ABSTRACT

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This study analyzes the use of five types of advanced content in state e-government: audio and video content, RSS feeds, podcasts, blogs, and participative services. State government portals and governors' websites were reviewed to determine if and how they implemented any of the five evaluation criteria. Points were assigned for the presence of these criteria, with additional points being granted for examples of advanced content that were deemed to be of quality based on defined measures.   The study found many state e-government sites have implemented features that set standards for the use of advanced content in an e-government setting.

ADVANCED CONTENT IN STATE E-GOVERNMENT:
CRITERIA FOR EVALUATION

By

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Dedication

To Jennifer: You've got more natural talent than anyone I've ever seen.

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Table of Contents

List of Tables

List of Illustrations

Chapter 1: Introduction

In its 2005 report *e-Government for Better Government*, the Organisation for

Economic Co-operation and Development (OECD) wrote:

> User-focused e-government requires both an understanding of user needs
> and the ability to deliver services according to those needs. By
> transforming the nature and means of service delivery, user-focused e-
> government is expected not only to increase customer satisfaction, but also
> to deliver additional gains in terms of improving the efficiency of
> government and the increased use of online channels (OECD, 2005,
> p. 18).

The question is, how do users expect their e-government services to be delivered

to them?

The current buzz term in the computer and internet industry is "Web 2.0."

Madden and Fox (2006) write, "It is OK if you've heard the term and nodded in

recognition, without having the faintest idea of what it really means" (p. 1). O'Reilly

(2005) essentially defined it as web-based, data-driven software that fosters cooperation

among its users to encourage its continued development (p. 5). Casey and Savastinuk

(2007) write, "Also fundamental to the Web 2.0 idea is the importance of the

conversation" (p. 75). Madden and Fox (2006) define it as the "participatory web" (p. 1).

Web 2.0 is like art: you bring your preconceptions to it. Madden & Fox (2006)

note, "[A]fter almost three years of increasingly heavy usage by techies and the press ...

critics argue that the term is in danger of being rendered useless unless some boundaries

are placed on it" (p. 1).

What's more important than the term is the fact that more and more people are

using advanced content such as participatory services. This is a fact that the Office of the

Director of National Intelligence (DNI) had in mind when it created the A-Space social

network for the intelligence committee. Harris (2007) writes:

> A key pillar is a suite of new information-sharing and collaborative
> technologies that look and feel a lot like Google, Wikipedia, and My
> Space [sic], the networking and search tools that younger analysts grew up
> using at home and in their dorm rooms. These newcomers have been
> baffled to find that these 21st-century staples aren't widely used within the
> intelligence community (p. 36).

While we are not yet at a point where e-government users are demanding a

government information-oriented Facebook to sign up for, they may expect to find e-

government sites that have moved past page after page of static textual information and

have begun integrating advanced content into their sites. Indeed, such content as blogs,

RSS feeds, and participatory services are already being added to federal e-government on

a regular basis.

This study will attempt to answer the following questions:

1. To what extent is advanced content being integrated into e-government on the

   state level?

2. How successful are state e-government sites in implementing advanced content

   onto their sites?

3. What are some of the best practices in using advanced content on state e-

   government sites?

4. Can advanced content be used as a tool to evaluate the quality of state e-

   government sites?

To help answer these questions, this study defines types of advanced content and

reviews other methods of analyzing e-government content. In addition, this study

outlines the current uses of advanced content on the federal e-government level.

For this study, state government portals and governors' websites have been reviewed to find the presence of advanced content. These two types of sites were selected because they are the most prominent representations of government information on the web. State government portals are designed to provide citizens with ways to find important information and to make transactions with the government. Governors' websites are ways for the primary leaders of states to communicate with citizens about government initiatives.

A scoring system has been developed to indicate both the presence of and the quality of advanced content on both types of state e-government sites being reviewed in this study. The analysis of this study will include examples of best practices in utilizing advanced content.

It is important to stress up front that this study is only researching advanced content. It is not analyzing the quality of the textual content or the Web design of e-government sites. A site with a high score using the evaluation criteria described in this study could score much lower if evaluated for its overall design or for the quality of the information on the site. Using this criteria in concert with other methods of evaluation should be a better judge of the overall quality of an e-government site.

The main underlying assumption in this study is that the presence of advanced content improves e-government. How much it improves e-government depends on how well advanced content is implemented on a site. Measuring the quality of the advanced content on the e-government sites reviewed in this survey is meant to validate this assumption.

However, other factors could weigh into whether or not advanced content is added to state e-government sites. This study will look at state-wide use of high-speed internet, high-speed internet access at public libraries, and state poverty levels to see if these factors have any impact on the availability of advanced content. It is assumed that states with larger use of high-speed internet access in homes and or more widespread availability of high-speed internet access in public libraries will likely have more advanced content features on their e-government sites.

Other factors that could also have an impact include government initiatives, funding for information technology, and state demographics. Further research would be needed to determine if these factors impact the implementation of advanced content on state e-government sites.

Another assumption held while reviewing both types of e-government sites is that advanced content would be prominently presented on the front page of each site, or would be available within three clicks of the front page. It is possible that advanced content could be buried further down a site without exiting to another state website.

Lastly, this study assumes that certain types of advanced content will be more prominent on one type of state e-government site than the other. It is assumed that almost all state e-government sites will include some kind of audio and video content, and that a majority of state e-government sites will include RSS feeds. It is also assumed that governors' sites are more likely to include blogs, while state government portals are more likely to include participatory services.

Chapter 2: Definitions and Research Landscape

This chapter will first review methods of evaluating e-government. Next, the terminology to be utilized in this study will be defined. Finally, the use of advanced content in the U.S. federal government will be explored.

2.1: E-government evaluation efforts

Gupta and Jana (2003) outline different methods for evaluating e-government by first sorting them into three broad categories: hard measures, soft measures, and hierarchy of measures (p. 369). Hard measures refer to cost-benefits analysis and benchmarking. The drawback to using hard measures is that it is often hard to attach monetary value to certain aspects of e-government. Gupta and Jana (2003) write, "Some benefits related to e-government such as improvement in communication with the users, better appreciation of the role of the information systems (IS) within the organization, and better integration with business planning are difficult to assess using objective measures" (p. 369).

In the hierarchy of measures method of e-government evaluation, Gupta and Jana (2003) explain that one aspect of e-government is isolated, then evaluated on a number of different criteria (p. 375). For example, a transactional service could be evaluated by its maintenance costs, the manpower needed to maintain it, the usefulness of the service, and the public opinion about it. The drawback to this approach is that it is time intensive, and would require a great amount of resources to implement. While it would work for a one-time survey, it would be difficult to perform with regularity.

Soft measures of e-government evaluation include scoring methods and stages of e-government. Both of these measures relate aspects of e-government to specific

attributes in models of measurement to determine the success of an e-government site (Gupta & Jana, 2003, p. 372).

An example of the stages of e-government measurement is the four-stage model put forth by Layne and Lee (2001). In the first stage, called the cataloging stage, government entities establish their first online presence (p. 124). This stage is non-transactional, and it culminates in the posting of downloadable forms on e-government sites (Layne & Lee, 2001, p. 125).

The next stage is called the transaction-based stage. Government entities in this stage have added transactional services, such as online driver's license renewal, to their e-government sites (Layne & Lee, 2001, p. 125).

The next two stages that Layne and Lee describe are vertical integration and horizontal integration. In vertical integration, local, state and federal e-government systems are linked by respective functions. Layne and Lee (2001) write:

> Under the scenario of stage three, a citizen would file for a business license at the local government transaction server, and the local server by accessing the state database would check state and federal databases, retrieve corresponding records, propagate changes, and calculate the total license fee (p. 130).

Horizontal integration can be best described as a "one stop service center" (Layne & Lee, 2001, p. 132). In this stage, users would be able to access a variety of government services from a single portal. Layne and Lee (2001) note, "Technically, integration of heterogeneous databases and resolving conflicting system requirements across different functions and agencies are major stumbling blocks for any government to reach this stage" (p. 133)

The effort to put into developing and operating Norway's one-stop shop Mypage illustrates the difficulty of executing this stage. The project was announced in 2004, but took longer than the Norwegian government initially promised to complete. Before it was launched in December 2006, developers abandoned the advanced secure login originally envisioned (Undheim, 2008, p.28-30). Mypage was ultimately successfully implemented. Undheim (2008) writes, "In May 2007, after only four months of operation, about 200 services from more than 40 public administrations were serving more than 200,000 registered citizens (about 5 percent of the population)" (p. 30).

Another difficulty in implementing a one-stop shop service is the issue of trustworthiness. For users to want to use e-government services, Carter and Bélanger (2005) write, "Citizens must have confidence in both the government and the enabling technologies" (p. 9).

Even Layne and Lee's third stage of e-government development is difficult to implement. The Layne and Lee (2001) model posits that e-government enters the third stage of development once e-government systems on the local, state and federal level at least communicating with, if not connected to, each other (p. 130). Gil-Garcia and Martinez-Moyano (2007) point out that the development of e-government doesn't follow each stage successively in each level of government (p. 270). To illustrate this, Gil-Garcia and Martinez-Moyano (2007) divide the four stages into seven stages (pp. 268-270): initial presence, extended presence (both of which correspond with Layne and Lee's first stage), interactive presence, transaction presence (Layne and Lee's second stage), vertical integration (Layne and Lee's third stage), horizontal integration, and

totally integrated presence (Layne and Lee's fourth stage). Gil-Garcia and Martinez-Moyano (2007) write:

> Some state and local governments are attempting to make the transition from the initial or extended presence stages to the transactional stage. Other local governments are still cataloging information or trying to establish their first Web page for citizens and business use (p. 271).

Because federal, state, and local governments in the U.S. are still at different areas of development within the first two stages, it's difficult to evaluate e-government using Layne & Lee's model, or variants of the model, beyond acknowledging that e-government in the U.S. is still in the earlier stages of development. Moreover, this model does not take into consideration intermediate internet developments, such as participative services, that impact e-government site development.

An example of the scoring method of soft measures evaluation described by Gupta and Jana (2003) is West's annual *State and Federal E-Government in the United States* survey, the most recent of which is the 2007 edition. West (2007) evaluates 1,813 e-government sites on both the federal and, importantly for this paper, the state level by noting the presence of such features as contact information, audio and video content, email newsletters, mobile device accessibility, and transactional services. In addition, it is noted which sites comply with disability standards and at what reading level the sites are written (p. 3).

Gupta and Jana (2003) write, "To use the scoring methodology, the analyst first identifies all the key performance issues and assigns a weight to each of them, then the weighted average of all the attributes is calculated" (p. 372). In the case of state e-government, West (2007) assigns four points for the presence of 18 different criteria, noting, "These features provide a maximum of 72 points for particular websites" (p. 10).

8

West (2007) writes:

> Each site then qualifies for up to 28 additional points based on the number
> of online services executable on that site (zero for no services, one point
> for one service, two points for two services, three points for three services,
> four points for four services, and so on up to a maximum of 28 points for
> 28 services or more) (p. 10).

