Developing a data quality strategy in a provider of Web based health information systems

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Abstract

We stress the importance of committing to a data quality strategy in a provider of Web based health information management systems. This paper briefly discusses early employment of this strategy in HealthMagic, Incorporated with HealthCompass™. HealthMagic has positioned itself as a leading Web based technology company. One of its key products, HealthCompass, is a Web based lifelong health record that enables

176

consumers to create a portable and private repository of their entire health history over the Internet. Since many health groups and businesses are currently locating sites and shop fronts on the Web this approach should be of general interest. E-business and consumer concerns will aggressively drive corporations to such data quality approaches.

1. Introduction

In Redman (1997), Blan Godfrey comments on Redman's emphasis of data quality as an important competitive strategy for corporations concerned with excellence and thriving in the market place. Compare, also, Redman (1995) and Redman (1992) for related comments. This paper briefly discusses employing an information quality strategy in HealthMagic, Incorporate with HealthCompass™. HealthMagic has positioned itself as a leading Web based technology company. One of its key products, HealthCompass, is a Web based lifelong health record that enables consumers to create a portable and private repository of their entire health history over the Internet. In short, it is an online consumer health information management system in the fullest sense. It allows consumers to not only develop a lifelong health record, but also to access a credentialed health library, and a variety of other interactive health tools. See http://www.health-compass.com/ for more details.

In February, 1999 the company publicly announced, "... a multi-year agreement with drkoop.com, the award-winning Internet healthcare portal led by Dr. C. Everett Koop, former U.S. Surgeon General. As part of the agreement drkoop.com will distribute the HealthCompass™ OnSite... ." Other clients of HealthMagic include, for example, Walt Disney World's resident villages.

For those new to information quality and its process improvements, there are many very helpful papers and books available. We mention two excellent books in Redman (1997) and Huang, Lee, and Wang (1999) with their rich references. For an introduction to the topic of data mining, in general, see, for example, Weiss and Indurkhay (1998).

Bowen, Fuhrer, and Guess (1999) discuss usage of a continuous process improvement approach of data quality in an accounting and auditing setting. The importance of a corporate culture and techniques of continuously improving information quality is their emphasis, also.

Targeting specifically health database issues, the reader can start with the insightful tomes of Donaldson and Lohr (1994) and Dick, Steen, and Detmer (1997), which the later dwells on computer based patient records and some ways to improve them. For further useful references specifically on health data, research and related topics, we suggest Gochman (1997) Volumes 1 to 4, Gochman (1988), Conner and Norman (1996), Cox (1982), Berkman and Breslow (1983), and Gelijns and Dawkins (1994). These works range widely in perspective from the patient/end user, social networks and communities supporting that patient, health care providers (MD's nurses, etc), medical researchers, hospital administrators to actual health database organizations. These works illustrate the tremendous diversity of perspectives, concerns, and even fears each group brings to health and/or data issues.

HealthCompass places consumers at the center of a world of information about their health by bringing the "best of class" health information and products to consumers on-line, in real-time. HealthCompass enables these end users to understand and make

decisions about their health, give them access to information relevant to their health, allow communication with their health care team, and remind them to take actions important to their health. Quality and the processes for improving that quality are crucial to such information and any decisions based on them. This strategy provides clear advantages to end users having greater trust and confidence in HealthCompass and its information.

2. Health Information System: HealthCompass™

HealthCompass, as a complete information management service, includes the following features:

➢ Personal, portable lifelong health history.

➢ Chronicle of a child's health from family planning through prenatal care, through childbirth and the early childhood developmental years.

➢ On line resource library for general searches on health topics

➢ Ability to electronically schedule appointments

➢ Email capabilities to enable the consumer to communicate on-line with a provider

➢ Caregiver services and resources for the consumer who is responsible for taking care of elder family members

➢ Guided self-help

➢ Support and discussion groups

Note from http://www.health-compass.com/ that this information system, "...can be embedded in many healthcare Web sites, but a single data repository of health

information over the lifetime of an individual is maintained without regard to a specific site with HealthCompass lifelong health records housed on HealthMagic servers." This allows easy usage of the information service by various Web sites, groups, and individuals. Also, "The record itself includes personal and demographic information, healthcare contacts, information on allergies, immunizations, office visits, tests, treatments, assessments, health histories, as well as a personal health journal." Patients managing chronic illness or simply new parents following needed immunizations are some examples of end users likely to be highly motivate to employ such an information service and to value its strong commitment to a data quality strategy.

This Web site observes, "The lifelong health record sits on a proprietary platform that utilizes digital certificates and the latest encryption and security technology to insure that all information contained within is private and secure. No anonymous contribution of information is possible because there is a complete audit trail that can be viewed by the consumer. HealthMagic, Inc. is a licensee of several privacy programs that govern the privacy and security of information over the Internet, including TRUSTe, HON code, and the Better Business Bureau (BBB Online). As a licensee of these programs, HealthMagic is bound to certain practices and standards." Compare, also, for additional comments http://www.healthmagic.com/. The company has both important consumer concerns and self interest stakes in its culture of quality and accountability of information.

Data quality is a key strategy for the company, which includes the needs of security and confidentiality. Ways to prevent, not just "fix", poor quality data are important to all parties. Developing a culture of valuing information quality and continuous improvements are aggressively affirmed with HealthMagic.

HealthMagic wants to do this to understand drivers of customer satisfaction and to segment its customer base by variables that will aid in delivery of additional information to the customer. Many of you know how Amazon.com has suavely used such information to provide greater value to its customers by providing better matches of additional information to a specific consumer. It is crucial for a health data system to provide ways to initially prevent problems and to improve continuously quality. Data quality here also means collecting information that does not burden the customer unduly. HealthMagic designs and tests its products with these goals as its focus. Missing data is a key challenge for both the consumer and the information system. In a future paper, we will explore further work at HealthMagic along these lines above.

3. Conclusions

We stress the importance of a data quality strategy in a provider of Web based health information management systems. This paper identifies some information quality issues and the crucial, early commitment to a strong corporate culture of developing and maintaining quality as a key strategy at HealthMagic, which produces the HealthCompass information system. Since many health groups and businesses are currently locating shop fronts on the Web this approach should be of general interest. E-business and consumer concerns will aggressively drive corporations to developing data quality approaches.

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