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**The Obama Administration and Digital Content:  
A Case Study of Healthcare.gov**

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**The Obama Administration and Digital Content:  
A Case Study of Healthcare.gov**

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**Report**

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## **Dedication**

This report is dedicated to all of my loved ones – family, friends, and colleagues. This indeed has been a journey and I know I would not have completed this program or report without your encouragement. Many thanks and much love for all of your support.

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## **Abstract**

### **The Obama Administration and Digital Content: A Case Study of Healthcare.gov**

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The United States government has made enormous strides to adapt and evolve with the digital era in the 21<sup>st</sup> century. Initially the Clinton Administration in the 1990s showed a sense of acceptance and willingness to work with the changing times in regards to technology. The subsequent administrations also continued to support platforms that utilized digital programs such as the Internet. This Master's Report will examine government websites under the Obama Administration, in particular Healthcare.gov, however through the perspective of information professionals. The report will describe and analyze the information pertinent to users to accessing health needs for insurance plans. The report will discuss and apply frameworks from information studies, including metadata, digital libraries and community informatics. Lastly, the report will provide critiques, suggestions, and ways to research this topic in the future.

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## **Introduction**

Technology advances within the federal government of the United States have increased significantly under the auspices of the Obama Administration. During previous administrations technology slowly, but surely found itself as more of a common part of the average federal employee's and citizen's day to overall locate and utilize government information; yet today, technology is a staple in how information is conveyed to both the general public as well as employees of the federal government.

Under the Clinton Administration, the United States public experienced for the first time how technology could be used online. Debuted as the "Information Superhighway," in 1992, cyberspace and using the World Wide Web to connect to various forms of media had promise to become a major part of average citizens' life in the future (Litman, 89, 2001). Realizing the potential of the new technology, former President Bill Clinton renamed the "Information Superhighway" to the "National Information Infrastructure" or NII (Litman, 90, 2001). In addition, Clinton employed an Information Infrastructure Task Force to further learn and develop policy about the National Information Infrastructure or Information Superhighway (Litman, 90, 2001).

Since the Clinton Administration, major governance of the internet and the World Wide Web occurred from the United States federal government. For example, the Digital Millennium Copyright Act, which was a development in copyright law and discussed the priorities and concerns of copyright parties and how they relate the digital environment (Litman, 122-145, 2001). Another example is with the United and

Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism or commonly known as the USA PATRIOT Act. Enacted in 2001, this piece of legislation was ordered after the terrorist attacks in the United States on September 11<sup>th</sup>, which deals partly with the internet, computer security, and privacy of electronic records, commerce, and government information (Smith et al, Summary-1, 2002). Though these are only two examples, they illustrate how the federal government does play a role in government information as well as policy making in regards to usage of the internet. However, governance of the internet is not the only avenue that the federal government uses online tools. In fact, there are several examples today where the government interacts with constituents, enable compliance with federal policies, and share government information to average individuals.

Today, it is very apparent the Obama Administration utilizes technology in an array of ways. For example, correspondence with constituents from e-mail and even social media. When President Obama campaigned to be chosen as the democratic nominee and then to be the next president of the United States in 2008, his campaign team exploited the use of communication with technology in particular the use of e-mail (cite). This fervor only continued during his appointment as president. In June 2013 President Obama created a *Twitter* account with the handle @POTUS (President of the United States) (President Obama @POTUS, n.d.). These two examples all show how the Executive Branch has proactively played more of a role to connect with the public.

Another example is the huge support that is evident with Science, Technology Engineering, and Math (STEM) fields in not only primary and secondary schools, but

also higher education. This is also evident in the advocacy to provide more opportunities for not only students, but practitioners and instructors in these fields with scholarship, awards, and much more. One example is with the United States Fulbright Program which is a collaboration between the United States Department of State and the Bureau of Educational and Cultural Affairs which has a series of STEM opportunities for U.S. scholars and students to complete research and scholarship abroad (Fulbright Scholar Program, n.d.).

However, perhaps the greatest accomplishment within the Obama Administration and setting digital goals and legislation are in particular the evolving, updating, and even at times terminating of some governmental websites.

During his tenure, President Barack Obama has made a commitment to making government information readily available to the public. According to the *Digital Government Strategy*, the core objectives of this program are the following,

Enable the American people and an increasingly mobile workforce to access high-quality digital government information and services anywhere, anytime, on any device; Ensure that as the government adjusts to this new digital world, we seize the opportunity to procure and manage devices, applications, and data in smart, secure and affordable ways; Unlock the power of government data to spur innovation across our Nation and improve the quality of services for the American people (White House, n.d.).

The principles that are outlined in the *Digital Government Strategy* are without a doubt vital to the livelihood of keeping a digital profile for federal government information in the United States. Though this strategy was created under the Obama Administration, the objectives of this program are transferable to other administrations and will happen because the current administration will cease in January 2017.

The current administration has positively supported the implementation of new and improved government websites and web pages. Some which include Congress.gov, the Federal Library Depository Program, or the Government Printing Office's Federal Digital System, or commonly known as FDsys. Overall, many of these websites have new layouts, better structure and interfaces, and are more user friendly. Ultimately these changes make the websites more effective and help users find what they need on the websites: the particular government information.

Though these websites have shown some sense of improvement, can they further develop to be even more effective for users? Information professionals and practitioners can provide expertise on this phenomenon with government websites. There are a number of tools that information professionals utilize every day that help organize materials in all types of spaces regardless if the space is digital or physical. Some of these tools come from a more traditional library background, archival training, user experience and even some traits that deal with social sciences, hard sciences, and digital librarianship.

This report will focus on how traditional tools that information professionals use to organize, create, structure, and make sense of various materials can contribute and

promote government information through web pages. In order to do this, this report will review one government website, on the *Patient Protection and Affordable Care Act (PPACA)* or more commonly known as the *Affordable Care Act (ACA)* or *Obamacare* website known as *Healthcare.gov*. This government website will be analyzed by using traditional metadata standards that are used in librarianship, archives and cultural heritage centers as well as metadata standards used with digital librarianship, which often align social sciences and hard sciences. Lastly this report will review relevant frameworks from information studies, focusing on digital literacy and government information, metadata, digital libraries, and community informatics

## **Literature Review**

### **GOVERNMENT INFORMATION IN A DIGITAL AGE**

In March 2016, a report was completed that discussed various topics currently happening with the relationship and overall interaction between government entities and the general public. One of the main themes deal with the government and its online activity, including digital literacy, digital access, digital language fluency, and the digital infrastructure of government websites (Chronister, Dew, MacArthur, Nunnally, and Yuda, 8-9, 2016). In regards to digital literacy, access, and language fluency, the report stated this is a challenge that a lot of the public who are attempting to work with government websites (Chronister et al, 8, 2016); while digital infrastructure showing that “Systems do not cross agency boundaries, and they provide the public little assistance with completing forms and navigating complex processes” (Chronister et al., 8, 2016).

Digital literacy is by far one the major issues facing individuals today when relating to HealthCare.gov. The report found that there three distinct groups in the public that have varying degrees to understanding how to understand government information online (Chronister et al, 13, 2016). These groups include those who technologically savvy, those who are familiar with basic online interactions but struggle with processes as they become more intricate, and the last group of individuals are ones who are unable to tell that to really understand or use online platforms (Chronister, Dew, MacArthur, Nunnally, and Yuda, 13, 2016).

This is a very important topic, because not only do individuals need to understand how to use online resources, but also need to know about the different agencies and the

language used within certain programs. HealthCare.gov is a prime example of this phenomenon with online resources for government agencies. Since this is health care and health insurance, a lot of the terms come from that subject and may hinder the understanding for an individual, while that individual simultaneously may have issues with their literacy of technology.

Digital literacy, access, fluency in language, as well as infrastructure are not the only problems that affect the public with government resources online. The public has also stated that there is a choice overload to options in picking resources, sharing private information online, and having general trust between the agencies and a particular user (Chronister et al, 13-20, 2016)

#### **COMMUNITY INFORMATICS**

One of the aspects that make the Affordable Health Care initiative under the Obama Administration unique is the fact that majority of the project takes place online. Healthcare.gov was slated to launch for enrollment on October 1, 2013 (Radnofsky, 2013). Months before the website was intended to open, the Obama Administration promoted and campaigned heavily to gain support from the public (Radnofsky, 2013). The Obama Administration leaned heavily using a questions and answers (Q and A) format, videos to explain the services provided with the ACA, a live chat, as well as a hotline to call and ask questions about the program (Radnofsky, 2013).

The Obama Administration also reached out and received support from other government agencies online such as the Social Security Administration (Radnofsky, 2013). The message that the Social Security Administration website provided for the

ACA was,

Need health insurance or know someone who does? Thanks to the Affordable Care Act, more Americans now qualify to get coverage that fits their needs and budgets. Visit the Health Insurance Marketplace at [www.HealthCare.gov](http://www.HealthCare.gov) or call 1-800-318-2596 to get more information. If you are deaf or hard of hearing, you may call 1-855-889-4325 (Radnofsky, 2013).

It was reported that even the Administration asked major corporations such as the National Football League with help to promote the ACA (Radnofsky, 2013).