Therefore, each website evaluated can receive up to 100 points. The points are
then averaged across all the sites from each state government to produce a final score. In
West's 2007 survey, Delaware scored highest with a score of 65.6 (West, 2007, p. 12).
West's evaluation of federal government sites follows along similar lines, with the
individual sites providing the point totals for the agency of origin (West, 2007, p. 12).

The West survey provides a good snapshot of how many services are available to
e-government users, particularly on the state level. However, of the 18 criteria West uses
to evaluate e-government sites, the only type of advanced content noted is audio and
video content. This opens the door for advanced content evaluation criteria.

This study will use scoring methodology to evaluate five different types of
advanced content. The complete methodology will be outlined in Chapter Three.

There are two other efforts to evaluate e-government worth noting. Ryan, Field,
and Olfman (2003) tracked the development of state e-government between 1997 and
2002 by printing out screen captures of archived versions of state government portals in
the Internet Archive (http://www.archive.org) (pp. 408-409). Next, 180 participants were
given a random set of print-outs. Ryan, Field, and Olfman (2003) wrote, "The
experimenter asked each participant to create groupings of home page images, where
each grouping has home pages that are similar to each other, but different from pages in

other groups" (p. 410). Each participant offered an explanation of how he or she grouped the images.

Based on this information, and using multi-dimensional scaling and hierarchical clustering analysis, Ryan, Field, and Olfman (2003) identified seven different types of state e-government portal design, and how these designs changed over the years (pp. 422-425). While this evaluation tracks how portal design has changed over the five-year time period analyzed in the survey, it does not necessarily offer insight into how the information on state e-government portals has changed.

In the other study, Seifert and McLoughlin (2007) surveyed state Chief Information Officers (CIOs) and conducted six case studies to determine the critical factors to evaluate state e-government programs (pp. 4-5). These factors include implementation strategies, the decision to outsource design and management, funding of e-government projects, and the politics and culture of each state (Seifert & McLoughlin, 2007, p. 2). If studied in depth in each state, these factors can be useful to determine whether or not a state is likely to add advanced content to its e-government sites.

2.2: Definitions

This study concerns itself with if and how state e-government sites utilize advanced content on their home pages. *Advanced content* is defined in this study as content developed after the introduction of the World Wide Web in 1991 and the graphical-based Web browser Mosaic in 1993 (Zakon, 2006). The term therefore incorporates a wide range of content types, from audio and video content to such participatory services as Web 2.0 applications. Although many types of advanced content have existed for a long time, they are also still gradually being integrated into

state e-government sites. One of the goals of this study is to determine how much advanced content has been added to state government portals and governors' sites.

Shuler (2003) describes a portal as a site that "attempt[s] to sustain a community of users around a collective of interests or needs and services" (p. 410). Based upon this definition, a *state government portal* refers to the primary website of a state (e.g. Kentucky.gov), which offers services to state residents, businesses, and visitors.

The purpose of portals in what Gil-Garcia and Martinez-Moyano (2007) call their "initial presence" on the internet (p. 269) is to provide such government information as "agriculture, transportation, revenues, elections, banking and insurance, environmental issues, and health and human services" (McNeal et al, 2003, p. 54). Layne & Lee (2001) describe the early stage of government portal development as the cataloging stage, in which "non-transactional information are put on the site" (p. 126). As noted earlier, the addition of downloadable forms are a later advancement in this stage of development (Layne & Lee, 2001, p. 127).

The next stage of development is what Layne & Lee describe as the transaction stage (Layne & Lee, 2001, p. 127). In this stage, government portals "[offer] citizens the ability to complete an entire transaction online, versus simply downloading a form" (McNeal et al, 2003, p. 54). Such transactions include electronic filing of tax forms and online license renewal.

As recently as 2003, just 22 percent of state government portals offered at least one form of transactional service (McNeal et al, 2003, p. 54). However, this survey of state government portals found that all fifty states and Washington, D.C. offered some form of transactional service on their respective portals.

There is still room on a number of state government portals for a wider availability of transactional services, as there are state government portals that offer just one or two such services. The quantity and quality of these services are important criteria to measure the quality of a state government portal, and further research can be performed to determine how successfully each state has implemented them.

A *governor's website* refers to the official website of a governor of a state. Governors' websites are not necessarily meant to be the home for transactional services the way state government portals are. However, a form of transactional service can be found 26 of the 51 governors' websites reviewed for this study. (This study reviewed the city government portal and the mayor's website of Washington, DC. The mayor's website will be grouped with the governors' sites throughout this paper.) Visitors to these 26 websites can register to receive email newsletters, periodic updates from the governors' office via email. The content of these emails vary depending on each governor's office, but in general they contain updates about issues and legislation pertaining to the governor's governmental agenda.

It is important to explain why this study considers email newsletters as a transactional service. A user inputs one's email and perhaps some basic information into a form and gets the email newsletter in return. Email newsletters could be considered a method of content delivery. However, this study is in part looking at how new methods of content delivery are being utilized on state government portals and governors' websites. First introduced in 1971, email was a well-established form of communication by the time the World Wide Web debuted (Zakon, 2006).

So, what types of advanced content is this study looking for and analyzing? The following definitions outline the types of advanced content that will be reviewed in this study. Other types of advanced content not included in the scope of this survey will also be discussed in order to provide a full picture of the content available.

RSS, or "really simple syndication," is a method of content delivery that "enables distribution and subscription to content so that users may automatically receive new [blog] posts and updates" (OECD, 2007, p. 102). In other words, it allows a user to receive updates to a website automatically instead of checking the site to see if new content is available. Using a programming language called XML, or extensible markup language, "RSS breaks Web sites into discrete chunks of information, such as a single news story or a single blog post" (Farkas, 2007, p. 49).

To use RSS, a user must subscribe to feeds using an RSS reader called an *aggregator*, "software that consolidates all your feeds so you can read them in one place" (Farkas, 2007, p. 51). A users adds the RSS feed's URL to an aggregator, such as NewsGator or Bloglines. Now, instead of visiting a website every day to read its latest updates, users can "sit back, and wait for any new postings to come" to them (Magid, 2005, p. 62).

Farkas (2007) notes, "RSS is not the only XML-based format for syndicating content" (p. 53). Other formats include Atom, OPML, and RDF (Crumlish, 2004, p. 250). However, this study will use RSS as a generic term for all XML-based syndication formats.

RSS is increasingly becoming commonplace on federal e-government sites. This study will determine how widespread the use of RSS is on the state e-government level.

Audio content and video content are both also increasingly commonplace features on e-government sites both on the federal and on the state level, especially on governors' websites. *Audio content* is defined for this study as recorded sound content available on websites that can either be streamed or downloaded by users, e.g. a governor's weekly radio program. *Video content* is defined as filmed sound and image content available on websites that can either be streamed or downloaded by users. Audio and video technology has been available almost as long as the World Wide Web has been in existence. The first webcasts occurred as early as 1992, and RealAudio's streaming technology was introduced in 1995 (Zakon, 2006).

A further advancement of this type of content is the podcast. A *podcast* is defined as a file of audio or video content delivered to users using RSS (Griffey, 2007, p. 32). RSS feeds that deliver audio files were first introduced in 2000. RSS feeds that could automatically add audio files to iPod, Apple's popular MP3 player, were introduced in 2003. However, the term podcast, derived from the product name iPod, wasn't coined until 2004 (Farkas, 2007, p. 182-183). Despite the name, podcasts can be played on any MP3 player.

It is important to stress that a podcast is not a podcast unless it has an RSS feed. Schwartz (2006) bluntly makes it clear:

> I'm becoming mildly frustrated … by entities in the LIS world who slap some mp3s on their website and call it a podcast. After all, podcasting is about harnessing the power of syndication to distribute audio content, not just making audio content available (¶ 1).

A digital media player that has a built-in aggregator, such as iTunes, can download new podcasts automatically and upload them to a portable digital media player, such as an iPod. Alternatively, podcasts can be downloaded using a separate podcast

aggregator such as RSS Radio or Nimiq, then uploaded to a player such as Windows

Media Player. In either case, a user enters the RSS feed's URL into the podcast

aggregator to subscribe to the content, and new podcasts will automatically be

downloaded to the user's computer when they become available.

The next group of website features and applications that will be considered in this

study are *participative services*. A participative service is an internet-based service or

application that "enables users to collaborate and contribute to" the creation and

development of internet applications and Web services (OECD, 2007, p. 17). As Madden

and Fox (2006) acknowledge, the term Web 2.0 is usually synonymous with participative

services (p. 1). Examples of participative services include blogs, social networking

applications, social bookmarking applications, and customization applications.

A *blog* is a website featuring regularly updated "date-stamped entries in reverse

chronological order" containing "text, images, audio, video or a combination of them"

(OECD, 2007, p. 36).   A key feature in many blogs is the comments section. Farkas

(2007) writes, "Users can post comments to specific blog posts" (p. 14). Although the

comments section is often abused by spammers and wannabe insult comedians, it can

also add additional information to or lively discussion about the content covered in a

post.

Wyld (2007) asserts that a blog is not really a blog if it does not contain a

comments section (p. 36). Wyld (2007) stresses the importance of comments sections

"because comments provide the opportunity for readers to provide feedback to the

blogger" (p. 33). On the other hand, Sauers (2006) argues:

[Comments sections] are a great option, but automatic posting of outside comments will not be appropriate for every blog … For a blog representing activities in the library, however, comments may not be appropriate (p. 106).

Comments may also not be appropriate for a blog representing activities on an e-government site, so this study will count blogs without comments sections as blogs.

Sauers (2006) writes that "there are three types of blogs: individual, subject, and organizational" (p. 3). All three types can be, and indeed are, used in e-government as means to disseminate government information. A governor can use a blog to present updates on government initiatives. An agency can use a blog to provide updates about itself and issues that pertain to the agency. And government websites can use subject blogs to exhibit new resources or promote new information.

The next participative service to consider is *customization*. Some websites allow a user to customize pages to suit the user's needs. For example, the personalized start page service Netvibes (http://www.netvibes.com) organizes information into small boxes called modules. These boxes can contain news headlines, weather reports, or photos (Mossberg, 2007, p. B1). The modules can utilize RSS to pull content from different sources. The user can add new modules and arrange them in any order one prefers. Google offers a similar personalized start service called iGoogle (http://www.google.com/ig) (Metz, 2008, p. 18). A few state government portals use customization to allow users to personalize the sites, letting the users see the headlines or services that are most important to them.

A *social networking application* refers to an "online hub where people can gather and connect with others in a virtual community" (Kroski, 2007, p. 2018). A user who registers for one of these web-based applications sets up a profile that displays as much

16

or as little information about themselves as they wish to include. This information includes a list of a user's friends, people who have mutually agreed to display links to each other's profiles.

Farkas (2007) notes that "friends can only be added if they also add you as a friend, preventing a person from displaying a large group of social connections to which he or she really has no connection" (p. 111).

Two examples of social networking applications are MySpace (http://www.myspace.com) and Facebook (http://www.facebook.com). These are general interest sites, but subject-specific social networking applications also exist. Golbeck (2007) writes, "Their purposes vary from religious to political to entertainment, and membership in a given network can be as small as a few dozen users to over 100,000,000" (p. 1).

