
- Data aggregation and assessment software
- Smart card reader
- Fingerprint scanner
- Touch screen with Internet connectivity
- Report output device
- Medicine distributor

Features

- Allows individuals to monitor their own health
- Measures physical health factors (i.e. weight, BMR, blood pressure, bone and muscle mass, body fat, body water, height, red and white blood cell counts and hemoglobin, eye health)
- Provides an official health check-up that is stored in the PHR

- Allows access to online applications, such as **My Health Manager**
- Prints out health check-up report
- Collects points by swiping **AllCare Card**
- Distributes authorized medicine
- Accesses data through biometric finger scan

Discussion

The **Automatic Health Machine (AHM)** is an enclosed kiosk that provides a safe and convenient place to input private health information and receive a physical health check without interacting with another person. Employers can purchase an **AHM** for their office so that employees can quickly and easily receive a health check without leaving the premises of the office. Individual accounts can only be accessed through secure login with a finger scan.

An individual can get a complete physical assessment using the tools in the **Automatic Health Machine**. All the measurement tools provide quick and easy measurements that can be processed immediately. An individual can do a full assessment or individual pieces of a health check depending on their preferences. Once all the data is input, it is assessed and provided as a comprehensive report for the individual to review. This report can be printed out or stored in an individual's PHR.

RELATED ELEMENTS

My Health Manager
Rewards Program
AllCare Card

FULFILLED FUNCTIONS

1. Survey employee wellness
5. Monitor employee health
55. Collect employee wellness data
56. Provide health check
62. Track patient recovery data
63. Measure treatment adherence
84. Measure employee recovery rate



Automatic Health Machine (continued)

ASSOCIATED DESIGN FACTORS

1. Important factors not measured
2. Issues relevant to individuals overlooked
5. Properly trained staff not available
6. Employees unwilling to provide necessary information
39. Response rate is too low
40. Covered retirees are ignored
41. Hard to interpret employee reporting language
42. Privacy issue arises
43. Hard to define productivity
44. Off-site behavior of employees is hard to track
45. Test and surveys are not frequent enough to track health
46. Qualitative data not collected
47. Uniform material not tailored to specific demographic group
64. Inability to closely track employee recovery

Besides providing a basic health check-up, the **AHM** can also access the Internet and allow an employee to check his or her **My Health Manager** or other personal health data in the private enclosure. This is especially useful if an employee needs to access information while at work, but doesn't feel comfortable doing it in an open location like a work desk.

An employee can also receive certain medicines that are stocked by the employer in the **AHM** if they have the authorization in their account. Once an employee finishes everything in the **AHM** and the session is complete, the individual can swipe the **AllCare Card** to receive points towards the **My Health Rewards** program.

Scenario

David enters the soundproof **Automatic Health Machine** kiosk and latches the door behind him. He has been feeling sick for the last couple of days, but couldn't get in to have an appointment with his doctor until the end of the week. He sits down and places his finger in the finger scan. The computer screen brings up his account showing a summary of his last visit in his **My Health Manager** account.

David realizes it has been about six months since his last physical check-up, but decides he is not feeling well enough to do a full check-up. He touches the feeling sick

check-up button on the touch screen and then follows the instructions given. He steps on the body composition analyzer for ten seconds, then sits down in the chair with his arms along the arm rest.

The **AHM** tools quickly perform the rest of the assessment: a digital thermometer measures his temperature from his ear, his right arm is squeezed for a blood pressure measurement, and his left hand finger is pricked for a blood test and then covered with a band-aid. **The Automatic Health Machine** indicates that it is processing data, and David browses his **My Health Manager** account while he waits.

Five minutes later the **Automatic Health Machine** reveals the report. David checks it over and sees the main alert points pulled out from the data. His iron level is extremely low and his white blood cell count is higher than average. It has not detected any serious infections or problems. David feels much better after receiving the assessment. He decides to send a copy of the check-up report to his physician through his **My Health Manager** account.