There were many strides to promote the website for individuals of the public enroll, yet there were also many problems that followed after the [healthcare.gov](http://healthcare.gov) launched for enrollment. A major complaint was that the website was too slow or users experienced computer crashes or freezing when attempting to access content on the website (The Mercury, 2013). Other problems included long wait times and error messages that ultimately delayed many uninsured Americans the opportunity to sign up for the Affordable Care Act (Kirchgaessner, 2013). Additionally, each state varied with how the marketplace and enrollment was available to the public. For example, in District Columbia, users would not immediately know if they were eligible for Medicaid or subsidies while in Oregon users would not be able to enroll to an insurance plan (Somashekhar, Sun, and Kliff, 2013). This implied tension between federal and state governments and agencies in the United States might make creating an information organization system like [HealthCare.gov](http://HealthCare.gov) somewhat problematic.

President Barack Obama and former Secretary of Health and Human Services

Kathleen Sebelius were both dismayed by the website's initial start. Obama stated, "Nobody's madder than me about the fact that the website isn't working as well as it should, which means it's going to get fixed... There's no sugar-coating it. The website has been too slow . . . nobody's more frustrated by that than I am" (Kirchgaessner, 2013). While Secretary Sebelius was equally frustrated with the debacle. She was quoted saying, "Hold me responsible for the debacle...I told the President we were ready to go? I was wrong" (Usborne, 2013).

Beyond issues with speed and frequent error messages, there were also fraud cases. There were a number of fraud cases, consumer complaints, deceptive sales practices, and even identify theft – all while utilizing healthcare.gov or health care services (Silver-Greenberg and Craig, 2013). Many government officials expected some individuals like con artists to manipulate the system, as it has happened before with other major changes or additions to government programs; however, these fraud cases were aimed at private citizens in particular with fake websites that appeared to be true government websites, telephone calls, and even house visits to individuals (Silver-Greenberg and Craig, 2013). In response to this many state agencies in the United States including New York, Illinois, and Iowa where authorities investigated cases where with the potential of fraud from the website (Silver-Greenberg and Craig, 2013). In addition, President Obama communicated with public and hope the uninsured Americans not be discouraged by the technological woes and suggested individuals use more old fashioned was to enroll such as by phone or in person (Kirchgaessner, 2013). He stated that the "best IT talent in the country" was working on the website and that he was "confident"

the website would improve as soon as possible (Kirchgaessner, 2013). Since that fiasco healthcare.gov has improved significantly for users trying to enroll or participate in the programs in particular with improvements on an incremental scale.

The Affordable Care Act and HealthCare.gov has had both obvious negative and positive experiences for both the user, the creators, policy makers, and overall general public. Yet there has not been much research on the implications of exchanges between the different stakeholders and their relationship to the HealthCare.gov. A way to analyze this topic may be through information topics, specifically community informatics. The topic of community informatics provides a way of understanding some of the core issues here.

Michael Gurstein, defines community informatics as, "...a technology strategy or discipline which links economic and social development efforts at the community level with emerging opportunities in such areas as electronic commerce, community and civic networks and telecentres, electronic democracy, and on-line participation, self-help and virtual health communities, advocacy, cultural enhancement, and others" (Gurstein, 1, 2000). He furthers this idea by stating the way for a community to participate in community informatics for a particular reason must be done by means of an Information and Communications Technology (ICTs) (Gurstein, 3, 2000).

In his chapter, "Community Informatics: Enabling Community Uses of Information and Communications Technology," he expands an approach that he completed with a Bruce Dienes from a paper titled, "A 'Community Informatics' Approach to Health Care for Rural Africa" (Gurstein, 6, 2000). In this approach he

outlines various aspects and steps which must be taken into account in order to have a successful approach to community informatics for a specific community.

First, the community informatics approach must recognize the overall design. How will the user access the technology or specific facility, what is the service or information that is provided, what is the design of the telecentre, how is the community system designed such as with groups or individuals, what is the online deliverable, and lastly the support that individuals find within the community while using the online medium (Gurstein, 6-8, 2000).

The next major aspect to review with the community informatics approach is the technology used within a community to approach community informatics. This includes what is the hardware such as a PC, the software used for examples applications or operating systems software, connectivity by means of the internet, bulletin boards or the bulletin board system which provide and share messages, community networks which is an expanded and more robust version of the bulletin board, discussion lists such as UseNet, e-lists, or news lists, the world wide web, band width, and even geographic information systems or commonly known as GIS (Gurstein, 8-13, 2000).

Lastly by identifying the design and technology used for a community using community informatics, several outcomes and applications are available. These outcomes and applications include community internet access, community information, civic/community participation online, community service delivery online, community e-commerce, education/training/community learning networks, community and regional planning, and finally telework (Gurstein, 14-16, 2000).

These themes and practices may relate directly and indirectly to members of society using HealthCare.gov and additionally may be way to see specific communities and how they relate to using the service to find and choose health care plans.

## **METADATA AND DIGITAL LIBRARIES**

Information professionals have a variety of skills that vary greatly depending on the focus area of the individual. Information in general is a constantly growing profession and will only expand in the future. However, there are some key aspects that many information specialists understand, utilize, or are knowledgeable about. One example is with what is known to the world as metadata.

Metadata is known to many as “data about data” (Gilliland, 1, 2008). However, there are several ways that scholars and practitioners within the field of information describe metadata. Anne J. Gilliland, Professor and Director of Archival Studies at the University of California Los Angeles defines metadata as, “...as the sum total of what one can say about any *information object* at any level of aggregation.” The Association of Research Libraries (ARL) have a similar definition to describe metadata. The ARL states the same as Gilliland does, with metadata is “data about data,” but further describes its implications with libraries (ARL, 11, 2007). The association claims, “In the traditional library world, catalog records are metadata, as they contain information about library’s collection of ‘data’ i.e., the books and journals that make up its collections (ARL, 11, 2007).

There are other broad examples of defining metadata, such as “...almost anything

that describes anything else” (Gill, 20, 2008). Or definitions which are more specific and focus on an aspect of metadata. In Tony Gill’s piece “Metadata and the Web,” he focuses on metadata “as a structured description of the essential attributes of an information object” (Gill, 22, 2008).

At the same time, there are some scholars who are very in terms defining the word and the historical origins of metadata. In *Metadata* by Marcia Lei Zing and Jian Qin, the authors explore the background of metadata from computer science with databases and program objects (Zing and Qin, 7, 2004) to the uses of metadata, as well as implications of decisions about metadata. The authors shed light on the evolving definition of metadata throughout the information studies community. Both authors acknowledge the common view of metadata as “data about data” or “information about information” (Zing and Qin, 7, 2004), as many scholars have also referred to as well such as Gilliland. However, Zing and Qin expand the definition of metadata with the progression of time. For example, the National Information Standards Organization define metadata as “structured information that describes, explains, locates, or otherwise makes it easier to retrieve, use, or manage an information resource” (Zing and Qin, 7, 2004). Zing and Qin also incorporate what the Dublin Core Metadata Initiative (DCMI) describe as metadata. The DCMI defines metadata as “data associated with either an information system or an information object for purposes of description, administration, legal requirements, technical functionality, use and usage, and preservation” (Zing and Qin, 7, 2004).

Many scholars and experts in information have a conflict about how one can really define metadata. Often it appears that the definition depends on the particular need

of a user or user community on what type of metadata is used. For example, Gill precisely explains this dichotomy with defining metadata. In “Metadata and the Web” Gill uses the analogy of the library catalog card and explains that a library card catalog is in theory a place that describes the data of the book; however he further states that this idea is problematic because a library card catalog is more of a container or carrier of data, but not describing the object in its entirety such as with the physical qualities of the object (Gill, 21-22, 2008).

Many scholars reference Anne Gilliland’s piece, “Setting the Stage,” as one of the foundation pieces that illustrate and truthfully describe metadata and the components of what consist of metadata. Gilliland defined and characterized metadata within several unique and distinct categories. These categories are known as administrative, descriptive, preservation, use, and technical metadata (Gilliland, 9, 2008).

Administrative metadata is defined as metadata used in managing and administering collections and information resources (Gilliland, 9, 2008). Examples of administrative metadata include acquisition information, rights and reproduction tracking, documentation of legal access requirements, location information, and selection criteria for digitization (Gilliland, 9, 2008). Descriptive metadata is metadata used to identify and describe collections and related information resources (Gilliland, 9, 2008). This may include cataloging records, finding aids, differentiations between versions, specialized indexes, curatorial information, hyperlinked relationships between resources, and annotations by creators and users (Gilliland, 9, 2008). Preservation metadata is related to the preservation management of collections and information resources (Gilliland, 9,

2008). Examples of this metadata are documentation of physical condition of resources, documentation of actions taken to preserve physical and digital versions of resources, e.g., data refreshing and migration (Gilliland, 9, 2008). Metadata related to how a system functions or metadata behaves is known as technical (Gilliland, 9, 2008). Technical metadata can be hardware and software documentation, technical digitization information, e.g., formats, compression ratios, or scaling routines, tracking system response times, and authentication and security data, e.g., encryption keys, passwords (Gilliland, 9, 2008). Finally use metadata is metadata related to the level and type of use of collections and information resources (Gilliland, 9, 2008). Examples of use metadata include circulation records, physical and digital exhibitions records, user and user tracking, content reuse and multiversioning information, search logs, and rights metadata (Gilliland, 9, 2008).

Some within the information field, for example, Gilliland and the ARL assert that as time has gone by, interest in metadata has broadened beyond the fields of archiving and librarianship. Gilliland describes the general public becoming more active in this movement (Gilliland, 2008, 1) while the ARL recognizes the contributions to the field from “various communities creating geospatial data, social and scientific datasets, enterprise applications, data warehouses, educational resources, and bibliographic data” (ARL, 2007, 11).