A *social bookmarking application* is a Web-based application that allows users to bookmark Web content and organize bookmarks using tags. "Social bookmarking communities aggregate the *tags* used by their individual members" (Kroski, 2007, p. 2015). McAfee (2006) describes tags as "simple, one-word descriptions" used to categorize and organize information (p. 24). An example of a social bookmarking application is del.icio.us, a website in which a user can bookmark URLs and include a brief description of the website and any number of tags to categorize them. McAfee (2006) writes:

> ...the real power of del.icio.us is that it shows me how many other people have applied the same tag to a page that I did, and what other tags they have applied to that page (p. 26).

17

Many news outlets and blogs have begun adding to their articles and posts methods to bookmark articles using del.icio.us, Digg and other social bookmarking applications. But, this is not limited to the mainstream and new media: for example, the U.S. federal government portal USA.gov recently added a social bookmarking button to its site to allow visitors to add URLs to any number of social bookmarking applications.

Blogs date back to 1997 (Wortham, 2007, para. 2). In theory, they are more likely to have been adopted on the state government level than other participative services. In practice, blogs have only begun to gain respectability as a method of disseminating government information by government officials and agencies since 2005 (Wyld, 2007, p.14). For the purposes of this study, blogs will be considered separately from other participative services.

The main participative service this study will be concerned with is customization. Almost none of the state e-government sites reviewed for this study utilized social networking and social bookmarking applications. (The sole exception is the Delaware portal, which features social bookmarking buttons.) While it is important to understand what they are and to see how they can be useful, they cannot be used as evaluation criteria at this time because these applications are not present on any of the sites reviewed in this survey. In addition, there are other features and services that will not be considered in this study.

A *photo gallery* refers to a grouping of digital photographs made available to users on a website page. While all of the state e-government websites reviewed in this study integrate photos into their site designs, many of the state government portals and

most of the governors' sites also feature photo galleries displaying photographs from around each state or of the each state's first family.

The photo galleries on all of the governors' websites contain photographs that were selected by the respective governors' offices. This makes sense since photo galleries on governors' websites show off photos of the governors at events and with their families. However, the photo galleries on the state government portals that feature them also contain pre-selected photographs. While there is nothing wrong with pre-selecting photographs, these photo galleries do not allow for user participation. As far as can be determined, no state e-government site is yet experimenting with photo-sharing communities such as Flickr (http://www.flickr.com). These communities allow users to upload photos, assign them tags, and organize them into themed groups, then share them with family, friends, and other users (Farkas, 2007, pp. 92-93).

There are a few state government portals that call for user contributions, but these photos are still selected by the webmasters of the site rather than directly added by users. Thus, photo galleries will not be considered as an evaluation criterion in this study.

Another feature that will not be considered in this study is the *wiki*. OECD (2007) describes a wiki as follows:

> A wiki is a website that allows users to add, remove and otherwise edit and change content (usually text) … Initial authors of articles allow other users to edit 'their' content. The fundamental idea behind wikis is that a large number of users read and edit the content, potentially enriching it and correcting mistakes (p. 37).

The most famous example of a wiki is Wikipedia, the online encyclopedia where all the entries can be edited by any visitor to the website. While there are examples of the federal government using wikis that will be noted later, these are on the intranet level and

therefore not available for public viewing. This study did not find any state government portal or governors' websites publicly utilizing wikis, so wikis will not be used as an evaluation criterion.

2.3: Advanced content in federal e-government

The federal government has been an early adopter in incorporating advanced content onto its e-government sites. It is worth looking at its efforts to utilize advance content because, as Rogers (1962) put it, "Potential adopters look to them [early adopters] for advice and information about the innovation" (p. 169). State e-government Web designers are likely to be influenced and inspired by developments on the federal level.

The number of RSS feeds and podcasts now available from the federal e-government are numerous enough that USA.gov can organize them by categories. USA.gov's U.S. Government RSS Library (http://www.usa.gov/Topics/Reference_Shelf/Libraries/RSS_Library.shtml) lists over 200 RSS feed sources in 10 categories, allowing for duplication of sources across different categories. USA.gov's Podcasts from the U.S. Government page (http://www.usa.gov/Topics/Reference_Shelf/Libraries/Podcasts.shtml) lists over 70 podcasts from 12 categories, again allowing for duplication of sources across different categories.

The use of blogs on federal government websites is gaining in popularity. Wyld (2007) reports that some members of Congress have begun blogs as recently as 2005 (p. 19). However, the current trend in federal government is the organizational blog. Since September 2007, the U.S. Department of Homeland Security, the Transportation Security

Administration (TSA), the U.S. Department of State, and the Office of Citizen Services

and Communications' U.S. government portal USA.gov have all begun blogs.

Secretary of the Department of Homeland Security Michael Chertoff is one of the

15 contributors to the Homeland Security blog, called Leadership Journal

(http://www.dhs.gov/journal/leadership/). Homeland Security assistant press secretary

Jeff Ostermayer told Glover (2007): "The DHS Leadership Journal will share insightful

information about DHS from a unique perspective from the secretary and senior DHS

leadership." (¶ 5).

The TSA blog, called Evolution of Security (http://www.tsa.gov/blog), launched

January 30, 2008. Scott (2008) writes, "Within the first 24 hours of the blog's January

launch, there were 700 comments, says [TSA spokesperson Christopher] White" (¶ 7).

USA.gov has a page called Blogs from the U.S. Government that lists a wide

array of organizational blogs, including the State Department's Dipnote

(http://blogs.state.gov/index.php) and USA.gov's own GovGab (http://blog.usa.gov/).

Not all government blogs are for public consumption. In 2006, United States

Strategic Command (STRATCOM) introduced a knowledge management network called

Strategic Knowledge Integration, or SKI-web, which contains blogging software. Rogin

(2006) writes, "Every command member, regardless of rank, can blog on issues that

affect them, eliminating the vetting process of command bureaucracy" (¶ 1).

A new trend in blogging is called microblogging. In an article about the

microblogging website Twitter, Beaumont (2008) writes, "Whereas conventional online

blogs can be any length at all, microblogging is usually done via mobile phone text

messages, and as such, is restricted to just 140 characters - that's right, characters, not

words" (¶ 2). Pacifici (2008) notes that both the U.S. House of Representatives (http://twitter.com/HouseFloor) and the U.S. Senate (http://twitter.com/SenateFloor) are offering live updates of floor votes via Twitter (¶ 1). The State Department's Dipnote also has a Twitter account (http://twitter.com/dipnote).

Federal government use of advanced content is not limited to blogging. The Library of Congress has begun using the picture-sharing website Flickr to display and organize its photo archives (http://www.flickr.com/photos/library_of_congress/). Chan (2008) writes, "Officials are hoping people can help the library gather more relevant facts and data about the images and build a richer archive" (¶ 2). The Library of Congress is hoping to accomplish this through tags added by Flickr users to the photos in Library of Congress account.

Government agencies have also begun experimenting with wikis, although not on their public sites. The U.S. Department of State created the internal wiki Diplopedia in 2007 as method for foreign officers to share their expertise with the rest of the foreign service. Office of eDiplomacy senior adviser Bruce Burton told Bain (2007), "We wanted to become the online encyclopedia for foreign affairs information at the unclassified level. This would be a one-stop shop, if it develops as it should, that would be the same kind of go-to source of information that you find with Wikipedia" (¶ 3). Diplopedia is set up on the State Department's sensitive but unclassified intranet, so that all State Department employees have access to it and can register to edit it.

Another example of a federal government internal wiki is DNI's Intellipedia. This wiki, which serves the U.S. intelligence community, was launched in 2005.

Thompson (2006) writes, "By this fall [2006], more than 3,600 members of the intelligence services had contributed a total of 28,000 pages" (p. 61).

In addition to Intellipedia, DNI has set up a social bookmarking site, and in 2007 launched A-Space, a social networking site. In addition to access to Intellipedia and social bookmarking, Sevastopulo (2007) writes:

> A-Space will be equipped with web-based email and software that recommends areas of interest to the user just like Amazon suggests books to its customers. The site will also allow users to create and modify documents, and determine user privileges, in a similar fashion to Google Documents (¶ 16).

Mike Wertheimer, assistant deputy director of national intelligence for analytic transformation and technology, told Sevastopulo (2007) that the web-based network aims to improve communications within the intelligence community: "I am unable to send email, and even make secure phone calls, to a good portion of the Intel community from my desktop because of firewalls" (¶ 18).

DNI is not only trying to prevent an intelligence failure like the one that lead to the September 11 attacks (Harris, 2007, p. 35). It is also trying to adapt to the technologies that the new generation within the intelligence community has grown up with. Harris (2007) notes that 60 percent of intelligence analysts in the U.S. have five years or less of experience: "America's spies are decidedly green, and they're not comfortable -- or particularly useful -- working in bureaucratic silos without Internet browsers, instant messaging, and social networking sites on their desktops" (p. 36).

A publicly available example of a federal participative service effort is the U.S. Patent and Trademark Office's Peer to Patent Project (http://www.peertopatent.org/). Noveck (2008) writes:

This system (the design and implementation of which I direct in cooperation with the USPTO) allows the public to research and upload publications –known in patent law as 'prior art' – that will inform the patent examiner about the novelty and obviousness of the invention and enable her to decide whether it deserves a patent (p. 37).

In addition, registered users have the opportunity to comment on the applications of the 250 companies participating in the pilot project.

The Peer to Patent Project is not quite a wiki and not quite a social network, but it is an effort to get the public more involved in the patent review process. It is also an effort to provide another tool for patent examiners to use when reviewing a patent application (Noveck, 2008, p. 38).

The U.S. Department of State is probably the best example of a federal government entity that is making full use of advanced content on its website (http://www.state.gov/). The State Department has long incorporated audio and video content: the press briefings video archive goes back to September 2001. The website has 31 RSS feeds available, ranging from updates to the Background Notes country reports to travel advisories. In addition, 10 audio and video podcasts can be subscribed to either individually or through one composite feed.

As mentioned earlier, the State Department launched its blog, Dipnote, in September 2007. The website also uses AddThis (http://www.addthis.com) to allow users to bookmark pages using their choice of social bookmarking websites, such as Digg, del.icio.us, and Reddit.

Chapter 3: Methodology

In this study, the 50 U.S. state government portals and 50 governors' websites, as well as the portal and mayor's website for Washington, DC, were surveyed for the presence of the following advanced content: Audio and video content, RSS feeds, podcasts, blogs, and participative services. Each site was assigned one point for each criterion present on the site. For example, if a site featured audio and video content, RSS feeds, and podcasts, it would receive a total of three points.

This may seem like a straightforward process, but further explanation of how each criterion was handled in this survey is still necessary.

Audio and video content: Sites that include audio files, video files and/or streaming video webcams received one point. Sites that prominently linked to audio and video content available on other government sites, such as the attorney general's page, also received one point. The term "prominently linked" means linked to from the front page or within three clicks of the front page without leaving the main e-government site. Sites that prominently linked to audio and video content available through local content providers, such as the state's public radio or television station, received one point. Audio and video content will be described further in the upcoming description of podcasts.

RSS feeds: Sites that feature RSS feeds received one point. Sites that had RSS feeds without prominently linking to them also received one point. For example, in some instances, an RSS feed for a governor's site will be listed on the state government portal, but not on the governor's site itself. This example will be discussed further below. RSS feeds will also be further explained in the upcoming description of podcasts.