Before he logs out, the **AHM** alerts him to swipe his **AllCare Card**. He receives ten points in his **My Health Rewards** because of the health check he just completed. Then he finishes logging out and leaves. After David leaves the **Automatic Health Machine**, the kiosk automatically sanitizes the area and prepares for the next person.



Surveyor

Description

A universal information collecting software tool that enables various stakeholders to gather needed health-related information from individuals.

Properties

- Computer program that automatically draws information from existing PHR data
- Computer program triggered by widgets
- Computer program fed by survey questions sent by various stakeholders
- Friendly interface that uses pop-up windows for surveys
- Computer program that connects with the **AllCare Card** for reward points
- Computer program that sends collected data back to stakeholders initiating the survey
- Computer program that applies Computer Adaptive Test (CAT) questions when surveying
- AI computer program that arranges the questions according to the importance and the difficulty level
- Program that prints out hard copy surveys and mails them to retirees
- Voluntary program for individuals

Features

- Collects information from employees using pop-up windows in **My Health Manager** interface
- Tailors questions to the specific condition of the individual
- Incentivizes employees by offering reward points
- Specifies the terms of use for the requested information
- Informs the employee about the benefits for sharing personal information
- Adapts the questions according to employee's profile
- Reminds the employee about incoming or uncompleted surveys through email and pop-up windows
- Uses engaging interface design to make the survey process enjoyable for individuals

Discussion

The **Surveyor** is a software tool allowing various stakeholders to efficiently collect information from individuals. The different health care stakeholders can opt-in to the program and submit the information that they want to collect from the individuals. It uses computer pop-up, direct mail and email surveys to gather information from a wide variety of individuals.

RELATED ELEMENTS

My Health Manager
Health Planner
Health Classroom
My Health Rewards
HR-Central

FULFILLED FUNCTIONS

2. Test employee health care knowledge
8. Survey employee satisfaction with all health benefits
29. Share employee health care knowledge
30. Collect employee health plan satisfaction
31. Collect employee plan utilization data
33. Survey employee ideas for new health plan options
36. Gather data of employee's knowledge level of self-health management
39. Collect uncovered employee information
53. Share data of employee's self-health care knowledge
60. Survey employee satisfaction of providers



Surveyor (continued)

FULFILLED FUNCTIONS (cont.)

- 64. Test employee health care knowledge
- 81. Report employee satisfaction
- 82. Provide employee health care knowledge data
- 86. Measure employee product needs
- 89. Measure employee product satisfaction

ASSOCIATED DESIGN FACTORS

- 2. Issues relevant to individuals overlooked
- 8. Qualitative data may be lost
- 20. Communication channel unclear
- 21. Employee's might not want to share their information
- 22. No limits to what questions to be asked
- 25. No guideline to keep employee unbiased
- 26. Specially trained staff is needed
- 27. No standard for methods of collecting information
- 28. Collected data may not cover all existing data
- 36. No means to set limits of communication

After the stakeholders opt-in to the program, each player submits the information they would like to collect, how the information will be used, the benefit to the individuals for sharing their health data and how many points will be awarded upon completion of the survey.

The **Surveyor** can communicate with other health care applications the individuals use. It will help determine the proper time to deliver the survey based on the individual's schedule. For example, after a doctor visit, surveys about the conversation quality and overall satisfaction of the visit are prompted; at the end of a treatment, surveys about satisfaction of the recovery, the whole treatment, and the medical product are prompted by **Surveyor**. Before the survey begins, the **Surveyor** displays how the information will be used and the benefits for sharing the information. Also, incentives are provided by the stakeholder who requests the survey completion.

Surveyor pulls data from the existing PHR and other sources to simplify and reduce the number of the questions before the individual receives the survey. The **Surveyor** also adjusts the questions asked based on ones that have already been answered using the Computer Adaptive Test (CAT). For example, if the individual taking the survey replies that he or she did not adhere to the treatment plan, the next questions would be geared towards asking about the reason for the dis-adherence rather than other questions.

The variety of surveys that the **Surveyor** can provide ranges from product satisfaction surveys for suppliers, treatment satisfaction surveys for providers or health plans, health literacy surveys from **Health Classroom** and government, and wellness program satisfaction surveys for employers. After the individual agrees to release his or her survey responses, the data will be sent back to the appropriate stakeholders.