As both Gilliland and the ARL describe, metadata encapsulates an array of groups including users and other disciplines such as scientific studies. In the piece, “Science Friction: Data, Metadata, and Collaboration,” by Paul N. Edwards, Matthew S.

Mayernik, Archer L. Batcheller, Geoffrey C. Bowker, and Christine L. Borgman. The authors recognize the general fundamental aspects of metadata as seen with the traditional definition “data is data” or “information about data”, but take it a step further to try and look at this perspective through the eyes of scientific studies (Edwards et al., 2011, 671).

Edwards et al. suggest that the majority of users of metadata view it as products, that is information objects such as sets, descriptors, links, and catalogs (Edwards et al, 2011, 672). The conundrum with this idea, is that professionals and scholars in the science field may not utilize the same products that are used traditionally for metadata (Edwards et al., 2011, 673). The authors argue that metadata is used in science studies as, “...an ephemeral *process* of scientific communication, rather than an enduring outcome or product” (Edwards et al., 2011, 673).

Metadata is also used online by means of what we know today as a digital library. Digital library or digital libraries expanded in the 1990s and received a great deal of attention from both domestic and international, initiatives and programs (Borgman, 227-228, 1999). In her piece, “What are Digital Libraries? Competing Visions,” Christine Borgman analyzes this topic, through the lens of many practitioners and scholars. Eventually, she describes a digital library as way to “refer to electronic collections and conveys a sense of richer content and fuller capabilities than do terms such as ‘database’ or ‘information retrieval system’” (Borgman, 231, 1999).

There are other competing definitions for what exactly consist of a digital library. In the chapter, “Digital Libraries: Definition and Characteristics,” by G G and Sudatta

Chowdhury, the authors review these definitions. The authors describe a more explicit definition from Borgman which states the following, “The research community’s definition serve to identify and focus attention on research problems and to expand the community of interest around those problems. The library community’s definition focus on practical challenges involved in transforming library institutions and services” (Chowdhury & Chowdhury, 4, 2003). The authors also regard other scholars such as Marchionini and Fox who state that a “digital library work occurs in the context of a complex design space shaped by four dimensions: community, technology, services, and content” (Chowdhury & Chowdhury, 5, 2003). However, perhaps the most comprehensive definition comes from the Institute of Electrical and Electronics Engineers Conference on Artificial Intelligence Applications (IEEE CAIA) Workshop on Intelligent Access to On-Line Digital Libraries.

A digital library is an assemblage of digital computing, storage, and communications machinery together with the content and software needed to reproduce, emulate and extended the services provided by conventional libraries based on paper and other material means of collecting, cataloging, finding, and disseminating information. A full service digital library must accomplish all essential services of traditional libraries and also exploit the well-known advantages of digital storage, searching, and communication (Chowdhury & Chowdhury, 6, 2003).

In Christine Borgman’s book *From Gutenberg to the Global Information Infrastructure*, she discusses at length several information topics including the ideas

behind digital librarianship and how to measure metadata within this lens. She states that a digital library must integrate common principles in how one defines and utilizes organization principles (Borgman, 73, 2000). In fact Borgman states, “Metadata serve many important functions in organizing individual digital libraries and groups of digital libraries, including a prospective global digital library” (Borgman, 73, 2000). She then presents her analysis of what a cohesive and concise digital library must include, where she often referred to traditional ideas of metadata expressed by various scholars. Her areas of focus description, administration, intellectual access, intellectual organization, technical specifications, and preservation management (Borgman, 73-78, 2000).

In her chapter, “Access to Information” in Borgman’s book *From Gutenberg to the Global Information Infrastructure*, defines key characteristics and categories in metadata for digital libraries. The categories that Borgman describe are description, administration, intellectual access, intellectual organization, technical specifications, and preservation management (Borgman, 73-78, 2000).

Description relates to metadata found documents, document-like object, or a resource (Gilliland, 73, 2000). She builds on other scholars in the field of information studies and how they define description; for example she mentions Gilliland’s use of descriptive metadata as a way to describe or identify information resources (Borgman, 73, 2000). In respect to digital libraries, Borgman specifically states that digital libraries require items that have a complete, accurate, and unique description (Borgman, 74, 2000).

Borgman follows with her next definition in administration. (Borgman, 74, 2000).

Again, she looks at predecessors who have defined what exactly is administration or administrative metadata such as Gilliland as well as Hayes and Becker, though these scholars have apparent differences in how they identify examples of categories. Gilliland, as mentioned above, provides examples of administrative metadata such as acquisition information, rights reproduction, and location; however, Hayes and Becker review the idea of physical location and how it aligns with physical-access function (Borgman, 74, 2000). Borgman defines administrative metadata as a type of metadata that assists users in determining the usefulness and usability of resources while also stating that in electronic environments or digital libraries that metadata supports access functions and may improve management of information (Borgman, 74, 2000).

Intellectual access is the next focus of metadata. This form of metadata refers to how individuals often in digital environments try to learn about something instead of obtaining a specific item (Borgman, 75, 2000). The key word in this definition about since this is what an individual want to know “about” an item. At the same time Borgman stresses that this key idea of about is also extremely subjective, since all individuals interpret the about with a different perspective (Borgman, 75, 2000). Borgman does state that Gilliland’s definition semantics, is comparable to intellectual access, however there are some qualities that are distinct between the two ideas and will be later discussed in the analysis section (Borgman, 75, 2000).

The next definition of metadata is intellectual organization. This type of metadata emphasizes information that can be grouped or organized from overall common aspects or relationships (Borgman, 75-76, 2000). Yet, intellectual organization can also be

challenging in particular with the “about” aspect that may encompass information. With information, a person’s needs may not be mentioned in the provided information (Borgman, 76, 2000). Borgman provides several examples about how one word can be interpreted in a varied way such as with the word example (Borgman, 77, 2000).

Technical specifications is another category of metadata for information institutions. For digital libraries and digital environments this metadata is significant because it shows how useful and useable metadata and information resource might be to an individual (Borgman, 78, 2000). Borgman (78) also states that this metadata is also important because it sets limits or expand limits for technical information and this is also useful for individuals who are searching for an information resource.

The last category that Borgman describes with metadata is known as preservation management. While she mentions Gilliland describes documentation of physical items and how to preserve physical and digital copies, she leaves very little to discuss about the future of digital preservation (Borgman, 78, 2000). She does mention that this will be a topic of significance in the future (Borgman, 78, 2000).

## **Research Methods**

This report will review Healthcare.gov by using the different theoretical frameworks from predominantly with Christine Borgman and Anne J. Gilliland.

The majority description will include observation of the metadata of a particular section of Healthcare.gov. The following section will review what various users of the website actually view when accessing the information, they seek about different health care plans provided through Obamacare. This primarily will be completed by using the approach both Borgman and Gilliland identify as the descriptive metadata.

I used the following methods to describe the metadata pertinent for users attempting to examine the insurance plans. First, I accessed and described the home page of Healthcare.gov, in particular the sections for employees and employers as well as individuals and families. Next, simulations of individuals, families, and employees from different states and different demographic information were used to understand and triangulate the differences and similarities between individuals, families, and employees. Lastly after submitting and receiving several results from the information tendered, this report will describe the metadata that is available to the different cases seeking insurance plans through the Affordable Care Act. As stated previously, this will primarily be done through using theoretical frameworks about metadata from information science.

## **Viewing Healthcare.gov as a Metadata Organization System**

The layout and organization of Healthcare.gov aims to be user friendly for all individuals who access the website. The website has a tremendous amount of pop-up and appears to follow a design inspired by Frequently Asked Questions pages. Additionally, there are definite sections that are categorized stating the plans or general information that a person may need. For example, “Individuals & Families” or “Small Businesses.”

The following section will describe how different groups using Healthcare.gov view and how they interpret information when reviewing different health care plans through the Affordable Care Act. The different groups that will be analyzed are individuals (this includes any person over the age of 18), families (this includes more than one person and usually includes dependents), lastly employees (this includes employees who are a part of a small business and employers who choose to participate in Obamacare).

The method to describe and understand how individuals utilize this website and obtain the information they need will happen by means of completing trial and mock runs for different individuals, families, and employees in small businesses. The goal is to find out what information is standard for certain groups such as individuals using different parameters such as age and state. The metadata that is provided with the different cases will show what is standard, what is information is not provided for certain states, age groups, even genders, and ultimately is the metadata structured and organized in a way that the public understands and deduce from the Affordable Care Act website to finding health plans.

Though this report will not highlight every state and every possible plan, it will look at some regional states, including Texas, New York, Colorado, and California, to gather a broad consensus of information provided in the plan for different cases and health plans for individuals, families, and small businesses.

## INDIVIDUALS

The “Individuals” tab on the main page defaults to meet “Individuals & Families,” however, one can decide later if they participating in Obamacare as an individual or family. After selecting this tab where the public may choose to either “Get Coverage” or “Change or Update Your Plan.”

Figure 1: (Individuals & Families, n.d.)



For either of these tabs there a series of questions one must answer that relate to their respective social and economic status. For example, “Changes in residence or income,” and the individual reviews their own situation to check if this happened during their year

or recently (“Find Out If You Qualify for Special Enrollment Period, (n.d.).

After answering the various questions related to the specific person, a variety of plans are available for the user. The example used out of the many practiced for an individual is that of a 27 year old female graduate student making approximately \$ 12,744 per year who lives in Texas (2016 Health Insurance Plans & Prices, n.d.). The preliminary information about her choices are detailed health care plans.