Podcasts: Sites that include podcasts received one point. Sites that prominently linked to podcasts available on other government sites or through local content providers also received one point.

In the definitions section of Chapter Two, podcasts were defined as a file of audio or video content delivered to users using RSS. It is important to emphasize this. Think of a podcast as a loaf of bread: different ingredients are combined in order to create something new. Therefore, a site with a podcast feed receives just one point for a podcast, instead of three points for a podcast, an RSS feed, and audio and video content.

Sites that included an archive of their podcast files did receive one point for audio and video content when the archive was presented separately from the podcast itself. Sites that had the podcast feed without archives presented separately from the feed did not receive a point for audio and video content.

On some sites, RSS feeds for audio content are not listed as podcasts. These feeds were counted as podcasts even though they are not labeled as such.

Blogs: Sites that include blogs received one point. Sites that prominently linked to blogs available on other government sites or through local content providers also received one point.

Participative services: Sites that featured participative services received one point. These services range from buttons to change the graphical theme of the site to customization services.

Now, the presence of advanced content is one thing, but the usefulness of these features is quite another. Therefore each type of advanced content found on the e-government sites surveyed for this study was analyzed for quality. If a feature was found

to be of high quality based on the criteria discussed below, a site received an additional point. For example, a site with a high quality podcast would receive two total points for this criterion: one for the presence of the podcast and one for the quality of the podcast.

Audio & video: If audio or video files were added to an e-government site with consistent regularity (meaning at least once a month over a year), then it received two points total. Alternately, if a site featured streaming webcasts, it received two points total. A site that featured only a couple of videos received just the one point for presence.

It is necessary to point out that many state government portals and governors' sites included or linked to content from other state government sites. For example, some of the audio content on the Delaware state government portal's Audio page are links to other Delaware government sites, such as the Supreme Court and the Department of Health and Social Services. In these cases, the advanced content still received the two points total if the content was of high quality, because this content originates from the state government. This can lead to situations where both the state government portals and the governors' websites are receiving doubled points for the same content.

An emerging trend in e-government is the use of the video website YouTube to display government-related videos. For example, three governors' sites reviewed in this study have created YouTube pages to show videos of speeches. These pages will receive doubled points if they are frequently updated. Although the content is not hosted on a state government server, the content is generated by a branch of the state government.

Some sites linked to content from local content providers, such as the state's public television station. When these links provide audio and video content about the state and its government to the state's population, it received an additional point. Some

sites also linked to content from non-state sites, such as from a federal government site. These sites did not receive an additional point.

RSS feeds: If an e-government site's RSS feed was updated at least once a week, it received two points total. If the site featured multiple feeds, it received two points total, but only if the majority of the feeds were updated regularly. If most of the feeds were rarely updated, it only received the one point for presence on the site.

Podcasts: A podcast that originated from an e-government site and was updated at least once a month received two points total. A podcast linked to from either other state government sites or through local content providers and was updated at least once a month also received two points total. A podcast linked to from non-state sites did not receive an additional point.

Podcast feeds are used to automatically download audio or video files for use in a digital media player. Podcast feeds that could not be used in such podcast aggregators as iTunes, RSS Radio, or Nimiq did not receive an additional point.

Blogs: A blog that originated from an e-government site and was updated at least once a month received two points total. A blog linked to from either other state government sites or through local content providers and was updated at least once a month also received two points total. A blog linked to from non-state sites did not receive an additional point.

While a blog without an RSS feed is still considered to be a blog, the major blog software companies, such as Blogger, WordPress, Movable Type, and LiveJournal, all generate RSS feeds for the blogs created using their software. Therefore, blogs that do

not have RSS feeds will receive one point for presence, but will not receive doubled points.

RSS feeds for blogs did receive a point in the RSS criterion during this study. While RSS feeds are to podcasts what flour is to bread, RSS feeds are to blogs what peanut butter is to bread. In other words, RSS feeds and blogs aren't mutually exclusive.

Participative services: An e-government site that allowed users to either extensively customize the site or to create a customized personal page received two points total. If a site had customization features, but only allowed the user to change one or two things only received one point for presence of the feature. Sites that utilized social bookmarking software received two points total during evaluation.

It is important to note at this point that state government portals are more likely to have some form of participative service than governors' sites. Most of the participative services found during this survey involved customization. This lends itself to state government portals more than governors' sites, which are generally designed to promote a governor's agenda and provide biographical information. While it could be seen as unfair to use participative services as a criterion for analyzing governors websites, there are ways to integrate other types of participative services besides customization into governors' sites. For example, a social bookmarking application would be a way to add participative functionality to governors' sites. Participative services may yet be a wave of the future on governors' sites, so it is perfectly reasonable to use this criterion in the analysis of governors' sites.

Ill. 3.1:
Screenshot of the Arkansas state government portal.
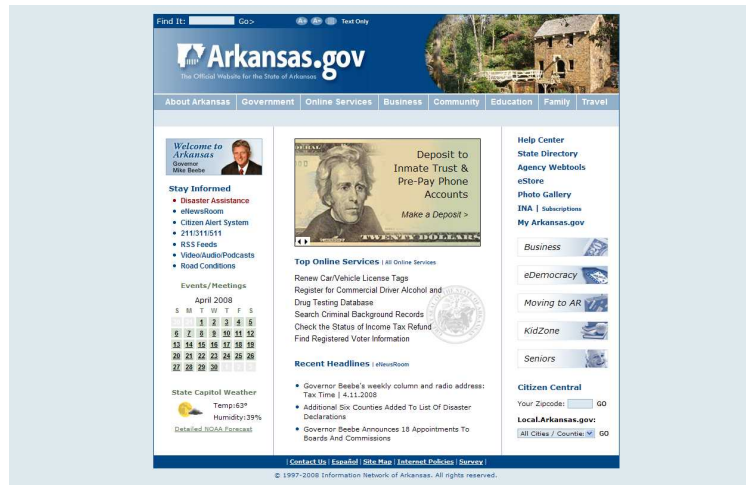
3.1 Evaluation example: Arkansas state government portal

To illustrate the methodology, the following is the analysis of the Arkansas state government portal:

Audio and video content: The Arkansas portal features links to three different content sources in the Audio/Video section of its Arkansas eNewsRoom page. Two of the links are for state government-related programs on the Arkansas Educational Television Network (AETN), "Arkansas Week" and "Unconventional Wisdom." Both links go to the main AETN home page rather than to the specific programs. The third link is to the News Room: Radio page on the Arkansas governor's site. This page is updated frequently with audio files of the governor's radio show on AETN, the governor's weekly radio address, and clips of key speeches. The Arkansas portal therefore receives two points for the audio and video criterion.

RSS feeds: The Arkansas portal has an RSS feed that pools together news updates from around the Arkansas government on its Arkansas eNewsRoom page. As of this writing, the majority of headlines come from the governor's website. The Arkansas

eNewsRoom page also lists two other RSS feeds. One links to the governor's website News Room: News Releases page, while the other links to the aforementioned News Room: Radio page. All three are updated frequently, sometimes more than once a day. The Arkansas portal therefore receives two points total for the RSS feed criterion.

Podcasts: The two podcasts on the Arkansas eNewsRoom page comes from AETN. In fact, the two links are for the "Arkansas Week" and "Unconventional Wisdom" programs mentioned in the audio and video section above, and again, both links go to the AETN main page instead of directly to the specific programs. Both podcasts are regularly updated and can be used in digital media players to download content. The Arkansas portal therefore receives two points for the RSS feed criterion.

Incidentally, the News Room: Radio page linked to from the governor's website was also considered a podcast, since it features an RSS feed that delivers audio content. However, the RSS feed could not be used in podcast aggregators.

Blogs: The Arkansas portal does not feature any blogs, so it does not receive any points for the blogs criterion.

Participative services: The Arkansas portal includes a feature entitled My Arkansas.gov. There are a handful of sites reviewed during this study that feature different types of personalization services. My Arkansas.gov, on the other hand, is more of a personal organizational tool. The features of the service are designed to help the user keep track of information on the Arkansas portal. There is a legislation tracking tab, a calendar that can be updated with the user's own meetings and events, and even a payments tab that can be used to keep track of paid transactions on the Arkansas portal.

It should be noted that this service appears to be separate from the paid subscription service that the Arkansas portal offers for paying for DMV fees and records searches.

The user can select which news categories one wants displayed on the My eNewsRoom tab. The 11 categories available include Political Topics, Business, Education, and Economic Development. The one drawback to this feature is that the eNewsRoom displays all stories in the selected category going back to 2003. Selecting all of the categories can lead to a very long page of links to content, a great deal of which is outdated.

The user can also register one's mobile device to receive updates from the portal. These notifications range from updates to the user's selected news categories to reminders of events listed one's calendar.

While My Arkansas.gov would not be considered a Web 2.0 application per se, it does offer the user a service beyond what traditional state government portals usually do. Because of the comprehensive features included in the My Arkansas.gov service, the Arkansas portal receives two points for the participative services criterion.

In the end, the Arkansas portal received a score of eight points using this evaluation method.

Chapter 4: Survey Results

In this chapter, the results of the evaluation of the individual criteria will be discussed. In addition, some of the better and some of the lesser uses of each evaluation criterion will be presented in detail. Finally, key features from two of the sites in each section will be analyzed in detail.

4.1: State government portals

This study found that 34 state government portals featured some form of advanced content; see table 4.1. Seventeen sites featured no advanced content. It's worth noting that between September 2007 and April 2008, the time period in which the reviews of the portals were conducted, three states added advanced content to their respective portals. In other words, these results are by no means set in stone.

Audio and video content

Of the 51 state government portals reviewed for this study, 26 portals featured some form of audio and video content. Of these 26 sites, 24 of them received doubled points. One of the sites that received only one point for this criterion, Tennessee, linked to an audio and video page on the governors' site that was not updated with consistent regularity. Michigan featured a video page that had not been updated since at least May 17, 2007. This was determined by comparing the live page to an archived version of the page in the Internet Archive (http://www.archive.org/).

The Videos page on the California portal has a very good compilation of video resources from around California's e-government sites. One particular highlight is the YouTube page for the Department of Motor Vehicles

Table 4.1:
State government portals scores.

