

**IIT DESIGN SPEECH  
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I want to begin by thanking Rob Pew and Patrick Whitney for inviting me to discuss the link between health care strategy and the Dossia personal, portable, private, lifelong electronic health record.

Before I discuss the Dossia initiative, I need to put it in the context of what we at Pitney Bowes believe to be the optimal health care strategy and structure for us, and what we believe makes most sense for the broader health care system.

Our fundamental assumptions are these:

- Before a universal, affordable health insurance system is put into place, there must be an adequate supply of providers practicing high quality medicine.
- To make it possible for an adequate supply of providers to be in place, demand for health services based on treatment of illnesses, diseases, injuries, and other medical conditions must be managed downward through healthy behaviors and lifestyles.
- To make healthy behaviors possible, individuals must function in a healthy environment, and must take personal responsibility for their health. Individuals must also know their key health indicators. As time goes on, and genetic risk assessment gets more sophisticated, they will also need to know their risk profile.

- To take personal responsibility for their health, individuals need tools that help them manage their health histories, their health indicators, their risk profile, their relationships with providers, and their decisions regarding health and those factors that contribute to health.
- From the standpoint of the patient-provider relationship, we expect that the healthcare system in which we operate here in the United States will continue to give patients choices of health plans which will result in changing health plans and providers from time to time. To achieve continuity and coordination of care, the personally-controlled, portable, lifelong health record will be a critical bridge from plan to plan, and from provider to provider.

The Dossia initiative is most relevant to the last of these imperatives, but it touches all of them in some way or another. Providers are more likely to practice high quality health care with informed patients armed with a comprehensive, lifelong health record. The Dossia tool will have the flexibility to help define healthy behaviors and to monitor individuals' success in achieving those behaviors. Dossia clearly points toward personal responsibility for health. Dossia also originates in the employer relationship because we believe that the employer has the best potential to create a healthy environment in which the patient spends virtually more waking hours than any other place. Finally, Dossia's mission is all about giving individuals the tools they need to take personal responsibility.

Let me start with the fourth imperative first, and I will start to get into the difference between Dossia and the countless other electronic health records out there. Electronic health records can be provider-centric, that is, they are

designed to help providers do a better job by giving them such tools as evidence-based medicine pointers, claims information, and histories created specifically in the vocabulary needed by providers. They also have the objective of locking a patient into a particular provider network. For example, the Kaiser-Permanente electronic health record helps Kaiser physicians do a better job. It cannot continue to be updated for the participant who leaves the Kaiser network by moving from California to Connecticut, where Kaiser is not licensed to operate.

The electronic record can be insurance-centric, that is, it can be designed to help insurance or disease management companies manage providers and patients consistent with their needs, such as easy and complete entry of claims data, or entry of data that helps manage compliance with a particular insurance plan. Like the provider-centric record, it is not usable outside the insurance company network. When you leave the Aetna network, the record does not follow you unless Aetna chooses to release it to the network you join. You have a right to certain information as the patient, but you do not have the right to force Aetna to give up information it needs.

Finally, the record can be user-centric. The user-centric record gives the individual complete control over what gets entered into the record. We can port claims, laboratory, pharmacy, and hospital or physician information into a personally-controlled record, but the user decides what stays or goes. The user can also supplement the record with information on family health history and genetic risk assessments and can enter data relative to over-the-counter medications, alternative treatments not covered by a health plan, or

metrics which a healthy person who never interacts with the health care system will want to use to manage his or her health.

The smart user will also want to have metrics entered into the record that give a provider the kind of data that normally cannot be captured at the time of an encounter with the provider. For example, when you get a physical examination, the provider might measure height and calculate your weight at that point in time, and will capture blood pressure, body temperature, and other metrics that can be captured either through an in-office examination or the output of laboratory tests.

What the provider cannot capture, but you can, is your diet over a period, your weight at various points in time, your blood pressure, your body mass index, lifestyle decisions like smoking and alcohol consumption, your exercise patterns, or any of a number of other pieces of information about which the physician might ask you during an office visit. To the degree that you have medical conditions that require other metrics, the record can help with that as well.

Dossia is designed to be a flexible tool that will allow you to input or capture as much or as little information as you deem relevant. That's what it means to be personally-controlled. We recognized that, by giving the user complete control, a decision by a user to be selective in what was input or what remained in a record, providers would be reluctant to use the record as the definitive patient health record. This was a powerful argument against user control, but we struck the balance by giving the user final control,

because getting users to feel confident enough to enroll in the system depended heavily on their sense of control.