The organization of this information system is thorough and provides a layout which is somewhat understandable to the user. For example, there are drop down menus that provide the opportunity to select what a user may need sort through for health plans. The side left menu is also extremely detailed and provides even further information to help with a variety of health care opportunities. Lastly the bulk of the body of this section of the website provides preliminary information about a particular plan a person may decide to use.

Figure 2: (2016 Health Insurance Plans & Prices, n.d.).

The screenshot displays the HealthCare.gov website interface for "2016 health insurance plans & prices". The header includes "HealthCare.gov", "Individuals & Families", "Small Businesses", "Log in", and "ESPAÑOL". The main title is "2016 health insurance plans & prices". Below the title, it indicates "People covered: Primary (Age 27) with estimated tax credit of \$195.19 per month" and an "EDIT" button. The page shows "67 plans available" with "SORT BY" set to "Premium" and "PLAN TYPE" set to "Health plans". A left sidebar contains "FILTERS" for "Monthly premium" (less than \$100 (51), less than \$200 (66), less than \$300 (67)) and "Plan category" (Bronze plans (21), Silver plans (25), Gold plans (17), Platinum plans (1), Catastrophic plans (3)). The main content area features a plan card for "IdealCare · IdealCare Essential" (Bronze HMO | Plan ID: 71837T0010003). The card displays: "Estimated monthly premium: \$0", "Premium before tax credit: \$169", "Deductible: \$6,450", "Estimated Individual Total", "Out-of-pocket maximum: \$6,500", "Estimated Individual Total", "Estimated total yearly costs" (with a "CALCULATE" button), "Your doctors, medical facilities, and prescription drugs", and "Copayments / Coinsurance" (Emergency room care: \$350 Copay). Three blue arrows point to the "EDIT" button, the "67 plans available" section, and the plan card.

The individual has the option of sort her plan as well as the type of plan that is available. Perhaps the most important information available for the user and is descriptive metadata is how the health plans are filtered. This location within this organization system is located on the left side menu as previously stated. The filters provided for individual are the following, monthly premium, plan category, plan type, medical management programs, insurance companies, a way in which a member may search through various plan ids and lastly a help option. Within each filter there are more categories to narrow an individuals search for a particular health care plan (2016 Health Insurance Plans & Prices, n.d.).

For the monthly premium option, this individual has several options that are “less than \$100, less than \$200, and less than \$300” (2016 Health Insurance Plans & Prices, n.d).

Figure 3: (2016 Health Insurance Plans & Prices, n.d.).

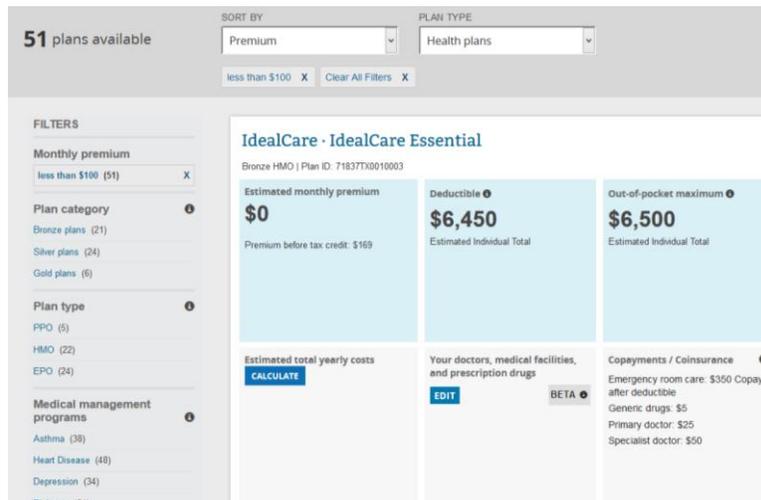


| Monthly premium |      |
|-----------------|------|
| less than \$100 | (51) |
| less than \$200 | (66) |
| less than \$300 | (67) |

If the individual wants more detailed information about the particular premium plan that is categorized under a specific financial amount such as \$100, the individual will need to

choose that option and the result will be in the body of the web page highlighting more information about each health care plan (2016 Health Insurance Plans & Prices, n.d.).

Figure 4: (2016 Health Insurance Plans & Prices, n.d.).



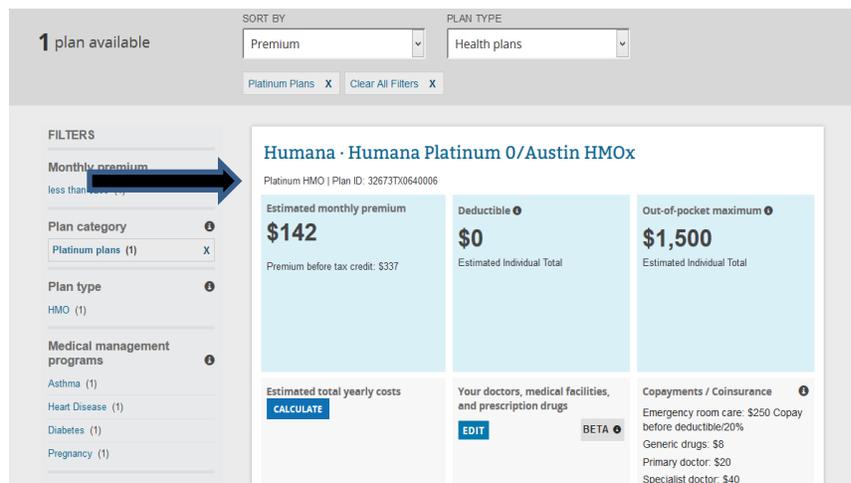
The next category is plan type. Unlike for the monthly premium section, there is an “i” icon indicating information about the category. This information icon states the following about plan type, “Categories reflect monthly premiums and out-of-pocket costs. Bronze plans usually have lower premiums and higher out-of-pocket costs. Platinum plans usually have higher premiums and lower out-of-pocket costs” (2016 Health Insurance Plans & Prices, n.d.).

Figure 5: (2016 Health Insurance Plans & Prices, n.d.).



Similar to “Monthly Premium,” if an individual picks a particular plan, such as “Bronze plans,” all of the “Bronze plans” available for the individual are returned for one to review and analyze. The different categories include bronze plans, silver plans, gold plans, platinum plans, and catastrophic plans (2016 Health Insurance Plans & Prices, n.d.).

Figure 6: (2016 Health Insurance Plans & Prices, n.d.).



The next filter is plan type. In the same fashion there is an “i” icon provide information for the plan type such as with plan category. Plan type is defined as, “...affects whether you can get care outside the plan’s network of doctors and hospitals,

and how much it costs” (2016 Health Insurance Places & Prices, n.d.).

Figure 7: (2016 Health Insurance Places & Prices, n.d.).



The plan type also is comprehensive in the fact that it provides information about detailed health care plans, such as what is provided for the plan category. This information is extremely relevant to different individuals that are working and need to find certain plans such as an HMO. These sections include PPO, HMO, and EPO (2016 Health Insurance Plans & Prices, n.d.).

Figure 8: (2016 Health Insurance Places & Prices, n.d.).



Following “Plan type” is “Medical management programs.” The “i” symbol indicates “programs that work closely with you to manage certain medical conditions” (2016 Health Insurance Places & Prices, n.d.). The medical programs include asthma,

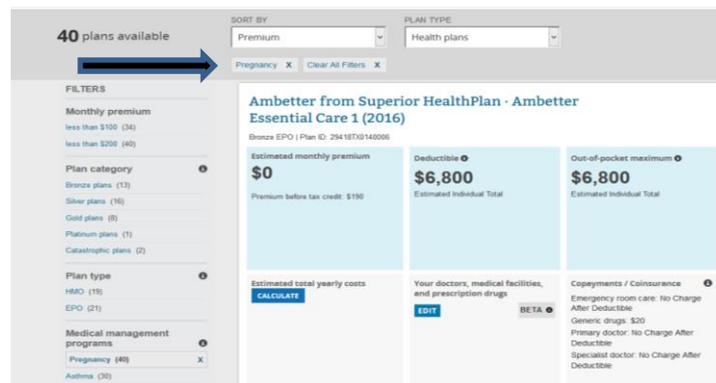
heart diseases, depression, diabetes, high blood pressure and high cholesterol, low back pain, pain management, and weight loss programs (2016 Health Insurance Places & Prices, n.d.).

Figure 9: (2016 Health Insurance Places & Prices, n.d.).



As seen with the two previous sections, there also is a way to click on specific medical programs to retrieve more detailed information about a medical program within the parameters for the individual.

Figure 10: (2016 Health Insurance Places & Prices, n.d.).



The last major section deals with insurance companies. With this option an individual may choose a specific insurance company. This is extremely helpful in the mere fact that an individual may stay with an insurance company that they have used in the past. The insurance companies that are available for this individual are Aetna, Ambetter from Superior HealthPlan, Blue Cross and Blue Shield of Texas, Humana, IdealCare, Insurance Company of Scott & White, Scott and White Health Plan, and lastly UnitedHealthCare (2016 Health Insurance Places & Prices, n.d.).