Score	State	A/V	RSS Feeds	Podcasts	Blogs	Participative
5	Alabama	2	2	1	0	0
0	Alaska	0	0	0	0	0
0	Arizona	0	0	0	0	0
8	Arkansas	2	2	2	0	2
8	California	2	2	2	2	0
2	Colorado	2	0	0	0	0
0	Connecticut	0	0	0	0	0
8	Delaware	2	2	2	0	2
0	Florida	0	0	0	0	0
6	Georgia	2	2	2	0	0
3	Hawaii	2	1	0	0	0
0	Idaho	0	0	0	0	0
5	Illinois	2	2	1	0	0
0	Indiana	0	0	0	0	0
0	Iowa	0	0	0	0	0
10	Kansas	2	2	2	2	2
6	Kentucky	2	2	2	0	0
5	Louisiana	2	2	0	1	0
7	Maine	2	2	1	0	2
0	Maryland	0	0	0	0	0
0	Massachusetts	0	0	0	0	0
6	Michigan	1	2	1	1	1
0	Minnesota	0	0	0	0	0
2	Mississippi	2	0	0	0	0
4	Missouri	0	2	0	2	0
1	Montana	0	1	0	0	0
2	Nebraska	0	2	0	0	0
0	Nevada	0	0	0	0	0
0	New Hampshire	0	0	0	0	0
1	New Jersey	0	0	0	0	1
0	New Mexico	0	0	0	0	0
2	New York	2	0	0	0	0
0	North Carolina	0	0	0	0	0
1	North Dakota	0	0	0	0	1
2	Ohio	2	0	0	0	0
1	Oklahoma	0	1	0	0	0
2	Oregon	2	0	0	0	0
3	Pennsylvania	2	0	0	0	1
5	Rhode Island	0	2	1	2	0
4	South Carolina	2	2	0	0	0
5	South Dakota	2	2	0	0	1
5	Tennessee	1	2	1	1	0
0	Texas	0	0	0	0	0
6	Utah	2	2	2	0	0
2	Vermont	0	2	0	0	0

Table 4.1 cont.

Score	State	A/V	RSS Feeds	Podcasts	Blogs	Participative
6	Virginia	2	2	2	0	0
7	Washington	2	2	1	2	0
4	Washington, DC	2	0	0	0	2
0	West Virginia	0	0	0	0	0
0	Wisconsin	0	0	0	0	0
5	Wyoming	2	1	1	1	0

(http://www.youtube.com/CaliforniaDMV). While there is nothing there quite like

"Wheels of Tragedy" or "Mechanized Death" on the site, there are plenty of helpful

driver's education films available.

The Virginia portal has also set up a YouTube page

(http://www.youtube.com/user/Virginiagovernment). Videos are organized into three

categories: state agencies, higher education, and state localities. This offers the user a

good mix of government information and promotional material.

RSS feeds

Twenty-five portals featured RSS feeds. Twenty-one of these portals received

doubled points for this criterion. The data shows that RSS feeds, when implemented on

state government portals, are generally well-executed. The four sites that received only

one point had RSS feeds that were not updated frequently enough.

While most of the state government portals offered at least one RSS feed that

provided frequent and current updates, three states in particular are noteworthy for the

sheer volume of RSS feeds available. The Delaware portal not only features 20 RSS

feeds on its RSS News Feeds page, it also features an RSS feed on each page of the site

that announces when the respective page is updated. In other words, the user can

subscribe to the RSS News Feeds page to find out when new RSS feeds are added to the portal.

The Maine portal lists 52 RSS feeds. Some feeds offer updates to specific pages on the portal, while others provide weather updates for regions all over the state. There is even an RSS feed that offers news about for Maine's participation in federal E-Rate program.

The Illinois portal lists 37 RSS feeds covering a range of topics from hints on staying warm in the winter and staying cool in the summer to updates about initiatives and legislation on such topics as stem cell research and contraceptives.

Podcasts

Sixteen portals featured podcasts. Eight of these portals received doubled points for this criterion. Two sites that received only one point each had infrequently updated podcasts. Three sites had RSS feeds that did not work in podcast aggregators. Interestingly, two states had a combination of these two problems. Illinois had one podcast that did not work in podcast aggregators, and two that were not frequently updated. Similarly, Michigan had a number of podcasts that either were not updated frequently or did not work in podcast aggregators. Lastly, Rhode Island received just the one point for linking to podcasts offered by the federal government without having any podcasts from or about the state government.

The Delaware portal features two regularly updated podcasts, This Day In Delaware History and Delaware State of the Arts. Both podcasts are interesting, and the latter is certainly useful to both residents and tourists as it promotes arts events around the state.

36

The Virginia portal features three podcasts, as well as a link to the podcasts by the Virginia governor. In fact, the amount of podcasting done by the governors' office more than makes up for the fact that the podcasts from the secretary of natural resources and the secretary of technology have not been updated recently, while the podcast from the Department of Social Services is updated sporadically.

Blogs

Six portals featured blogs. Three of these portals received doubled points for this criterion. The three portals that did not receive doubled points featured blogs that were updated infrequently.

At the risk of revealing a bias, two of the three best blogs listed on the state government portals are provided by state libraries. The state libraries of California and Rhode Island both offer excellent blogs, providing updates about events and resources at the respective libraries. The Rhode Island state library blog, Rhodarian, also provides information about the weekly television show produced by the local library community.

The Missouri portal also links to a blog, the attorney general's Consumer Blog. The only problem it is a bit buried in the online services page. But the blog is frequently updated and offers helpful hints on preventing identify theft, handling complaints about businesses, and other issues that affect Missouri residents.

Participative services

Ten portals featured some form of participative service. Nine of the portals provided customization services. The types of customization services ranged from modules that can be added and rearranged to, in two cases, the option to select the theme of the portal.

Five of these portals received doubled points for the participative service criterion. One site, the Washington, DC portal, allows registered users to feature links to several selected services on the front page of the site. Also, like the Arkansas portal, the Washington, DC portal features a customizable calendar.

Another site that received doubled points was the Maine portal. The site's Custom Maine allows the registered user to select modules to display on a custom page. Once the modules are selected, the user can rearrange them on one's custom page. The user can switch between the custom page and the so-called classic page. One issue is that, depending on the Web browser being used, the customizations are not permanent when one switches between the custom and classic pages.

Two of the sites received one point for having features that allow the user to change the theme (in other words, the graphical design) of the site. While these features are neat, they do not add much to the site from a content point of view.

One of the sites that received one point, New Jersey, offered the user the ability to

Ill. 4.1:
Screenshot of the customized New Jersey state government portal.
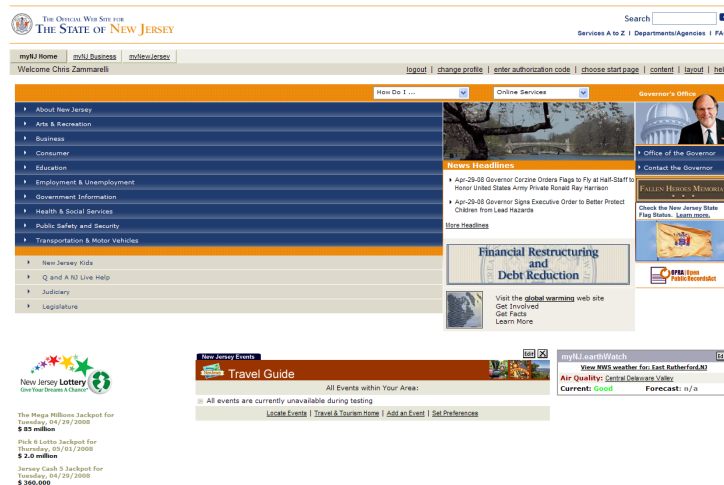
select one of four channels to display on the front page. It also allowed users to rearrange the content on the front page into two- and three-column displays. Because the content choices to add are limited, the site received only one point. As a side note, the customized page looks pretty awful from a site design standpoint, as can be seen in Ill. 4.1. This doesn't make the customization feature particularly appealing.

The other two sites that received one point for participatory services, Michigan and Pennsylvania, gave the user an opportunity to register to the respective sites, but did not actually offer any discernable customization features.

Two sites with notable advanced content features will be discussed below.

Kansas

The key feature on the Kansas portal is *My*Kansas, which is comprised of a series of modules called "tiles" on the front page of the site. The format is similar to the format on NetVibes. The modules can contain such items of information as the latest lottery numbers and weather updates. They can also contain links to information organized by agency or by government official. It appears that additional modules are being added with some frequency: four modules were added to the portal between December 6, 2007, when the Kansas portal was first reviewed, and April 13, 2008. New modules include one with links to services in Spanish and another for pesticide dealers to pay their annual registration renewal.

In addition to the 18 preset modules, there is also a module called "Build My Own Tile!" This allows users to bookmark links to any URL on the web, be it Kansas-related or general interest. Clicking on star symbols next to links throughout the Kansas portal

Ill. 4.2:
Modules on the Kansas portal.
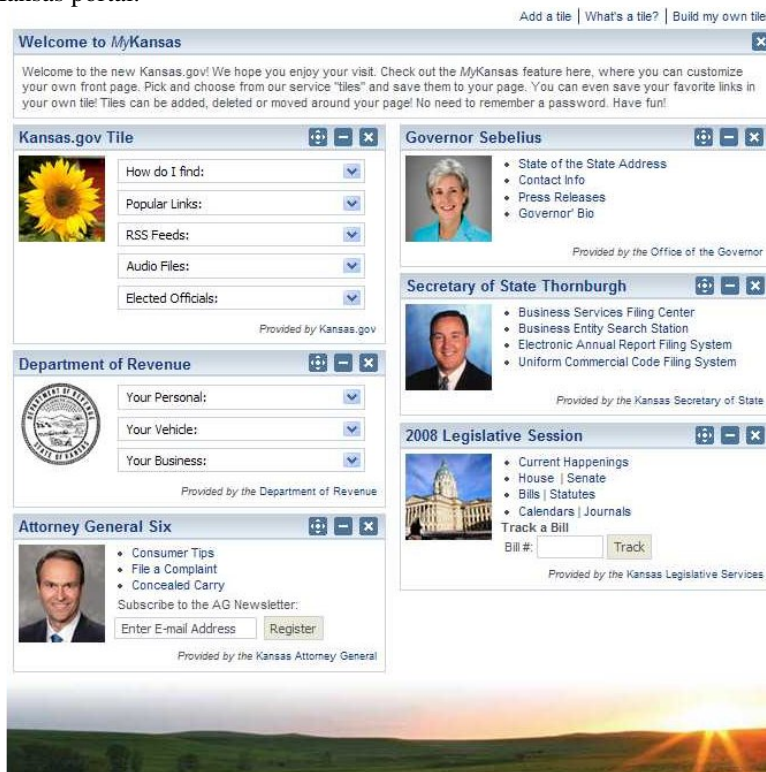
will automatically add those links to "Build My Own Tile!" However, links outside from

outside Kansas.gov need to be added manually.

Kansas portal users do not have to register for the site to customize the front page

or to add URLs to "Build My Own Tile!"

This version of the Kansas portal appears to be around a year old, judging from

archived versions of the website in the Internet Archive. It will be interesting to watch

how it evolves. As more modules are added, it could be molded into what the individual

user envisions a one-stop shop for government services to be.

Delaware

The Delaware portal is the only website reviewed in this study that included a

social bookmarking feature. While the Kansas portal allows the user to save pages on the

site to the "Build My Own Tile!" module, the Delaware portal gives the user the ability to

Ill. 4.3:
A segment of the Delaware portal.

bookmark pages on the site directly to the popular social bookmarking services

del.icio.us and Digg. The user can then tag the page being bookmarked as one sees fit.

While it doesn't necessarily help the user find information on the site more easily, it does

help one organize the information once it is found.