Scenario

David comes back from his doctor's visit. He logs into his **Health Planner** to view his calendar. After he logs in, there is an icon bouncing in the corner of the screen indicating that he has a new survey from his doctor's hospital to complete. The icon says, 'Five rewards points will be awarded upon completion of this survey.' David likes the idea of getting more **My Health Rewards** points. He clicks on the icon and accesses the survey. It explains the terms of use of the survey and that the survey will be sent to the doctor's profile. This will affect the doctor's rating. The comments David makes will be seen by others who access the doctor's profile. David proceeds to take the survey. The first questions asking about the time and reason for the visit are already completed by the **Surveyor** program by pulling from the data about the visit stored in the **Health Planner**. The following questions ask how David would rank the conversation he had with the



doctor and how well he understood the instructions and recommendations given by the doctor.

One interesting thing David noticed during the survey was that it appeared to interact with David based on what he was being asked and what he had previously answered. For example, after David replies ‘less than satisfied’ for the question about conversation quality, the **Surveyor** asks him why he is not satisfied. For David, completing this survey feels like a conversation.

After the first survey is completed and submitted, a second notification pops up. It is for a health literacy test about the health condition for which David scheduled his doctor’s visit. He takes the test and it indicates that David did ‘OK’ on the test, but he should review several important issues about healthy lifestyle using the **Health Classroom**. After completing the survey and test, David is rewarded 15 points from **My Health Rewards**.

DESIGN FACTORS (cont.)

39. Response rate is too low
40. Covered retirees are ignored
41. Hard to interpret employee reporting language
42. Privacy issue arises
46. Qualitative data not collected
47. Uniform material not tailored to specific demographic group
57. No emotional connection between patients and providers
58. Report lacks common standard and does not support comparison
61. Audience diversity causes different needs for reporting
62. Qualitative data hard to communicate
65. Standard surveys and tests unable to gather rich feedback
66. Feedback is incomplete without collaboration
67. Quantitative data not always sufficient for supplier feedback
70. Privacy of personal data not guaranteed



HR-Central

SUPERSET ELEMENT

Health Book

SUBSET ELEMENTS

Wellness Program Manager

ROI Tool

Health Plan Finder

RELATED ELEMENTS

My Health Manager

Surveyor

FULFILLED FUNCTIONS

21. Publish comprehensive health benefits offerings
22. Report employee coverage and usage
23. Disclose health care financial data
26. Provide health plan results
27. Publish company wellness program results
28. Release overall company health status
29. Share employee health care knowledge
47. Collaborate with other employers to create health plan evaluation
73. Analyze health claims data
74. Provide current wellness program data

Description

A software application that helps an employer plan and manage the company health care benefits for its employee and retiree population. Works in conjunction with **My Health Manager**.

Properties

- Customizable interface
- Secure database
- Connection to health care network
- Data collection and aggregation software
- Data evaluation software

Features

- Sends employer profile information to **Health Book**
- Connects to employer network
- Collects information authorized by employees
- Aggregates, evaluates, and stores data
- Assists in health plan and employee wellness program choice
- Evaluates effectiveness of employer health benefits offerings
- Provides employer health benefit offerings information to the public

Discussion

HR-Central provides a variety of tools to assist an employer in navigating the complex world of health care benefits management. In order to use **HR-Central**, employers must create a profile with company size, location, and industry, and a comprehensive listing of health care benefits and costs. The software comes standard with the **Wellness Program Manager**, **ROI Tool**, and **Health Plan Finder**, which will be covered in detail in this report. It also allows the addition of other applications to help plan, manage, and evaluate health benefits.

HR-Central also provides a centralized source of information that is supplied by connecting with other stakeholders in the health care system by adding them to the **HR-Central** network. **HR-Central** then queries connected databases to supply the employer with the latest updates from its network. An employer can receive updated information on health plan and provider performance and government regulations and tax incentive programs. If an employer belongs to an employer consortium, the affiliated employers can also connect through **HR-Central** and exchange information.