Figure 11: (2016 Health Insurance Places & Prices, n.d.).



| Insurance companies                 |      |
|-------------------------------------|------|
| Aetna                               | (4)  |
| Ambetter from Superior HealthPlan   | (11) |
| Blue Cross and Blue Shield of Texas | (13) |
| Humana                              | (6)  |
| IdealCare                           | (3)  |
| Insurance Company of Scott & White  | (9)  |
| Scott and White Health Plan         | (11) |
| UnitedHealthcare                    | (10) |

This section for insurance does not include an information icon as seen with the three previous sections, however after selecting the particular insurance desired, it is isolated as the main section on the web page

Figure 12: (2016 Health Insurance Places & Prices, n.d.).



The next areas within the filter section serve more as a searching mechanism for specific information. There is a “Help” portion which provides assistance with navigating the filters and this general part of the website (2016 Health Insurance Places & Prices, n.d.). The additional searching mechanism is for looking for a specific plan where you must know and provide the fourteen character plan id (2016 Health Insurance Places & Prices, n.d.).

The example provided highlighted what the state of Texas when using the Affordable Care Act, however this not always the case. Obamacare is a relationship between the federal government and states governments and not all states use the platform of HealthCare.gov. For example, the state of Colorado.

If an individual from Colorado needs health care information about Colorado relating to Obamacare, that individual will be directed to the “Connect for Health Colorado” website (2016 Health Insurance Places & Prices, n.d). After going to that

particular website and providing basic information, such as what HealthCare.gov asks for example your age/date of birth and where you are located, an individual is able to browse for plans (Find a Plan, n.d.). Upon completing this tasks individuals may review the different plans that are available.

The webpage relating to health care plans under the Affordable Care Act has a different layout from what is available on the main website of HealthCare.gov. Yet, there are simultaneously many similarities. Though, it is a different website, there is a basic generic format similar to HealthCare.gov. There are filters and also basic information in the body of the website that shows more detailed information about the health care plan (Plan Finder Tool, n.d.)

The filters are provided to narrow or broaden a search of specific plans (Plan Finder Tool, n.d.). In addition there are some similar topics including premium information, insurance company, and plan types; however the taxonomy is different (Plan Finder Tool, n.d.). For example, what is known as “Insurance companies” on HealthCare.gov is known as “Carrier” on Connect for Health Care Colorado (Plan Finder Tool, n.d.).

Figure 13: (Plan Finder Tool, n.d.).

The screenshot shows the Plan Finder Tool interface. On the left, there are 'Plan Quick Filters' including sections for 'Search by Providers', 'Search by Medication', and 'Adjust Monthly Premium'. The main area displays a table of health plans with columns for Monthly Premium, Carrier Details, Plan Details, Annual Deductibles, and Estimated Out-of-Pocket Costs. Two plans are visible: one from Humana with a \$150 monthly premium and another with a \$171 monthly premium. The Humana plan is selected.

| MONTHLY PREMIUM     | CARRIER DETAILS  | PLAN DETAILS   | ANNUAL DEDUCTIBLES   | EST. OUT OF POCKET COSTS   |
|---------------------|------------------|--|--|--|
| \$150 <sup>PH</sup> | <b>Humana</b>    | Humana Basic 6850/Colorado HMOx<br>Preferred Medication List<br>HMO/Catastrophic | \$6850 <sup>PH</sup> Person<br>\$6850 per person   \$13700 per group | Annual Max. Costs<br>\$6850 <sup>PH</sup> Person<br>\$6850 per person   \$13700 per group<br>N/A |
| \$171 <sup>PH</sup> | PH Cross members | KP CO Catastrophic<br>Preferred Medication List<br>HMO/Catastrophic              | \$6850 <sup>PH</sup> Person<br>\$6850 per person   \$13700 per group | Annual Max. Costs<br>\$6850 <sup>PH</sup> Person<br>\$6850 per person   \$13700 per group<br>N/A |

Figure 14: (Plan Finder Tool, n.d.).

This screenshot shows the 'Plan Quick Filters' section of the tool. It includes a 'Reset Filters' and 'Apply Filters' button pair. Below are sections for 'Search by Providers', 'Search by Medication', and 'Adjust Monthly Premium'. To the right, there are 'Carriers' and 'Coverage Level' sections, each with a list of options and checkboxes. At the bottom right, there are 'Reset Filters' and 'Apply Filters' buttons.

**Carriers**

- Anthem Blue Cross and Blue Shield
- Kaiser Permanente Colorado
- United Health Care
- Cigna
- Humana
- Rocky Mountain Health Plans
- Elevate by Denver Health Medical Plan

**Coverage Level**

- Bronze
- Silver
- Catastrophic
- Platinum
- Gold

## **FAMILIES**

The families section on the main HealthCare.gov website defaults to the tab “Individuals & Families.” After selecting this tab, the user is prompted to choose a location by providing a zip code. The zip code then matriculates a state. For the purposes of the families section and to provide a variety in regards to what other states utilize for the Affordable Care Act, this case will use the state of California.

California similar to Colorado uses its own state website to give users information about their options with Obamacare. HealthCare.gov will provide the link to that particular website after inputting the zip code of the particular area in California. The main website for California health care through Obamacare is called “Covered California” (Covered California, n.d.).

Within the home page a user has several options to pick to gather more information about a health need including “About,” “Shop and Compare,” “Apply,” and lastly “Get Help.” For the purposes of the case study, “Shop and Compare” is most relevant. After choosing this section and individual must select the appropriate year. When 2016 is selected, “Covered California” ask for biographical and socioeconomic information such as seen with HealthCare.gov. This includes household income, zip code, and the age of each person within the household (The 2016 Covered California Shop and Compare Tool, n.d.).

Figure 15: (The 2016 Covered California Shop and Compare Tool, n.d.).

The 2016 Covered California Shop and Compare Tool

**Important:** The health insurance plans and premiums displayed are for coverage starting **January 1, 2016**. These results provide an estimate only; you will see your actual rate once you complete the application. You'll need to re-enter your information during the enrollment process. If you're currently receiving affordable health insurance through an employer or a public program, you won't receive premium assistance for insurance purchased via Covered California.

Different health insurance plans and rates may be available for pregnant women. See <https://www.coveredca.com/individuals-and-families/special-circumstances/pregnant-women/>. Contact Covered California or your county Medi-Cal office for more information.

### Household Information

Household income \*  Annual

ZIP Code \*

Enter the **AGE** of each person, whether they are enrolling or not. Uncheck the **ENROLLING** box next to the age for those household members not enrolling. Note: Premium estimates assume same age for each member as of coverage effective date.

|          | Age                             | Enrolling                           |                                       |
|----------|---------------------------------|-------------------------------------|---------------------------------------|
| Person 1 | <input type="text" value="45"/> | <input checked="" type="checkbox"/> | <input type="button" value="Remove"/> |

Total Enrolling:

Number of people in the household:

With generic information inputted for these different categories, one is able to see what healthcare options are available for the household. The household income was put at \$100,000 where the household consisted of four individuals. These included a 45 year old, a 43 year old, a 15 year old, and a 13 year old. After this information is provided, the user will be able to see several options that are available health care plans.

Figure 16: (The 2016 Covered California Shop and Compare Tool, n.d.).

Household income \* \$100,000.00 Annual

ZIP Code \* 92093 San Diego County

Enter the **AGE** of each person, whether they are enrolling or not. Uncheck the **ENROLLING** box next to the age for those household members not enrolling. Note: Premium estimates assume same age for each member as of coverage effective date.

|          | Age | Enrolling                           |        |
|----------|-----|-------------------------------------|--------|
| Person 1 | 45  | <input checked="" type="checkbox"/> | Remove |
| Person 2 | 43  | <input checked="" type="checkbox"/> | Remove |
| Person 3 | 15  | <input checked="" type="checkbox"/> | Remove |
| Person 4 | 13  | <input checked="" type="checkbox"/> | Remove |

+ Add person

Total Enrolling: 4

Number of people in the household: 4

**Breaking Down the Monthly Cost**

\* Indicates required field

Clear See My Options

Figure 17: (Your Options, n.d.).

Your Options

Request your Personal Proposal Enroll

Bronze/Silver Gold/Platinum Minimum Coverage Family Dental Plans

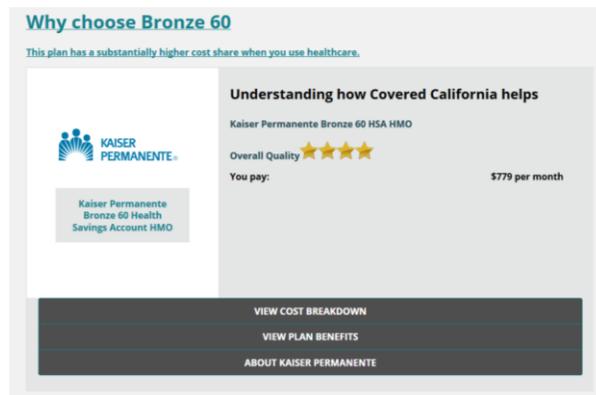
### Why choose Bronze 60

This plan has a substantially higher cost share when you use healthcare.

| MOLINA HEALTHCARE             | Health Net                    | SHARP                         | KAISER PERMANENTE                   |
|-------------------------------|-------------------------------|-------------------------------|-------------------------------------|
| Molina Bronze 60 HMO          | Health Net HCSP Bronze 60 HMO | Sharp Bronze 60 HMO Network 2 | Kaiser Permanente Bronze 60 HSA HMO |
| Overall Quality<br>★★★★☆      | Overall Quality<br>★★★★☆      | Overall Quality<br>★★★★☆      | Overall Quality<br>★★★★☆            |
| Total Monthly Premiums: \$737 | Total Monthly Premiums: \$770 | Total Monthly Premiums: \$776 | Total Monthly Premiums: \$779       |
| VIEW DETAILS                  | VIEW DETAILS                  | VIEW DETAILS                  | VIEW DETAILS                        |

Though the layout is slightly different than what is seen on both HealthCare.gov and “Connect for Health Colorado,” the same principles are still shown on the webpage. For the California webpage regarding the different options, a user must pick the desired plan and then is directed to detailed information about the plan such as the approximate amount, the plan category, and the insurance company (Your Options, 2016).