Another interesting aspect of the Delaware portal is the One-Click Search section,

which can be seen in Ill. 4.3. The search terms are organized into a tag cloud. Bulik and

Klaassen (2006) describe tag clouds as "groupings of keywords fashioned from a variety

of font sizes, styles and colors to help authors visually highlight what ideas, thoughts,

concepts and products are important or hot" (p. 19). The Delaware portal lists the search

terms in alphabetical order. According to the One-Click Search page on the portal, the

larger the word is in the cloud, the more frequently it has been clicked. While this helps

the user see what resources other users are looking for when visiting the portal, this

doesn't necessarily help the user find what one is looking for unless one is looking for the

more frequently searched-upon terms.

What might be handy is a feature that shows what pages on the Delaware portal are being bookmarked in del.icio.us or in Digg. How successful this feature would be would depend on how frequently pages on the Delaware portal are bookmarked.

4.2: Governors' websites

As seen in Table 4.2, 48 of the 51 governors' websites reviewed for this study featured some form of advanced content. Only three sites did not. None of the sites featured participative content. Again, it's worth noting these totals are not final. During the time this survey was conducted three new governors took office (two intentionally).

Audio and video

A whopping 44 governors' sites featured some form of audio or video content. Twenty-one of these sites received doubled points for this criterion. Many of the sites that did not receive doubled points either had very little audio and video content or did not update content frequently.

Four governors' offices are promoting pages on the video sharing website YouTube on their websites. Interestingly, only one of these sites offer direct links to their YouTube pages. The other three instead point to specific videos on their respective pages. Regardless, it will be interesting to watch how the usage of YouTube by government officials develops.

The governor of South Carolina is one of the three governors with a YouTube page (http://youtube.com/user/GovernorSanford). For some reason, the video of the State of the State speech on the front page of the governor's website is from 2005.

Table 4.2:
Governors' websites scores.

Score	State	A/V	RSS Feeds	Podcasts	Blogs	Participative
4	Alabama	2	2	0	0	0
1	Alaska	1	0	0	0	0
1	Arizona	1	0	0	0	0
5	Arkansas	2	2	1	0	0
5	California	2	2	0	1	0
1	Colorado	1	0	0	0	0
1	Connecticut	1	0	0	0	0
4	Delaware	0	2	1	1	0
4	Florida	2	0	2	0	0
4	Georgia	2	2	0	0	0
5	Hawaii	2	2	1	0	0
1	Idaho	1	0	0	0	0
5	Illinois	2	2	1	0	0
2	Indiana	2	0	0	0	0
1	Iowa	1	0	0	0	0
2	Kansas	2	0	0	0	0
4	Kentucky	2	2	0	0	0
1	Louisiana	1	0	0	0	0
5	Maine	2	2	1	0	0
2	Maryland	2	0	0	0	0
4	Massachusetts	2	0	2	0	0
6	Michigan	2	2	1	1	0
5	Minnesota	2	1	2	0	0
2	Mississippi	2	0	0	0	0
4	Missouri	1	2	1	0	0
1	Montana	1	0	0	0	0
4	Nebraska	2	2	0	0	0
0	Nevada	0	0	0	0	0
1	New Hampshire	1	0	0	0	0
1	New Jersey	1	0	0	0	0
2	New Mexico	1	0	0	1	0
2	New York	2	0	0	0	0
3	North Carolina	1	2	0	0	0
1	North Dakota	1	0	0	0	0
1	Ohio	0	1	0	0	0
1	Oklahoma	0	1	0	0	0
0	Oregon	0	0	0	0	0
2	Pennsylvania	2	0	0	0	0
2	Rhode Island	0	2	0	0	0
2	South Carolina	1	1	0	0	0
2	South Dakota	1	1	0	0	0
3	Tennessee	1	0	1	1	0
3	Texas	1	2	0	0	0
3	Utah	1	2	0	0	0
1	Vermont	1	0	0	0	0

Table 4.2 cont.

Score	State	A/V	RSS Feeds	Podcasts	Blogs	Participative
6	Virginia	2	2	2	0	0
2	Washington	1	0	0	1	0
0	Washington, DC	0	0	0	0	0
1	West Virginia	1	0	0	0	0
1	Wisconsin	1	0	0	0	0
6	Wyoming	2	2	0	2	0

RSS feeds

Twenty-three sites featured RSS feeds. Eighteen of these sites received doubled points for this criterion. In general, RSS feeds were implemented well. One of the sites that did not receive doubled points did not updated their RSS feeds often. Other problems with the implementation of RSS feeds are worth discussing in detail.

The South Carolina governor's website does not have a link to an RSS feed listed on the site. In version 2.0 of the Firefox Web browser, an orange RSS feed icon appears in the address bar next to any site that features an RSS feed. This icon appears next to the URL of the South Carolina governor's website; see Ill. 4.4. Because the site does not mention the existence of the RSS feed, it did not receive doubled points in this survey.

Ill. 4.4:
The South Carolina governor's site.
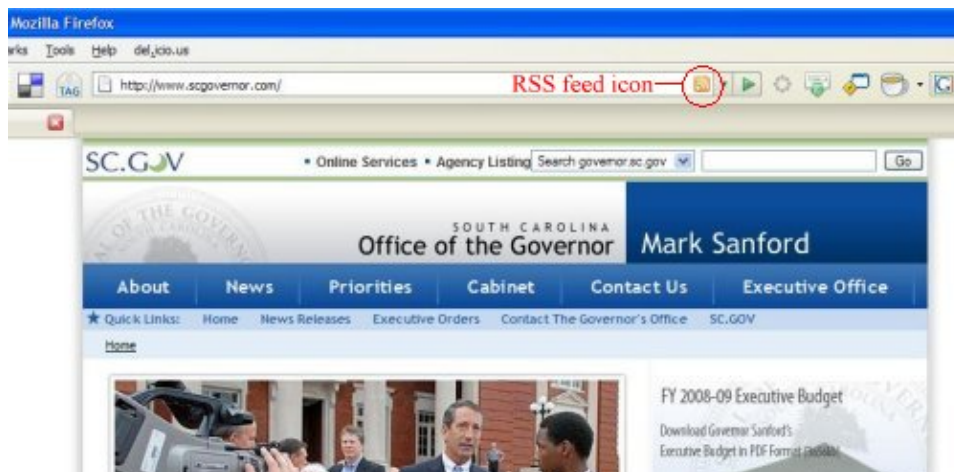
Similarly, the Oklahoma governor's website does not have a link to an RSS feed listed on the site. However, the Oklahoma state government portal does have a link to an RSS feed for the governor's site. Unlike with the South Carolina governor's website, Firefox does not display an RSS icon next to the URL for the Oklahoma governor's site. This site received one point because there is an RSS feed for the governor's site, but it did not receive doubled points because the RSS feed is not promoted on the website.

The Newsroom button on the South Dakota governor's website opens up the South Dakota State News Web site in a frame within the governor's site. The RSS feed link on the State News Web site opens up a page that shows the URL for the RSS feed, which the user has to copy and paste into an aggregator, as can be seen in Ill. 4.5. The South Dakota governor's website did not receive doubled points in this survey because of how inconvenient it is to get to its RSS feed.

The Nevada governor's website has a page of RSS feeds. However, these are not RSS feeds that provide updates about the governor. Instead, they are pages that use RSS feeds from sources such as Nevada's newspapers and the Nevada Supreme Court to

Ill. 4.5:
The South Dakota governor's site.

display Nevada-related headlines. Therefore, this site did not receive any points for the RSS feed criterion.

Podcasts

Twelve governors' websites featured podcasts. Five of these sites received doubled points for this criterion. Five of the podcasts had RSS feeds that could not be loaded in iTunes. Three podcasts were updated infrequently. One site, the Tennessee governor's site, does not promote the podcast, but the feed for it is available on the Tennessee state government portal.

The Florida governor prepares remarks for the weekly podcast on his website. The podcast features both audio and video versions of each address. It would probably be convenient to have one feed for the audio version and one for the video version, rather than grouping both together in one feed. Otherwise, it is nice to see a governor taking the time to provide weekly content for his website.

The podcast on the Massachusetts governor's website features excerpts of speeches given at events around the state each week. Content recorded specifically for the podcast is also periodically included. Overall, it provides a very good look at the governor's weekly work schedule.

Blogs

It was a surprise to find that most governors did not have blogs on their respective websites. Just seven governors' websites featured blogs. Only one of these sites received doubled points for this criterion. Three of the blogs were updated infrequently, while three of the blogs did not have RSS feeds.

The Wyoming governor's website features a blog called the Issues Spotlight Blog, and the title is an excellent description of the content on the blog. The governor uses the blog to highlight issues by publishing correspondence he has sent to agencies, speeches delivered to the legislature, and recaps of events he has attended. It's a very good blog, if even if the content of the posts can be a bit overwhelming.

Another good governor's blog can be found on the California governor's website; see Ill. 4.6. It is usually updated several times a week, and it features both textual posts and video posts.

However, this blog did not receive doubled points for the blog criteria. That is because it is one of the three blogs on governors' websites that did not have an RSS feed.

There is one other problem with the blog: the governor rarely posts to it. This has no bearing on the score, but since April 2006, the governor has only made four

Ill. 4.6:
The blog of the California governor.

appearances on the blog. The content is generally written by government officials and guest bloggers. While there are a number of references to the governor being a man of action in the posts, it would be nice if he were not making a cameo appearance on his own blog.

Two governors' sites with notable advanced content features will be discussed below.

Michigan

The Michigan governor's site has 11 RSS feeds, ranging from alerts about the status of the state flag to updates from the governor's blog. The blog is excellent, although it runs in fits and starts as it is mainly updated when the governor is on tour to promote state jobs-related initiatives.

However, the site is not without its flaws. The main XML feed for the governor's podcast does not work in iTunes. Moreover, each podcast update has its own XML feed. These feeds do work in iTunes, but there is no point in subscribing to them since each feed will only have one update.

Ill. 4.7:
The Michigan governor's website.

While the governor's site could use an upgraded podcast feed, it is still a good example of how a governor can use one's website to use advanced features to reach out to one's constituency.

Virginia

Of the governors' sites that received doubled points for podcasts, the Virginia governor's website is probably the richest in content. The site has three podcasts: one for the governor's radio program, one of key speeches, and one of press conferences and town hall meetings. It would be convenient to have one RSS feed for all three podcasts, but if a user is really interested in hearing the governor speak, one probably would not have a problem subscribing to all three feeds.

The Virginia governor's site is one of the sites reviewed for this study that has set up a YouTube page. Although the governor has been registered with YouTube since September 2006, he has only recently begun adding videos to his page. It's too soon to judge the success of the governor's YouTube page, but hopefully it will become an integral part of his web presence.

Chapter 5: Discussion and Conclusions

It is important to reiterate that this study only evaluates advanced content on state e-government sites. Advanced content is not the only aspect of e-government that can and should be analyzed. Other factors that determine the quality of an e-government site include web design, accessibility for disabled users, ease of use of transactional services, and quality of available information. Further research can be performed to gauge the effectiveness of evaluating those factors in judging the overall quality of e-government sites.

5.1 Comparisons to other studies and statistics

To explain how complicated e-government evaluation is, compare the results of this study with the West (2007) study (p. 12); see table 5.1. The sites that rated in the top five of the West study had high scores in this study's evaluations of state government portals and governors' sites. However, sites ranked sixth through ninth in the West study had low scores in this study.

Moreover, Kansas received a score of 10 in this study for its state government

Table 5.1:
Comparison of study scores to West study rankings.