Dossia is portable. Even if one were to consider the Kaiser-Permanente record the best thing since sliced bread, you need a mechanism to retain and capture the health information you would want to take with you when you move from California to Connecticut. Dossia is that mechanism. Dossia's portability is significant in another respect. If you have it, you are not locked into any system, and we have no incentive to lock you in.

Some companies we have approached as potential founders wonder why we would create a record usable by someone who walks out the door. Certainly, an argument can be made that a provider or insurance plan-centric record has a lock-in effect. However, we think that the more powerful argument is that what we provide you is useful not only if you leave the company, but if you move from one geography to another, or one plan to another while you are still employed with the same company.

Those employers that decide you will have only one provider or a limited choice of providers are less likely to find the portability while you are still employed as compelling an argument. As founders, we want to give you choices while you are employed with us, and we want to help you during the decades beyond your period of employment with us.

Dossia is private. The user will control the record, and Dossia has gone to great lengths to exceed existing legal requirements regarding privacy and security. One of the fundamental architectural decisions we made relative to

data storage is that we would disperse an individual's health record in multiple servers to eliminate any potential for a single point of failure. We also have done a considerable amount of stress-testing to insure that the Dossia is as secure as it can be in terms of encryption algorithms.

It is lifelong. The problem with many systems that capture health information is that, for records retention policy reasons, they do not routinely retain information beyond a certain number of years. Dossia will. Incidentally, one of the critical design decisions we made was to port as much relevant data into Dossia's servers as possible. One of the alternative architectural decisions proposed to us was that we leave data in the servers in which it was originally stored. We rejected that option for two reasons:

- In the short term, we recognized that people would want data 24x7, and they would want response times for accessing data to which we could not commit if data remained in its original form on original servers.
- In the longer term, we had no control over how long it would be retained in its original data base, so we decided to port it to the independent, third-party Dossia systems.

It is private and secure. The Dossia consortium is a non-profit. The employer-founders are the members of the Board of Directors, and they drive policy and direction, but a user who is an employee or a family member of a founder company can be assured that no one in his or her company has access to his or her health record unless he chooses to give permission for that to happen.

We decided on an employer-based enrollment system because we felt that employers had a better chance than any other party to show that it cares about employee health and to create a culture of health within which the employee and his or her family would function.

The offerings announced by Google and Microsoft appear to have many of the same attributes as Dossia, and these companies are far better funded than we are. Why do we believe Dossia will survive and prosper, regardless of what happens with Google and Microsoft? The answer is simple: as a non-profit, we have no plans or needs to use the data in a business in which we are selling advertising and search capability, or in which we are offering other products and services. Moreover, as a non-profit, all of the revenue we collect in excess of current needs will be re-deployed to improve the system. We will have open interfaces that allow others to create applications on which they might create a business opportunity, but Dossia itself will focus on serving its primary client, the individual user.

What does Dossia mean as a health management tool? I have always had a simple test: if a secure web-based tool is truly valuable to me, I should use it so often that I will never forget the password. If I am only using it when I have an encounter with the health care system, I might go more than a year without accessing it, and I cannot remember a password when I use it that infrequently.

Why is this frequent usage critical? The answer gets back to a basic philosophy of health management. Those who will maximize their health in the future are those who actively manage the variables that drive the health

and the metrics that tell them about their current state of health. Many people who appear to be healthy because they have not had symptoms of a medical condition that requires them to interact with the health care are at risk of a future and serious medical event. Many conditions, like hypertension, have no symptoms, and others have symptoms that gradually emerge over time, such as an increase in blood sugar levels that, when it reaches a certain threshold, indicates that the individual is at serious risk of Type 2 diabetes.

As we conceive it, Dossia is a tool that should be used as often as daily. Individuals check their stock portfolios several times a week, and, sometimes, several times a day. They need to pay comparable attention to the most important asset they have, their own body.