In addition, **HR-Central** connects with the **My Health Manager** employee accounts within its network. **HR-Central** can use **Surveyor** to send surveys or questionnaires to employees that ask for feedback, satisfaction ratings, or usage data on various health care benefit offerings. An employer can also use **HR-Central**



to ask employees for access to information such as their health score or potential health risks, and their adherence data to employer wellness programs. If permission is granted, **HR-Central** can collect and evaluate the information to assess the performance results of health benefits. All of the personal information is aggregated so that an employer never knows which employee submitted the data.

Other data such as health plan insurance claims may be combined with information submitted by the employees to help an employer identify health risks within the employee population. **HR-Central** provides tools to compare health claims rates to national averages and to the health recommendations of providers. This helps employers pinpoint areas of health education that may need to be addressed within their employee population.

HR-Central also gives the employer a standardized format for submitting mandated information to the government and to the **Health Book** database. **HR-Central** uses the employer's profile to submit the necessary information, such as which health benefits are offered and how much employees spend on health benefits. The employer also has the option to submit further details such as overall health improvement results, productivity gains, or cost reduction information. Employers may be interested to submit such information to the public **Health Book** profile in order to compete with other companies for employees.

Scenario

Brenda is the benefits manager in the Human Resources (HR) department at her company. Her employer has been using the **HR-Central** software and database for several years now to manage all of the company's health care benefits. When Brenda arrives at work in the morning, she logs on to **HR-Central** to check for any updates from the health plan and any messages from employees within the network. Brenda also quickly checks the quality and satisfaction meter of the health benefits to make sure that no drastic changes have occurred over the week.

Today is the last day in the month, which means Brenda needs to submit a feedback survey to all the employees. This month the information to be gathered will be regarding the newly developed wellness program that promotes weight loss. Brenda composes the survey using tools in **HR-Central** and submits it to the employees. Only those employees that are registered in the program receive the survey in their **My Health Manager**. After 48 hours the survey will expire and the system will collect, aggregate, and report the results back to Brenda.

ASSOCIATED DESIGN FACTORS

18. Information disclosure standards unclear
19. Information disclosure benefits unclear
20. Communication channel unclear
34. Other employers might now want to collaborate
59. Wellness program report detached from the special situation of each employer
61. Audience diversity causes different needs for reporting
62. Qualitative data hard to communicate



Wellness Program Manager

SUPERSET ELEMENT

HR-Central

RELATED ELEMENTS

Health Planner
Health Classroom
Surveyor

FULFILLED FUNCTIONS

- 5. Monitor employee health
- 7. Track employee adherence with internal health programs
- 8. Survey employee satisfaction with all health benefits
- 14. Assess employee wellness programs
- 18. Perform cost/benefit analysis
- 27. Publish company wellness program results
- 34. Collect employee actual usage of health care equipment and medicine
- 37. Assemble information on employee health lifestyles
- 45. Identify employee's health lifestyle trend
- 48. Provide employee satisfaction data
- 55. Collect employee wellness data

Description

A software package to help HR personnel evaluate and manage the employer-provided wellness programs.

Properties

- Software that is part of the **HR-Central** platform
- Interface that can only be accessed by HR personnel
- Program that communicates evaluation data to the wellness program administrator
- Program that aggregates feedback about the wellness program
- Program that works with the **Surveyor** to conduct related surveys

Features

- Recommends options for employee health risks
- Aggregates wellness program evaluation data
- Sends aggregated feedback to the wellness program administrator
- Incentivizes successful wellness program options
- Replaces unsuccessful options with in-demand options

- Supports HR personnel to react to emerging and existing health problems of employees

Discussion

Wellness Program Manager is a software tool that is accessed by the HR personnel to manage the employer's wellness program. The data of the employees' utilization of the wellness program is collected by the tool from the individuals' **Health Planner** account. Employees' personal information is de-identified and privacy is ensured.