Figure 18: (Your Options, 2016).

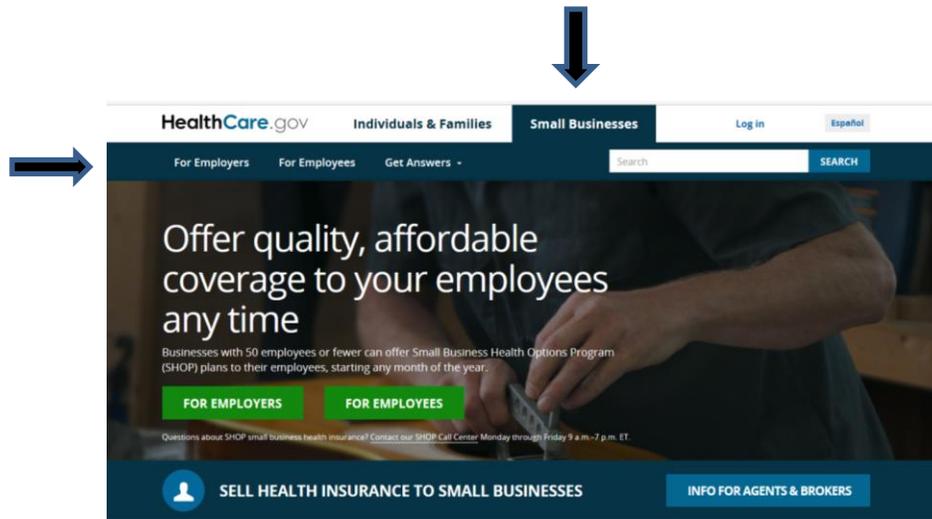


## EMPLOYER/EMPLOYEES

New York state holds a similar case to that of Colorado and California; it provides its own individual website for Obamacare health care plans. As seen with previous cases on HealthCare.gov, the New York health care website link is available. However prior to going to the new website, one must complete a few tasks. Unlike the prior cases, employees and employers are not within the same section as individuals and families, but rather small businesses. Once picking the “Small Businesses” tab on the main page of HealthCare.gov, the user is prompted to decide which state that is ultimately desired.

It is important to note that employees are not able to review information unless they autonomously screen this information from the employer section and see approximate costs or if the employer has sent an offer to the employee to check through for possible health care plans (Small Businesses, n.d.).

Figure 19: (Small Businesses, n.d.).



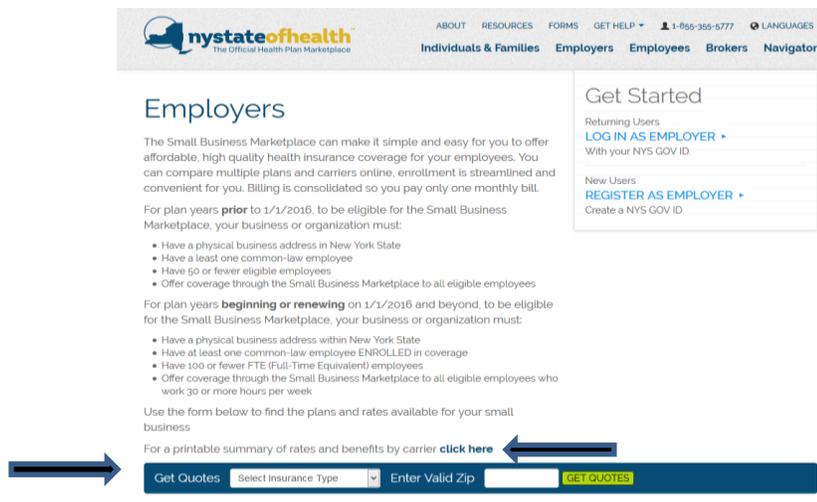
The New York website is known as “NY State of Health” (NY State of Health, n.d.). For this last case and the case of New York, this section will focus on Employers who have the choice to offer employees of their small businesses benefits with the Small Business Health Options Program (SHOP) (Small Businesses, n.d.).

On the home page of NY State of Health there is a main menu bar that lists several categories where users may choose to go. These options include “Individuals & Families,” “Employers,” “Employees,” “Brokers,” and lastly “Navigators” (NY State of Health, n.d.). Upon deciding on the Employers tab, an individual is taken to that particular part of the website.

Employers provides basic information about the small businesses marketplace initiative through Obamacare. Yet, there is a drastic difference with the Employers section that is not on any of the previous pages or states discussing individuals or families – and this includes HealthCare.gov, California, and New York. There is no place where

the user may provide basic biographical data or socioeconomic information (Employers, n.d.). Instead, there is summary available for download to show approximate benefits and rates from a specific insurance company (Employers, n.d.). There is also the option directly below the summary download of first selecting a particular insurance such as health or dental and then inputting a valid zip code for New York state to receive a quote (Employers, n.d.).

Figure 20: (Employers, n.d.).



When clicking on the “click here” option a new window opens. The next window allows one to choose a Microsoft Excel Spreadsheet for either health or dental insurance. After deciding which one insurance the individual would like to review the Excel Spreadsheet opens and a map of the state of New York is prominent on the spreadsheet (QHP 2016-SHOP-Q1-Rates, 2016).

Figure 21: (New York State by Region QHP 2016-SHOP-Q1-Rates, n.d.).



The state map is divided into 8 different quadrants. Depending on the need for the user, benefits and rates about insurance for a particular region area within New York. The directions state the following, “Select the rating region based on the primary business location in New York to review the 2015 small group rates by carrier and plan” (QHP 2016-SHOP-Q1-Rates, 2016). For example if the user wanted to review rates and benefits for Brooklyn, the user would need to select number 4 (QHP 2016-SHOP-Q1-Rates, 2016). A new sheet within the master Excel Spreadsheet would show the information related to health care plans for regional area 4 (QHP 2016-SHOP-Q1-Rates, 2016).

Figure 22: (Provider LOGO QHP 2016-SHOP-Q1-Rates, n.d.).

| 1  | Provider LOGO   | Provider       | HSRID  | Product Name Description                               | Includes Domestic Partner | Includes Family Planning | Age 29 Rider  | Rating Region | Rate Quarter      | Enrollment Tier     | Monthly P1 |
|----|---|----------------|--|--|---------------------------|--------------------------|---------------|---------------|-------------------|---------------------|------------|
| 2  |  | METRO+         | 11177N-V020001   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          |               | Rating Area 4 | Q1                | Employee Only       |            |
| 3  |   | METRO+         | 11177N-V020001   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          |               | Rating Area 4 | Q1                | Employee + Children |            |
| 4  |   | METRO+         | 11177N-V020001   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          |               | Rating Area 4 | Q1                | Employee + Family   |            |
| 5  |   | METRO+         | 11177N-V020002   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          | DEF29         | Rating Area 4 | Q1                | Employee Only       |            |
| 6  |   | METRO+         | 11177N-V020002   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          | DEF29         | Rating Area 4 | Q1                | Employee + Children |            |
| 7  |   | METRO+         | 11177N-V020002   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          | DEF29         | Rating Area 4 | Q1                | Employee + Family   |            |
| 8  |   | METRO+         | 11177N-V020003   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          |               | Rating Area 4 | Q1                | Employee Only       |            |
| 9  |   | METRO+         | 11177N-V020003   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          |               | Rating Area 4 | Q1                | Employee + Children |            |
| 10 |   | METRO+         | 11177N-V020003   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          |               | Rating Area 4 | Q1                | Employee + Family   |            |
| 11 |   | METRO+         | 11177N-V020004   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | FP                        |                          |               | Rating Area 4 | Q1                | Employee Only       |            |
| 12 |   | METRO+         | 11177N-V020004   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | FP                        |                          |               | Rating Area 4 | Q1                | Employee + Children |            |
| 13 |   | METRO+         | 11177N-V020004   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | FP                        |                          |               | Rating Area 4 | Q1                | Employee + Family   |            |
| 14 |   | METRO+         | 11177N-V020005   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | FP                        |                          | DEF29         | Rating Area 4 | Q1                | Employee Only       |            |
| 15 |   | METRO+         | 11177N-V020005   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | FP                        |                          | DEF29         | Rating Area 4 | Q1                | Employee + Children |            |
| 16 |   | METRO+         | 11177N-V020005   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | FP                        |                          | DEF29         | Rating Area 4 | Q1                | Employee + Family   |            |
| 17 |   | METRO+         | 11177N-V020006   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | FP                        |                          | DEF29         | Rating Area 4 | Q1                | Employee Only       |            |
| 18 |   | METRO+         | 11177N-V020006   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | FP                        |                          |               | Rating Area 4 | Q1                | Employee + Children |            |
| 19 |   | METRO+         | 11177N-V020006   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | FP                        |                          |               | Rating Area 4 | Q1                | Employee + Family   |            |
| 20 |   | METRO+         | 11177N-V020007   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          |               | Rating Area 4 | Q1                | Employee Only       |            |
| 21 |   | METRO+         | 11177N-V020007   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          |               | Rating Area 4 | Q1                | Employee + Children |            |
| 22 |   | METRO+         | 11177N-V020007   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          |               | Rating Area 4 | Q1                | Employee + Family   |            |
| 23 |   | METRO+         | 11177N-V020008   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          | DEF29         | Rating Area 4 | Q1                | Employee Only       |            |
| 24 |   | METRO+         | 11177N-V020008   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          | DEF29         | Rating Area 4 | Q1                | Employee + Children |            |
| 25 |   | METRO+         | 11177N-V020008   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          | DEF29         | Rating Area 4 | Q1                | Employee + Family   |            |
| 26 |   | METRO+         | 11177N-V020009   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          |               | Rating Area 4 | Q1                | Employee Only       |            |
| 27 |   | METRO+         | 11177N-V020009   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          |               | Rating Area 4 | Q1                | Employee + Children |            |
| 28 |   | METRO+         | 11177N-V020009   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          |               | Rating Area 4 | Q1                | Employee + Family   |            |
| 29 |   | METRO+         | 11177N-V020010   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          | DEF29         | Rating Area 4 | Q1                | Employee Only       |            |
| 30 |   | METRO+         | 11177N-V020010   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          | DEF29         | Rating Area 4 | Q1                | Employee + Children |            |
| 31 |   | METRO+         | 11177N-V020010   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          | DEF29         | Rating Area 4 | Q1                | Employee + Family   |            |
| 32 |   | METRO+         | 11177N-V020011   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          |               | Rating Area 4 | Q1                | Employee Only       |            |
| 33 |   | METRO+         | 11177N-V020011   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          |               | Rating Area 4 | Q1                | Employee + Children |            |
| 34 |   | METRO+         | 11177N-V020011   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          |               | Rating Area 4 | Q1                | Employee + Family   |            |
| 35 |   | METRO+         | 11177N-V020012   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          |               | Rating Area 4 | Q1                | Employee Only       |            |
| 36 |   | METRO+         | 11177N-V020012   | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP                        |                          |               | Rating Area 4 | Q1                | Employee + Children |            |
| 37 | METRO+  | 11177N-V020012 | Shoreline-S4, ST, INN, Pediatric Dental, Dep25, DP, FP | DP   |                           |                          | Rating Area 4 | Q1            | Employee + Family |                     |            |