State	Portals	Governors	West rankings
Delaware	8	4	1
Michigan	6	6	2
Maine	7	5	3
Kentucky	6	4	4
Tennessee	5	3	5
Massachusetts	0	4	6
Maryland	0	2	7
Texas	0	3	8
New Jersey	1	1	9
Utah	6	3	10

portal, the highest score of all the sites reviewed. But the West study ranks Kansas in 36th place. Wyoming offers a similar example: it received scores of five and six for its portal and governors' site respectively, but it ranks 49th in the West study. The West study is analyzing all state e-government sites, rather than just the two types of sites reviewed in this study. While it is tempting to say that using this methodology to analyze additional state e-government sites would bring the results of these two studies closer in line with each other, the scores here for Kansas and Wyoming seem to indicate that this wouldn't be the case. A complete table can be found in Table A.2.1 of Appendix 2.

It was assumed going into this study that the use of high-speed internet would impact the availability of advanced content. This study defines high-speed internet using the OECD (2006) definition of broadband, which is "download speeds equal to or faster than 256 [kbps] (kilobits per second)" (¶ 3). The expectation was that states with wider use of high-speed internet either in the home or at the public library would likely have more advanced content.

Table 5.2 shows both the percentage of households with internet access and the percentage of those households that have broadband. This data comes from the National Telecommunications and Information Administration (2007), and it is important to note that NTIA defines broadband as having download speeds faster than 200 kbps (NTIA, 2008, p. 13).

The table contains a sample of states with high and low scores in this study to see if those scores appear to be influenced by the percentage of households with internet access and with broadband internet access. There are cases of states with low percentages of broadband use having little to no advanced content on their e-government

Table 5.2:
Comparison of study scores to percentages of households with internet access and with broadband.

State	Portals	Governors	Households with internet access	Households with broadband
Alabama	5	4	49.81%	37.39%
Alaska	0	1	73.37%	62.50%
California	8	5	66.07%	56.44%
Kansas	10	2	62.76%	55.21%
New Hampshire	0	1	74.90%	64.93%
Ohio	2	1	58.59%	48.75%
Oregon	2	0	68.18%	57.54%
Washington	7	2	71.56%	58.41%
West Virginia	0	1	49.11%	32.72%
Wyoming	5	6	61.41%	50.39%

sites, such as West Virginia. However, there are also cases where states with lower

percentages of broadband use having quite a bit of advanced content. This includes

Alabama, which features audio and video content on both of the e-government sites

reviewed here. Similarly, some states with high percentages of broadband use have a lot

of advanced content, while others do not. There is no consistent proof that advanced

content is more common on sites for states with higher percentages of households using

broadband. A complete table can be found in Table A.2.2 of Appendix 2.

Public libraries are often places where state residents go to access government

information. Bertot, Jaeger, Langa, and McClure (2006) note, "Public access to the

Internet and computers is transforming public libraries into de facto e-government access

points, for such disparate services as disaster relief, Medicare drug plans, and even

benefits for children and families" (p. 34). Would the availability of high-speed internet

in public libraries affect whether or not advanced content is utilized on state e-

government sites?

Table 5.3:
Comparison of study scores to percentage of public libraries with high-speed internet.

State	Portals	Governors	Public libraries with high-speed internet
Maryland	0	2	94.9%
California	8	5	91.4%
Virginia	6	6	91.4%
Wisconsin	0	1	88.9%
Washington, DC	4	0	88.0%
Missouri	4	4	86.1%
Ohio	2	1	85.9%
Oklahoma	1	1	85.0%
South Carolina	4	2	82.5%
Georgia	6	4	79.4%
Michigan	6	6	78.8%

Table 5.3 shows the 10 states with the highest percentage of public libraries with high-speed internet access. California, Virginia, and Missouri had fairly high scores in this survey and also had some of the largest percentage of public libraries with high-speed internet access. However, Maryland had the highest percentage of public libraries with high-speed internet access, but some of the lowest scores in this study. In addition, Kansas and Alabama, two states with high scores in this study, also had very low percentages of public libraries with high-speed access, with 57.7% and 51.9% respectively.

The percentages in this table were taken from the *Public Libraries and the Internet 2007* report by Bertot, McClure, Thomas, Barton, and McGilvray (2007), and come from adding together the five categories of internet speed that were higher than 256 kbps. A table with the complete list of states, which includes data found in both Bertot et al. (2007) and Bertot, McClure, Jaeger, and Ryan (2006), can be found in Table A.2.3 in Appendix 2.

Table 5.4:
Comparison of study scores to state poverty levels.

State	Portals	Governors	State poverty levels
New Hampshire	0	1	5.5%
Vermont	2	1	7.7%
New Jersey	1	1	7.8%
Minnesota	0	5	8.1%
Connecticut	0	1	8.7%
Texas	0	3	16.3%
New Mexico	0	2	17.4%
Louisiana	5	1	17.6%
Washington, DC	4	0	19.8%
Mississippi	2	2	20.4%

Another possibility is that e-government sites are accessed through the workplace, and further research could be done to see if the availability of broadband in the workplace affects whether or not advanced content is utilized on state e-government sites.

State poverty rates from the Housing and Household Economic Statistics Division (2007) of the U.S. Census Bureau were also reviewed to look for a possible influence on the utilization of advanced content. Table 5.4 shows the five states with the lowest poverty levels and the five states with the highest poverty levels. As with other comparisons performed in this study, there does not appear to be any meaningful connection between poverty rates and the presence of advanced content.

As mentioned in Chapter One, other factors that could impact the presence of advanced content on e-government sites include government initiatives, funding for information technology, and state demographics. The politics and culture of state government may also influence the implementation of advance content. Seifert and McLoughlin (2007) wrote, "The organizational culture of a public agency often can resist dramatic change within a short amount of time" (p. 7). Further research would be needed to determine what affect any and all of these factors have.

Seifert and McLoughlin (2007) also note that the outsourcing of IT operations may impact state e-government strategies (p. 6). How outside companies that handle state e-government Web design influence the implementation of advanced content would be another topic for additional research.

5.2 Limitations

The most important limitation to this study is that only one coder performed all the state e-government site reviews and assigned the scores to the advanced content found on the sites. Replication of this survey by other coders would help verify the results of the review.

The site reviews were conducted without input from residents of the states whose sites were analyzed. Further research could be done on whether or not there is demand for advanced content on state e-government by state residents. Further research could also be performed to determine how useful advanced content is to users not using high-speed internet access to connect to the internet.

This study was also limited by the fact that it studied only state government portals and governors' websites. It did not review websites for lieutenant governors or first spouses, nor state agencies' websites or state legislatures' home pages. These types of e-government sites, particularly the latter two, may be utilizing advanced content in ways that did present themselves by just reviewing the state government portals and governors' website. Further research could be performed to determine if and how these types of sites have implemented advanced content.

5.3 Conclusions

It's important to reiterate that, as with anything on the internet, that state e-government sites are really in a state of permanent beta. Governors' sites are forced to change as frequently as new governors take office. State government portals may not change as frequently, but even they do not have "final" designs. For example, judging from the Internet Archive, the Vermont portal has gone through at least three major redesigns since 1996. As mentioned in Chapter Four, three portals and three governors' sites changed during the course of this study. So, nothing in this study can be considered the last word on the subject of advanced content.

Audio and video content is the most prevalent type of advanced content on state e-government. More governors' sites had audio and video content than state government portals. However, slightly more portals received extra points for quality audio and video content than governors' sites. Many of the governors' sites had audio and video pages that have not been updated in quite awhile or are not updated frequently. Taking advantage of public appearances or weekly radio appearances could be a way for governors to boost the amount of audio and video content on their sites. Meanwhile, portals could accumulate audio and video content from other agencies, which would not only add content to the site, but also promote different aspects of the state government.

RSS feeds were generally well done on both portals and governors sites. Only a handful of sites did not receive extra points for RSS feeds, and the reason usually was that the feeds were not frequently updated.

Only a small number of state e-government sites had podcasts or blogs. It was surprising that more governors sites did not have blogs, as these seem like a good way to

promote initiatives and agenda items. On the other hand, federal government officials have only recently begun to embrace blogging, so it may take more time for governors to start their own blogs.

The few blogs that did not receive additional points either did not update frequently enough or did not have RSS feeds. Meanwhile, podcasts that did not receive additional points often did not have RSS feeds that worked in podcast aggregators. All of these problems should be simple enough problems to fix.

As mentioned previously, most of the participative services found during this survey involved customization, which doesn't lend itself as well to governors' sites as it does to state government portals. Again, social bookmarking services could be an easy way to add more functionality to governors' sites, as well as to state government portals, by giving the user an easy way to save electronic government information.

Advanced content is a really small part of what makes an e-government site successful. However, if it is executed well, it could draw users to a state government portal or to a governor's site. As detailed in Chapter Four, this study found many state e-government sites that are utilizing advanced content in useful, interesting and innovative ways. These sites can be looked to for leadership on implementing advanced content.

Ultimately, this study reveals many areas of potential research into the use of advanced content on e-government sites. While the results from this study raise more questions than provide answers, this study can serve as the foundation for future research into the adoption and implementation of advanced content as a part of the expanding scope of e-government.

Glossary

Advanced content: Types of content developed after the introduction of the World Wide Web and the Mosaic Web browser.

Aggregator: Software that reads and organizes RSS feeds.

Audio content: Recorded sound content available on websites that can either be streamed or downloaded by users.

Blog: A website, often with an RSS feed, that contains regularly updated, date-stamped entries of text, images, and/or audio and video content.

Customization: A feature that allows users to personalize the content on or the layout of a website.

Governor's website: The official website of the governor of a state.

Participative service: An internet-based service or application that allows users to collaborate on and contribute to the creation and development of internet applications and Web services.

Photo gallery: A grouping of digital photographs made available to users on a website page.

Podcast: A file of audio or video content delivered to users using RSS.

Podcast aggregator: A program that uses RSS to automatically download new podcasts to a computer's hard drive.

RSS feed: A method of content delivery using a programming language called XML that allows a user to receive updates to a website automatically to an aggregator instead of checking the site to see if new content is available. Similar XML-based formats include Atom, OPML, and RDF.

Social bookmarking application: A web-based application that allows users to bookmark Web content and organize bookmarks using tags.

Social networking application: A Web-based application that allows users to participate in a virtual community. Users that register for a social network create both a profile and a list of friends who have profiles in the social network.

State government portal: The primary website of a state, which offers services to state residents, businesses, and visitors.

Tags: One-word terms used to categorize and organize information

Video content: Filmed sound and image content available on websites that can either be streamed or downloaded by users.

Wiki: A website that allows its content to be edited by its users.

Appendix One: Outline of Evaluation Criteria

E-government sites received one point for the presence of the following five types of advanced content. Sites received only one point per criterion; multiple types of content within each criterion did not result in multiple points.

- *Audio and video content*

  o Audio files;

  o Video files;

  o Video content on a site's YouTube page;

  o Streaming video webcams;

  o Archives of podcasts that were presented separately from the podcast feed;

  o Links to the aforementioned types of audio and video content on other state government sites, such as the state attorney general's office;

  o Links to the aforementioned types of audio and video content on local content providers, such as public television stations;

  o Links to the aforementioned types of audio and video content on other federal government sites.