The HR personnel can see the emerging and existing health risks or the employee population through information supplied by **HR-Central**. The risks are color coded and ranked on one side, and the wellness plan options offering and utilization information are listed on the other side. The HR personnel can compare the two sets of data and charts to see whether all the risks are addressed. The HR personnel reacts to the emerging health problems by adjusting the wellness program options accordingly.

The **Wellness Program Manager** aggregates and assesses employee lifestyle data and then compiles it into an index showing the HR personnel the overall lifestyle of the entire workforce. Personal information is removed so that the HR personnel will not have access to specific personal



employee information. General lifestyle data of the company gives the HR personnel a better idea about what wellness program options are necessary.

The outcome of each wellness program option is aggregated and evaluated by the **Wellness Program Manager**. Satisfaction is combined with outcome evaluation to form a comprehensive evaluation. The third party or health plan that administers the wellness programs is rewarded based on the assessment. Unpopular and ineffective program options are replaced with in-demand programs that are determined through employee feedback.

The HR personnel use the **Wellness Program Manager** in conjunction with the **Surveyor** to create wellness program surveys. These surveys ask for feedback on existing programs and suggestions for new program options. The completed survey data is sent back to the **Wellness Program Manager** and automatically aggregated and assessed. Survey results are displayed as evaluation scores. The emerging needs are listed in the program option list.

Scenario

Brenda is the HR manager in charge of the management of the Wellness Programs. She uses the software tool called **Wellness Program Manager** in **HR-Central** to do her job. On a Monday morning, she logs into her administrator

account for the **Wellness Program Manager** and reads the aggregated wellness program feedback report for last week. The **Wellness Program Manager** did all the work in generating the report for her. She is responsible for reading the charts, numbers, and excerpts of comments provided by the employees.

Today something special attracts her attention in the report. Two new cases of diabetes appear in the ‘emerging risk’ column and eight employee comments are related to diabetes, showing the emerging need for a focused diabetes program. Both of the messages are colored in red which means the **Wellness Program Manager** regards both of them as a top priority. ‘Diabetes is a big, rising concern for the staff,’ thinks Brenda. She clicks on the network icon for the wellness program administrator in her **HR-Central** network. She links to the administrator and sends a Request For Proposal for a new diabetes program. She quotes several key numbers and charts from the report in order to give the wellness program administrator some context about the rising health problem of the company. She will compile a detailed report later today and send it to the administrator for his reference to design the proposal of the new program. Brenda is expecting some good ideas and effective solutions to get the rising diabetes risk under control. Options for a new program include new education programs, a special fitness center, and customized lifestyle programs.

FULFILLED FUNCTIONS (cont.)

58. Record employee demographics and lifestyle
70. Evaluate employee adherence
71. Evaluate ROI on wellness program
75. Provide patient lifestyle data

ASSOCIATED DESIGN FACTORS

5. Properly trained staff not available
6. Employees unwilling to provide necessary information
7. Employees unmotivated to provide necessary information
8. Qualitative data may be lost
14. Important relationships overlooked
19. Information disclosure benefits unclear
21. Employees might not want to share their information
26. Specially trained staff is needed
27. No standard for methods of collecting information
31. Prejudice opinion of evaluation might be added
38. No evidence of information’s trustworthiness



Wellness Program Manager (continued)

DESIGN FACTORS (cont.)

39. Response rate is too low
40. Covered retirees are ignored
41. Hard to interpret employee reporting language
42. Privacy issue arises
43. Hard to define productivity
45. Test and surveys are not frequent enough to track health
46. Qualitative data not collected
47. Uniform material not tailored to specific demographic group
51. Lack of common/easily understandable standard to assess health
53. Reason of disobeying recommendation ignored
54. Return of investment of wellness programs oversimplified
58. Report lacks common standard and does not support comparison
60. Employee privacy infringed
61. Audience diversity causes different needs for reporting
62. Qualitative data hard to communicate

Brenda also notices that the weight management program has been at the top of the employee rating list for months. According to the comments from the participants, it is a demanding, but a fun and effective program. Additionally, this program reached the benchmark for a quarterly award. Brenda writes a congratulation letter to the course instructor and cc's it to all of the other instructors. 'That will get some competition in there,' Brenda tells herself. The incentives for the best wellness plans are not excessive, but are big enough to get the instructors motivated to improve their programs.