Overall, the description section of this paper shared several nuances of how a user may refer to HealthCare.gov to learn more about health care plans. Though some states use the main platform of HealthCare.gov and others may use their own individual websites, the content and main information remains the same. At times, states created their own layout and even diverging terms, but often there was consistent information on HealthCare.gov and these states individual websites to define the metadata within the information organization system of these plans.

## **Analysis**

The analysis section of this report will focus specifically on descriptive metadata and its particular attributes and characteristics from ideas that were previously defined by Christine Borgman, who focused on digital libraries; and Anne Gilliland, who focused on metadata for cultural heritage resources. Descriptive metadata is defined as “metadata used to identify and describe collections and related information resources” (Gilliland, 9, 2008). Additionally, this analysis will focus on the first screen users submit and have results that show a broad idea of what is available for health care plans after providing basic biographic and socioeconomic information. The categories include, “Title,” “Monthly Premium,” “Plan Category,” “Plan Type,” “Medical Management Programs,” “Insurance Companies,” and “Search by Plan ID.”

It is important to remember that Gilliland and Borgman discuss documents in their analysis with metadata and digital libraries. This is not the same case for HealthCare.gov, rather the website can be seen as an evolution to their description. In addition, both of the definitions are a bit outdated from Borgman in 2000 and Gilliland in 2008. Though this is understood, these are some of the best definitions for these practices with metadata and digital libraries. This analysis adapts the frameworks from a space solely concerned with documents in order to review the presentation of information in a fact-based digital space. Because of the differences in the nature of object, some of categories may not connect with certain attributes and characteristics of metadata. This will be discussed at length in this section.

HealthCare.gov has several types of metadata involved in creating, using, and

maintaining the website. For example, use. Gilliland defined use metadata as “metadata related to the level and type of use of collections and information resources” (Gilliland, 9, 2008). Though users do not have access to this information, use may be an example of how the creators of this information organization system track certain records such as how often the website is frequented and what particular areas of health care plans are most popular.

The information in the health care plans from HealthCare.gov is primarily what Gilliland describes as descriptive metadata. On the default page that illustrates to users the various plans, there are six main categories that describe various health topics in relation to the plan. These include “Monthly Premium,” “Plan Category,” “Plan Type,” “Medical Management Programs,” “Insurance Companies,” and “Search by Plan ID.” Observations from this preliminary information show that all the categories with the exception of “Search by Plan ID,” all have metadata within their respective categories; “Search by Plan ID” requires an individual to input information and “Search” for a specific plan.

Metadata on this main page for health care plans have different forms of attributes and characteristics that coincide with the categories. The attributes include source of metadata, method of metadata creation, nature of metadata, status, structure, semantics, level, and intellectual access.

A topic to mention about HealthCare.gov is the inherent limitations of the website, due to insurance companies managing the source information about the health insurance plans. The website provides set parameters that an individual must acknowledge and are

required to input information in order to even access the pertinent information about the health care plans. In summary, there is a lack of openness and is restricted in even the architecture of the website. This presents a dichotomy that occurs between the governmental website and the private insurance companies that provide plans for Obamacare.

#### **SOURCE OF METADATA**

Source of metadata has different types of characteristics including internal and external metadata. External metadata relates to an original item or information object, that is created later, often by someone other than the original creator (Gilliland, 10, 2008). Internal metadata is generated from the creating agent for an information object at the time when it is first created or digitized (Gilliland, 10, 2008). Furthermore some examples of internal metadata are file names and header information and directory structures, while external metadata may include URLs and legal information (Gilliland, 10, 2008)

In regards to categories, each one follows source of metadata with external and internal metadata. The metadata within this section has two sources, either HealthCare.gov or from the insurance company itself. For example, plan category is metadata generated from HealthCare.gov, while the title from the plan type is text from the insurance company. For some of these categories, both HealthCare.gov and the insurance companies may apply for both external and internal metadata, for example with “Medical Management Plans.” This is a generic and broad name for programs that

individuals may use with their health care plans, however there might be a more specific name for the program as one reviews the insurance plan in more detail.

#### **METHOD OF METADATA CREATION**

Method of metadata creation relates to automatic metadata generated by a computer or manual metadata created by humans (Gilliland, 10, 2008). Examples include keyword indexes or descriptive metadata such as catalog records or specialized indexes.

For this attribute there is both manual and automatic ways in which metadata is created on HealthCare.gov. One example is with title which is an object manually created. However, we have options where it is not and instead automatic generated such as with plan category. Yet, this may not be the case with automatic generated information because of lack of openness in this information infrastructure. Again there are some categories where both manual and automatic metadata is present such as plan type and monthly premium.

#### **NATURE OF METADATA**

On HealthCare.gov, nature of metadata seems to be a combination of two major characteristics of this particular attribute of metadata for the health plan categories. Nature of metadata is defined as “nonexpert metadata created by persons who are neither subject specialists nor information professionals, e.g., the original creator of the information object or a folksonomist; expert metadata created by subject specialists and/or information professionals, often not the original creator of the information object” (Gilliland, 10, 2008). From the background information in this report, during the rollout of HealthCare.gov President Obama implied that an external service created the

infrastructure of this website; however on the main page it states that HealthCare.gov is, “A federal government website managed by the U.S. Centers for Medicare & Medicaid Services” (HealthCare.gov, n.d.). This suggests that the metadata for the health care plans were a combine effort from subject specialists, but also creators who are not necessarily information professionals.

Each category exemplifies these qualities, however depending on the knowledge needed for the category, it might require expert or nonexpert knowledge. Title for example, may not require expert information in regards to metadata, but the categories plan type or plan category may need more knowledge that someone who is an expert in the field knows how and where to place this information.

## **STATUS**

For the purposes of this report, status has three major components that align with the categories. Characteristics unique to status include static metadata that should not change once it has been created for the information object, dynamic metadata which can change with user, preservation, or manipulation of an information object and short-term metadata necessary to guarantee users have access to the information object (Gilliland, 10, 2008). These attributes work with technical information and technical format of the information object (Gilliland, 10, 2008).

All of the categories and information objects in relation to status are short term in their time frame. Similar to previous characteristics there are some that align with both dynamic and static, but also some they have only characteristics from the distinct attribute. Title is a fairly static attribute in particular because of its technical qualities, but

an category such as monthly premium is more dynamic because of its possibility to change quite often especially depending on the individual or individuals circumstances.

## **SEMANTICS**

Semantics describes controlled metadata that conforms to a standardized vocabulary or authority form; semantics may also describe uncontrolled metadata that does not conform to any standardized vocabulary (Gilliland, 10, 2008). Examples of this standard semantics include Library of Congress Subject Headings or the ULAN schema (Gilliland, 10, 2008). Though the categories within the health care plans do not fall directly under a specific controlled vocabulary, there is some sense of unique vocabulary that is pertinent to the health care plans and health insurance.

On HealthCare.gov, there are controlled and uncontrolled vocabulary in regards to semantics. Title is once again an example of uncontrolled vocabulary. The title option is an area where one can change and not have specific parameters that must be met. However, for a controlled variable option, such as monthly premium, have certain requirements that are needed to fulfill the needs of the category. For example this controlled vocabulary for monthly premium will need monetary symbols. Another example of controlled vocabulary with plan category which has the bronze, silver, and platinum plans. This topic will also be discussed in the structure section.