What else does the Dossia philosophy imply? It points the way to a new generation of wearable or user-administered health management tools. Many of us, including me, already wear pedometers to keep track of how much walking or running we do every day. Many of us also weigh ourselves frequently. However, we are moving toward easy-to-use blood pressure and pulse monitors, and are starting to see kits that allow us to draw a little bit of blood and receive frequently a set of metrics that used to require us to go to a lab or a doctor's office and get vials of blood drawn. To be effective self-managers of our health, we will need easy-to-use monitoring tools, which can electronically communicate data to a Dossia health record.

Dossia also implies that the record can be a reminder for screenings, immunizations, interactions with providers who help us manage chronic disease treatments, and even medication reminders. Its portability means that it can help us even when we are nowhere near our network of doctors, hospitals and pharmacies.

We also see Dossia as having an open interface that will allow applications developers to connect their applications to the Dossia record. For example, for someone taking medications, one relevant application is the continuous learning the provider and patient population will have relative to potential side-effects or interactions with other medications.

One of the other philosophical assumptions underpinning Dossia is that there are natural partnerships we will have with entities as diverse as the Centers for Disease Control and Prevention, which will need population-level data to help them identify population-level disease patterns, pharmaceutical companies, which want to help build a comprehensive patient record for clinical trials, and web sites that help our users tap the knowledge of other persons. Implicit in the partnerships we are seeking is the assumption that some of the best health-related ideas will come from individuals other than providers. People with shared experiences relative to medical conditions can be a source of dispersion of best practices for coping with those conditions, and can shorten the lengthy cycle for disseminating these best practices through the provider community.

At this stage, we are going through the laborious process of porting data from many providers in the institutional health systems that serve the

founder company employees. We have developed easy-to-use interface tools for these systems, and are also developing the legal and administrative protocols that will make the interfaces even easier to implement in the future.

These innovations are ultimately going to prove very important in making this kind of system work. Providers are reluctant to share data, and anything that makes their work easier will reduce or eliminate barriers to information-sharing decisions.

What we have also discovered is that one of the core issues anyone with our model needs to address is the transaction cost of frequent and high-speed access. As time goes on, and more multi-media records become part of the personally-controlled health record, we will certainly benefit from broader penetration of broadband internet coverage. However, we also recognize that, to make the records portable on handheld or other mobile devices with less storage capacity and processing power, we will need to employ new data compression technologies to meet user requirements for speed of access. These are solvable problems, but we have chosen to work with the less bandwidth-intensive data fields initially to achieve minimum required functionality.

We have learned a great deal since we started Dossia. What we have added in terms of vision and mission is a much richer, user-centered model, one which we know will significantly increase the value, and, therefore, the frequency of the record's usage. We have grappled with the transaction

costs of the system, as well as its support requirements in an environment in which there will be more intensive interaction.

The other learning is that, while many employers are strongly committed to employee health and well-being, some of them are reluctant to explore options that result in greater employee control of their health. What is odd is that we hear frequently in the media from government officials and from commentators that employers want to be out of the health benefits business. If so, they should want a tool like Dossia which makes the transition from employer-controlled health plans to employee choice of health plans outside the employer's benefit system a great deal easier. Yet many want more, rather than less, control of the relationship between the employee and the provider. They also appear to believe that the solution to rising health care costs lodges most strongly in giving better electronic health record tools to providers and insurers, rather than the employees themselves.

On the other hand, we have been pleasantly surprised by the degree to which public health officials in state and local governments, as well as federal government agencies, buy into the notion that a personally-controlled record has the maximum potential to succeed in changing health-related behaviors and producing higher health care system quality.

My final observation is that we have come to realize that Dossia is not just about providing a health management tool, although we believe we are building and deploying what will become a gold standard personally-controlled health record tools. The marketplace acceptance of Dossia will be enhanced only if we can change the paradigm of health from one that is

delivered primarily by health care providers to one that starts with the individual and that drives healthy behaviors by individuals. Perhaps 20% of Americans access the health care system in such a way as to account for 80% of its costs. Other electronic health record systems, even personally-controlled records, are designed to help providers of services to the 20% and possibly the patients themselves. Our system recognizes that health is a right for all Americans, and that all Americans need a tool that maximizes their health and well-being.

As employer-founders, we have a variety of reasons for wanting to be on the cutting edge, but, suffice it to say, we strongly believe that the personally-controlled, portable, private, lifelong health record is a cornerstone of any world class health care system.

On that note, I conclude my remarks, thank you again for the opportunity to present our Dossia vision, and offer you the opportunity to ask questions.