As Brenda continues her analysis of the **Wellness Program Manager** data, she notices that a couple items are highlighted with orange. Brenda wants to address those items before they turn red. One of the problems is from the lifestyle survey. The staff is spending more and more time on the internet at their desk during their breaks. Though some of them are working extra hours at home, they need time to stretch their legs and do exercises. The other issue is from the health literacy survey conducted by **Health Classroom**. The result shows that the staff needs to have a better understanding of the importance of sleep. 'These two issues seem to go with each other pretty well,' thinks Brenda. She will work on a plan after her lunch break.



ROI Tool

Description

A comprehensive software tool that calculates the direct and indirect cost of health care and looks at the relationship of aggregated employee health outcome, overall productivity and the return on investment (ROI).

Properties

- Customized interface to support the employer health care cost management
- Information resource to review health plan and provider performance
- Information resource to evaluate productivity
- Means to connect and share with other employers

Features

- Collects individuals' productivity information
- Evaluates health-related lost revenue due to absenteeism, presenteeism, morbidity, and mortality
- Collects health improvement data from the **Wellness Program Manager**
- Collects health outcomes of treatments from individuals' **Health Planner**
- Calculates the direct and indirect cost of health care expenses

- Connects employers and enables them to share experiences in managing health care and health care cost
- Communicates ROI results to the government and the public

Discussion

The **ROI Tool** is a software tool used by employer HR personnel to manage the employer's health care expenses and evaluate the health outcome. The software collects productivity data from each individual employee, evaluates it, aggregates it and calculates the index of productivity of the whole work force. It also assesses the health outcome of medical treatment and the internal wellness programs and calculates a health outcome index. Using a mathematical algorithm, the **ROI Tool** can calculate the return on investment (ROI) on health care.

The **ROI Tool** shows the HR personnel and the executives of the employer not only the wellness and health care expenses, but more essentially the return on the expenses. The return on investment is shown as dollars saved per dollar spent on wellness and health care. Together with intuitive ways to represent the health outcome as curves and charts, the ROI on wellness and health care will enable the employer to see the value of the investment rather than only cost. This tool will improve the awareness of the employer to make decisions on wellness and health care

SUPERSET ELEMENT

HR-Central

RELATED ELEMENTS

Wellness Program Manager
Health Planner

FULFILLED FUNCTIONS

10. Track administrative costs
12. Evaluate employee health and productivity relationship
13. Measure indirect health costs
18. Perform cost/benefit analysis
19. Evaluate employee health results
20. Evaluate quality of health plan
23. Disclose health care financial data
26. Provide health plan results
27. Publish company wellness program results
28. Release overall company health status
67. Evaluate impact of health related problems on productivity
71. Evaluate ROI on wellness program
76. Provide employee productivity data



ROI Tool (continued)

ASSOCIATED DESIGN FACTORS

- 10. Correlation to health uncertain
- 11. Measurement methods uncertain
- 12. Assessment does not correspond with employee needs
- 16. Outlying cases are overlooked
- 17. Wrong metrics used
- 18. Information disclosure standards unclear
- 19. Information disclosure benefits unclear
- 49. Hard to quantify and standardize productivity
- 50. Difficult to separate influence of non-health factors on productivity
- 51. Lack of common/easily understandable standard to assess health
- 54. Return of investment of wellness programs oversimplified
- 60. Employee privacy infringed

based on value. This will in turn change the employer's behavior toward health care purchases.

The **ROI Tool** collects productivity information from HR productivity appraisal data for each and every employee in the company. Due to the different nature of various job titles, the definition of productivity is also different for each job title. The **ROI Tool** uses a computer program to quantify and standardize the collected data into a productivity index of the entire workforce in general.

Health outcomes are collected by the **ROI Tool** from several sources. Improvement of wellness and health is collected from **Health Planner**. Outcomes of medical treatments and wellness programs are assessed. This data is combined with the regular health check-up data, optionally provided by employees, and again aggregated, evaluated, and converted into a company health index. Expenses on different areas of health care are collected from financial departments.