## **LEVEL**

HealthCare.gov does have a sense of levels within the health care plans. Level relates to collection-level metadata and item-level metadata (Gilliland, 10, 2008).

Specifically, collection-level linking to collections of information objects and the item-level which involves information objects within the collection (Gilliland, 10, 2008).

“Search by Plan ID” does not fit in the level category, however each additional category does. There are individual information objects in each category and the category is a part of the collection of 2016 health care plans for the individual. However, one might argue that “Search by Plan ID” can fit within the 2016 health care plans for the user accessing this information.

Within the main page of HealthCare.gov, the categories appear to be item-level metadata that fit into a collection of the information needed for an individual to find health care insurance. Each piece of information that is within every one of these categories are required to understand this information organization system, with the exception of “Search by Plan ID.”

### **INTELLECTUAL ACCESS**

Intellectual Access stems from a digital libraries perspective. Borgman describes intellectual access as “metadata that describe what a document is ‘about’...” (Borgman, 75, 2000). Though HealthCare.gov is not a document, this idea can evolve to fit what the website describe for the public. The major quality that intellectual access contains is summarizing the detailed information about a health care plan.

Not only does intellectual access provide a briefing for the health care plans, but additionally has a transparent pass through or some sense of transparency that occurs between the different categories to ultimately gain information about the health care insurance.

Each category fits into what is known as intellectual access. Somewhat similar to the idea of interactive dialogue, the different parts of HealthCare.gov speak to each other and allow for the information about the health care plans to pass through and allow for transparent relationships.

## **STRUCTURE**

Within the page, there is some sense of structure though it might not be from a traditional metadata schemas such as MARC or EAD. Structure can conform to a predictable standard metadata structure or unstructured metadata that is not a part of a predictable structure (Gilliland, 10, 2008). The way in which this webpage is built implies structure, however from a local metadata structure standpoint as opposed to a defined metadata structure. This structure relates more so to how the page is built and how it relates to this specific community. Similar to the previous attributes, structure is present in each category for health care plans except the “Search by Plan ID” option since this is a searching mechanism and requires specific knowledge of a unique plan id.

Structure has quite a bit of information, not only with the structure of the page, but also the specific language used within the categories as well as the interactive nature that some of these categories have between each other. The language used for certain categories will be known as controlled vocabulary and uncontrolled vocabulary. Monthly premium is an uncontrolled vocabulary since it has the opportunity to constantly change depending on the person and their respective needs. However, the category, plan category would be a controlled vocabulary.

There are also ways in which these categories have unique relationships with each

other which will be known as interactive dialogue. After an individual selects a particular health care plan there are many categories that may be found on the plan that illustrates the interactive relationship. For example, if one selects a plan, they will be able to see the plan category, plan type, and plan id within the same object.

Another unique quality to mention about structure is that a similar format is shown and available to the states that make a new webpage as have been seen with New York, Colorado, and California. Though these are different states, many parallels occur with the HealthCare.gov such as with controlled vocabulary, uncontrolled vocabulary, and this unique way of interactivity between different categories. Structure is by far one of the most unique attributes in metadata from HealthCare.gov.

Table 1: Metadata Chart of HealthCare.gov

Metadata Chart of HealthCare.gov

| Attributes and Characteristics of Metadata      |                  |                    |     |                             |     |                    |     |        |     |           |     |    |           |     |             |                     |
|---|------------------|--------------------|-----|-----------------------------|-----|--------------------|-----|--------|-----|-----------|-----|----|-----------|-----|-------------|---------------------|
| HealthCare.gov Categories for Health Care Plans | Type of Metadata | Source of Metadata |     | Method of Metadata Creation |     | Nature of Metadata |     | Status |     | Structure |     |    | Semantics |     | Level: Item | Intellectual Access |
|   |                  | Ext                | Int | Man                         | Aut | Exp                | Non | Sta    | Dyn | CV        | UCV | ID | CV        | UCV |             |                     |
| <b>Title</b>                                    | Descriptive      | √                  |     | √                           |     |                    | √   | √      |     |           | √   |    | √         | √   | √           |                     |
| <b>Monthly Premium</b>                          | Descriptive      | √                  |     | √                           | √   | √                  | √   |        | √   |           | √   | √  | √         | √   |             |                     |
| <b>Plan Category</b>                            | Descriptive      |                    | √   | √                           |     | √                  |     | √      | √   | √         |     | √  | √         | √   | √           |                     |
| <b>Plan Type</b>                                | Descriptive      | √                  |     | √                           | √   | √                  |     | √      | √   | √         |     | √  | √         | √   | √           |                     |
| <b>Medical Management Programs</b>              | Descriptive      | √                  | √   | √                           |     |                    | √   | √      |     | √         |     | √  | √         | √   | √           |                     |
| <b>Insurance Companies</b>                      | Descriptive      | √                  |     | √                           |     | √                  |     |        | √   |           | √   |    | √         | √   | √           |                     |
| <b>Search by Plan ID</b>                        | Descriptive      | √                  |     | √                           |     | √                  | √   | √      |     | √         |     | √  | √         |     | √           |                     |

The first column describes the terms that are described on HealthCare.gov. – HealthCare.gov Categories for Health Care Plans

The second column describes the type of metadata used within this part of HealthCare.gov. – Type of Metadata

The third column describes internal and external metadata created by the original agent for the information object. – Source of Metadata. “Ext stands” for external while “Int” stands for internal

The fourth column describes metadata that is manually created by humans. – Method of Metadata Creation. “Man” stands for manual while “Aut” stands for automatic

The fifth column describes metadata created by subject specialists. – Nature of Metadata. “Exp” standards for expert while “Non” stands for nonexpert.

The sixth column describes the metadata timeline of information objects, longterm – Status. “Sta” stands for static in this column while “Dyn” stands for dynamic.

The seventh column describes the structure of the metadata regarding functional or nonfunctional standards – Structure. “CV” stands for controlled vocabulary, “UCV” stands for uncontrolled vocabulary, and “ID” stands for interactive dialogue between different categories.

The eighth column describes the controlled metadata and if the vocabulary is controlled or not – Semantics. “CV” stands for controlled vocabulary, “UCV” stands for uncontrolled vocabulary. This includes items that might be semi controlled vocabulary, which will go under controlled vocabulary.

The ninth column describes collection or item level objects relating to the information – Level

The tenth column describes what the document or digital object is about as well as information transparency between different categories – Intellectual Access

## **Conclusion**

Metadata is not something exclusively used in the world of information institutions, but rather can exist in nearly any entity as seen with the case study of HealthCare.gov. This idea started under an extensive set of new policies and legislation under the Obama Administration and has changed the landscape of health care in the United States. Not only did the Affordable Care Act modify the way in which national, state, and local facilities and agencies relate to health care, but it also created a new platform with HealthCare.gov where users have the opportunity to shop and find information about possible health care plans that coincide with their socioeconomic status and location.

There are many positive aspects of this online tool. The mere fact that this platform is online and able to connect with different individuals at virtually any given time as long as there is internet access is highly significant. This tool gives individuals, families, employers, and employees autonomy to have some say in their health care plans is also noteworthy, for the mere fact that this option was not always available and today is still not any option for many. The website makes a clear effort to be user friendly and to aid users in navigation.

In regards to metadata and digital libraries, the entry level page for health care plans is extremely detailed even for an individual who is only browsing the website. Information that is vital to health care plans such as the year it is covered, the plan type, supplementary programs, the insurance companies, and of course the approximate price is available to ensure individuals are able to review and analyze this information.

Though it was not discussed in this report, after accessing this information users, have the choice of viewing even more detailed information, however it is about one unique plan. The metadata and information objects within this section is equally as rich and

detailed and can be extremely beneficial for users who are trying to make decisions about their health care needs.

HealthCare.gov has made tremendous strides in giving access and providing a useable resource for the general public. Yet, at the same time, there have been some issues with the website and some that information professionals may assist with in the future or perhaps to compile and complete research in the future.

While attempting to access the website and obtain information about the health care plans, there are many questions that a user must fill out. This process can become cumbersome, but it is understandable why the data is needed. If the tool is attempting to make each case as distinctive as possible, these questions are most likely required. However, the process is time consuming and that is solely within the browsing option. There may be even more questions upon applying to have Obamacare. Although this is not metadata and digital library information, it does concern usability which is a component of information studies. This could be an opportunity for future research.

This is only the preliminary step research on this topic. Future research will need to be completed to get a more thorough idea of how metadata, digital libraries, usability, and community informatics can relate to HealthCare.gov. Community informatics was discussed briefly in this report, but further research may show how distinct communities access and use the information to learn about health care plans and insurance.

Additionally, the users of HealthCare.gov show a huge range of personas, from men to women, families, and employees that vary in age and what state they are insured from. This is an additional opportunity to do further research and analyze these micro cases and triangulate similarities and differences between states and different personas within this information organization system.

More research is needed to have a better understanding of this case and to

incorporate more qualities from information topics such as metadata, digital libraries, usability, and community informatics. This report has started the preliminary work, by analyzing key themes with metadata, digital libraries, and broadly community informatics. In time, research on this topic will show how information professionals and information topics relate and may advise government online resources from agencies such as the home department of HealthCare.gov while describing and defining that relationship with the information organization system and its users.

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