By looking at the health care cost — including administration cost, plan coverage premium cost, and investment on internal wellness programs — together with the curve of the health index, HR personnel can see the input and the output on wellness and health. By looking at the ROI value and the curve of health index and productivity index the HR personnel can show the

top executives the impact of health on the company's bottom line.

The software sends the data of productivity index, health index and overall health care investment to the government which mandates this information from all employers. Also the health and productivity indices and investment data are available on the **Health Book** website to the public.

Scenario

It is a Friday morning. Brenda is in her office at the HR department checking data provided by the **ROI Tool** within **HR-Central**. Brenda has been working with this software almost every single day over the past year to track the return on investment of the company's health care benefits. She is preparing to give the company executives a presentation about the results today.

Last year the revenue of the company dropped again for the fourth year in a row. After a consulting firm analyzed the situation, the company was told that their health care costs were much higher than average and their productivity was extremely low, combining to result in the poor revenues. All the pressure fell on the HR department. Under the huge pressure, they suggested a bold proposal:



to increase investment in better health care benefits and in internal wellness programs. The whole company felt that this proposal was insane; however, Brenda managed to convince the executives. They approved it.

The past year has gone by quickly, and Brenda worked tirelessly to put the new health care initiatives into effect. She is now able to see her efforts pay off. For several months, the health index shown in the **ROI Tool** has been steadily rising, and the productivity of the whole company is also beginning to lift off. Brenda is thrilled to see these two outcome curves slope up for the first time. The administration cost has fallen dramatically. Although the investment in wellness programs has risen, the return on investment value displayed is satisfying: \$3.2 per dollar spent on the wellness and health.

Brenda is confident for her presentation to the executives that afternoon. She has solid evidence to prove that the bold action she proposed last year paid off. She will be able to easily summarize the outcome data from the **ROI Tool**. She will cover the outcome of the medical treatments from the **Health Planner**, the improvement of wellness from the **Wellness Program Manager**, the productivity tracking data for the past six months, and the decreased administration cost for the utilization of the new management software bundle.

Although the overall direct cost on health care over the past year has grown, the company has already seen the

value through decreased indirect costs and increased productivity. \$3.2 return for each dollar spent! And, the direct cost over the past month has started to go down too as overall health has improved. Next month, Brenda will work with the employer consortia to figure out a stronger stand to request the health plan to provide more preventive care options.

Brenda is ready for the presentation and knows that today is going to be a big day for her.



Health Plan Finder

SUPERSET ELEMENT

HR-Central

RELATED ELEMENTS

My Health Manager
Surveyor

FULFILLED FUNCTIONS

33. Survey employee's ideas for new health plan options
37. Assemble information on employee health lifestyle
40. Summarize employee satisfaction with health plan
41. Recognize health plan usage trend
48. Provide employee satisfaction data
49. Provide employee demands for new health plan options
50. Provide employee preferences for health plan options
51. Share collaborated health plan evaluation

Description

A software tool that helps an employer build and post a request for proposal (RFP) when seeking out a new health plan or changes with the existing health plan.

Properties

- Software to evaluate employee health care benefit needs
- Software for employers to collect information that goes into the RFP
- Online database for employer to post RFPs for health plans to review
- Online location for health plan to submit their offerings and benefits options to employers

Features

- Allows employer to rank importance of certain aspects such as cost, choice, employee needs
- Shows bids made by health plans and outlines options to be provided in a standard format
- Compiles information to show trends in employer requests for various services

- Encourages competition among health plans and employers
- Provides evaluation report for the current health plan

Discussion

The **Health Plan Finder** is a tool within **HR-Central** that helps an employer find and evaluate health plan options for employees. **Health Plan Finder** collects and analyzes actual health plan usage and claims data to assess trends and major health needs. It also collects satisfaction ratings and new ideas for health plan options through surveys submitted to employee **My Health Manager** accounts.

Health Plan Finder aggregates and evaluates all of the results to determine employee needs. It also guides the HR benefits management through a series of steps to determine the employer needs, such as cost and administration access. All of this information is summarized into a Request For Proposal that is submitted to the **Health Plan Finder** website. Based on these requests, health plans submit their bids that detail the offerings, cost, and additional services that they may provide.



Employers can review the proposals to choose the one that best fits their employee population. They can also allow their employees to vote on the options that they would prefer by sending a survey to the **My Health Manager** accounts. Employees can review the proposal, and can also check the health plan's **Health Book** profile to help them make their choice.

Employers and health plans can negotiate further through the **Health Plan Finder** until they are both satisfied with the outcome. This process promotes competition among health plans and also allows for transparency of information by publicizing the needs of employers.

Scenario

Brenda is the HR manager at her company. She has been worrying about the performance of the current health plan for months. She keeps sending monthly health plan evaluation reports compiled by the **Health Plan Finder** to the health plan managers, but the dropping satisfaction of the employees did not attract their attention at all. Recently the health plan even cut off the covered fitness center wellness programs. The complaints gathered by the **My Health Manager** are overwhelming the HR department. Brenda tried to contact the plan administrator several times. He was nice and friendly, but he just does not do the job.

Brenda finally contacted the senior managers of the health plan and showed them the evidence: the plan evaluation reports from the **Health Plan Finder**. The message is very clear, and Brenda emphasizes that she is ready to switch health plans. She knows that changing health plans causes churning in the system and is disruptive, but she feels that this health plan is not offering value to her employees. This time the health plan starts to get worried and creates some new proposals for the next year. But Brenda decides to request proposals from several other health plans anyway due to the pressure from the employees.

The **Health Plan Finder** helps her gather the employee's actual health plan usage trends, satisfaction and new ideas about their benefits. It includes reviews of the current health plan and other health plans benefits. Some of the data is gathered by **Surveyor** through surveys, while other data is drawn directly from the usage tracking data gathered by the individual's **My Health Manager**. Brenda follows the process through which **Health Plan Finder** guides her. She easily compiles a RFP based on the gathered and assessed information and posts it to the **Health Plan Finder** website.

Brenda receives several offers within a few days from different health plans and chooses one that meets all of the needs of the employees. The new health plan even covers more services at a lower cost than the last health plan.

ASSOCIATED DESIGN FACTORS

25. No guideline to keep employee unbiased
26. Specially trained staff is needed
27. No standard for methods of collecting information
29. Mistakes could be made in calculations
33. No means to set limits of evaluation
35. No standard system of sharing information
37. No regulation on the range of sharing information
38. No evidence of information's trustworthiness

Conclusion

Throughout this project we were overwhelmed by the amount of available information about the health care system and the seemingly endless barrage of unflattering news stories. Despite our limited expertise in the health care field, we could clearly see the need for a better solution. Equipped with Structured Planning and design thinking methods, we were able to examine the employer role in the health care system and focus on our goal: improve information flow between all health care stakeholders.

The concepts laid out in this report support that goal and show ways that employers can facilitate improvement in the health care system. Through enhanced information accessibility and transparency, these solutions promote value-based competition among stakeholders and allow individuals to recognize quality health care.

While accessible information is extremely valuable, we also believe that providing individuals with a means to find information that is relevant is essential. The solutions we propose in this report show how massive amounts of data can be filtered and customized, providing each person with health care information that is specific to their needs.

Employers have the incentive and unique role in the health care system to help provide and implement some of these proposals. Providing tools for employees to successfully manage their own health and encouraging individuals to be active participants in their health care are initial steps that employers can carry out. The close contact and long-term relationships between employee and employer provide opportunities for education, motivation, and encouragement.

While employers may have the largest incentive to begin this process of change, they cannot do it alone. The other four major stakeholders — government, providers, health plans, suppliers — are also instrumental in the development of solutions to change the U.S. health care system. Our concepts were developed to work as part of the system and aim to facilitate the flow of information among all of the participants.

While the information flow was the focus of our design strategies throughout this project, our true accomplishment is providing solutions that will change the nature of the system by creating competition, improving transparency and access, and ultimately enhancing the quality of the health care system for all.