- *RSS feeds*

  o RSS feeds on a state e-government site;

  o Links to RSS feeds on other state government sites;

  o Links to RSS feeds on local content providers;

  o Links to RSS feeds on other federal government sites.

- *Podcasts*

  o Podcasts on a state e-government site;

  o RSS feeds that deliver audio or video files;

  o Links to podcasts on other state government sites;

  o Links to podcasts on local content providers;

  o Links to podcasts on other federal government sites.

- *Blogs*

  o Blogs on a state e-government site;

  o Links to blogs on other state government sites;

  o Links to blogs on local content providers;

  o Links to blogs on other federal government sites.

- *Participative services*

  o Buttons that change the theme of a site;

  o Customization services;

  o Links to social bookmarking tools;

  o Other types of Web 2.0 content, if available.

Because sites received points for features that appeared on other state sites, it was possible for both state government portals and governors' sites to separately receive points for the same feature.

Sites *did not* receive points for the following features:

- *Audio and video content*

  o Webcams that refreshed with still photos instead of streaming video;

- *Podcasts*

    o   Audio and video pages marked "Podcasts" but didn't have RSS feeds;

- *Participative services*

    o   Paid subscription services.

Sites that received one point for podcasts did not receive points for audio and video content or for RSS feeds. However, sites that received one point for blogs *did* receive one point for RSS feeds if an RSS feed was present.

Sites received *one additional point* for a criterion under the following circumstances:

- *Audio and video content*

    o   Audio or video pages updated at least once a month during a period of a year;

    o   Streaming video webcams.

- *RSS feeds*

    o   RSS feeds updated at least once a week;

    o   Multiple RSS feeds if the majority of feeds were updated at least once a week.

- *Podcasts*

    o   Podcasts updated at least once a month that could be used in podcast aggregators;

    o   RSS feeds that deliver audio or video files that are updated at least once a month and could be used in podcast aggregators;

- Links to podcasts on other state government sites that are updated at least once a month and could be used in podcast aggregators;

- Links to podcasts on local content providers that are updated at least once a month and could be used in podcast aggregators.

- *Blogs*

  - Blogs that are updated at least once a month;

  - Blogs that have RSS feeds that are updated at least once a month;

  - Links to blogs on other state government sites that are updated at least once a month;

  - Links to blogs on local content providers that are updated at least once a month;

- *Participative services*

  - Customization services that allowed users to extensively customize the site;

  - Links to social bookmarking tools.

Sites *did not* receive an additional point for a criterion under the following circumstances:

- *Audio and video content*

  - A site only featured a couple of audio or video files;

  - An audio or video page was not updated frequently.

- *RSS feeds*

  - RSS feeds were not updated frequently;

  - The majority of feeds on sites with multiple RSS feeds were not frequently;

  - RSS feeds were difficult to subscribe to (e.g. the feeds were not hyperlinked or were not listed on a site but still available and active);

  - RSS feeds were only from federal government sites.

- *Podcasts*

  - Podcasts were updated infrequently;

  - The podcast feed did not work in podcast aggregators;

  - Podcasts were only from federal government sites.

- *Blogs*

  - Blogs were updated infrequently;

  - Blogs did not have an RSS feed;

  - Blogs were only from federal government sites.

- *Participative services*

  - The site just had buttons that changed the theme of a site;

  - Customization services only allowed users to customize one or two parts of a site;

  - Sites the user can register for that do not offer any customization features after the user is logged in.

Appendix Two: Additional tables

Table A.2.1:
Full comparison of study scores to West study rankings.

State	Portals	Governors	West rankings *
Alabama	5	4	45
Alaska	0	1	37
Arizona	0	1	34
Arkansas	8	5	46
California	8	5	12
Colorado	2	1	31
Connecticut	0	1	19
Delaware	8	4	1
Florida	0	4	35
Georgia	6	4	13
Hawaii	3	5	38
Idaho	0	1	40
Illinois	5	5	29
Indiana	0	2	16
Iowa	0	1	32
Kansas	10	2	36
Kentucky	6	4	4
Louisiana	6	1	28
Maine	7	5	3
Maryland	0	2	7
Massachusetts	0	4	6
Michigan	6	6	2
Minnesota	0	5	15
Mississippi	2	2	47
Missouri	4	4	22
Montana	1	1	11
Nebraska	2	4	18
Nevada	0	0	44
New Hampshire	0	1	33
New Jersey	1	1	9
New Mexico	0	2	48
New York	2	2	21
North Carolina	0	3	26
North Dakota	1	1	24
Ohio	2	1	23
Oklahoma	1	1	14
Oregon	2	0	17
Pennsylvania	3	2	20
Rhode Island	5	2	30
South Carolina	4	2	25
South Dakota	5	2	41

Continued on the next page

Table A.2.1 cont.

State	Portals	Governors	West ratings *
Texas	0	3	8
Utah	6	3	10
Vermont	2	1	43
Virginia	6	6	39
Washington	7	2	27
Washington, DC †	4	0	--
West Virginia	0	1	49
Wisconsin	0	1	42
Wyoming	5	6	50

* Data from West (2007, p.12).
† West (2007) does not review Washington, DC e-government sites.

Table A.2.2:
Full comparison of study scores to percentage of households with internet access and with broadband.

State	Portals	Governors	Households with internet access *	Households with broadband *
Alabama	5	4	49.8%	37.39%
Alaska	0	1	73.37%	62.50%
Arizona	0	1	62.46%	53.94%
Arkansas	8	5	51.20%	38.24%
California	8	5	66.07%	56.44%
Colorado	2	1	69.13%	58.04%
Connecticut	0	1	66.32%	59.73%
Delaware	8	4	65.67%	50.37%
Florida	0	4	64.76%	53.18%
Georgia	6	4	61.73%	53.91%
Hawaii	3	5	64.14%	57.57%
Idaho	0	1	57.92%	45.55%
Illinois	5	5	63.00%	51.64%
Indiana	0	2	58.10%	42.30%
Iowa	0	1	62.40%	46.79%
Kansas	10	2	62.76%	55.21%
Kentucky	6	4	54.86%	40.02%
Louisiana	6	1	53.93%	42.91%
Maine	7	5	65.11%	48.41%
Maryland	0	2	66.42%	56.14%
Massachusetts	0	4	66.35%	61.07%
Michigan	6	6	58.54%	45.88%
Minnesota	0	5	66.56%	53.04%
Mississippi	2	2	45.97%	33.22%
Missouri	4	4	56.13%	45.31%

Continued on the next page

Table A.2.2 cont.

State	Portals	Governors	Households with internet access *	Households with broadband *
Montana	1	1	56.86%	40.18%
Nebraska	2	4	63.82%	54.09%
New Hampshire	0	1	74.90%	64.93%
New Jersey	1	1	68.42%	57.11%
New Mexico	0	2	54.75%	43.21%
New York	2	2	61.51%	54.11%
North Carolina	0	3	58.78%	47.11%
North Dakota	1	1	59.30%	48.66%
Ohio	2	1	58.59%	48.75%
Oklahoma	1	1	53.07%	38.75%
Oregon	2	0	68.18%	57.54%
Pennsylvania	3	2	60.08%	47.66%
Rhode Island	5	2	66.09%	59.25%
South Carolina	4	2	54.72%	39.10%
South Dakota	5	2	60.80%	47.46%
Tennessee	5	3	53.51%	41.57%
Texas	0	3	57.31%	47.64%
Utah	6	3	69.47%	59.31%
Vermont	2	1	70.17%	46.76%
Virginia	6	6	68.01%	53.29%
Washington	7	2	71.56%	58.41%
Washington, DC	4	0	58.94%	51.97%
West Virginia	0	1	49.11%	32.72%
Wisconsin	0	1	64.98%	52.57%
Wyoming	5	6	61.41%	50.39%

* Data from National Telecommunications and Information Administration (2007, pp. 2-3) .

Table A.2.3:
Full comparison of study scores to percentage of public libraries with high-speed internet.

State	Portals	Governors	Public libraries with high-speed internet *
Alaska	0	1	47.8%
Arizona	0	1	61.3%
Arkansas	8	5	71.7%
California	8	5	91.4%
Colorado	2	1	72.1% †
Connecticut	0	1	53.4%
Delaware	8	4	63.7%
Florida	0	4	74.3%
Georgia	6	4	79.4%

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Table A.2.3 cont.

State	Portals	Governors	Public libraries with high-speed internet *
Idaho	0	1	75.1%
Illinois	5	5	65.7%
Indiana	0	2	78.0%
Iowa	0	1	44.7%
Kansas	10	2	57.7%
Kentucky	6	4	74.5%
Louisiana	6	1	74.5% †
Maine	7	5	52.3%
Maryland	0	2	94.9%
Massachusetts	0	4	60.9%
Michigan	6	6	78.8%
Minnesota	0	5	67.3% †
Mississippi	2	2	51.5%
Missouri	4	4	86.1%
Montana	1	1	75.0%
Nebraska	2	4	-- ‡
Nevada	0	0	56.9%
New Hampshire	0	1	74.2% †
New Jersey	1	1	73.5%
New Mexico	0	2	64.5%
New York	2	2	70.4%
North Carolina	0	3	78.5%
North Dakota	1	1	50.8%
Ohio	2	1	85.9%
Oklahoma	1	1	85.0%
Oregon	2	0	76.7%
Pennsylvania	3	2	69.9%
Rhode Island	5	2	63.1%
South Carolina	4	2	82.5%
South Dakota	5	2	62.6%
Tennessee	5	3	57.6%
Texas	0	3	73.7%
Utah	6	3	59.2%
Vermont	2	1	45.5%
Virginia	6	6	91.4%
Washington	7	2	-- ‡
Washington, DC	4	0	88.0%
West Virginia	0	1	59.3%
Wisconsin	0	1	88.9%
Wyoming	5	6	64.3%

* Data from Bertot, McClure, Thomas, Barton, and McGilvray (2007, pp. 96-98).
† Data from Bertot, McClure, Jaeger, and Ryan (2006, pp. 76-78)
‡ Data not available for 2006 or 2007.

Table A.2.4:
Full comparison of study scores to state poverty levels.

State	Portals	Governors	State poverty levels *
Alaska	0	1	9.4%
Arizona	0	1	14.8%
Arkansas	8	5	15.8%
California	8	5	12.7%
Colorado	2	1	10.6%
Connecticut	0	1	8.7%
Delaware	8	4	9.3%
Florida	0	4	11.3%
Georgia	6	4	13.5%
Hawaii	3	5	8.9%
Idaho	0	1	9.7%
Illinois	5	5	11.0%
Indiana	0	2	11.6%
Iowa	0	1	10.8%
Kansas	10	2	12.7%
Kentucky	6	4	15.8%
Louisiana	6	1	17.6%
Maine	7	5	11.4%
Maryland	0	2	9.1%
Massachusetts	0	4	11.1%
Michigan	6	6	12.6%
Minnesota	0	5	8.1%
Mississippi	2	2	20.4%
Missouri	4	4	11.5%
Montana	1	1	13.7%
Nebraska	2	4	9.9%
Nevada	0	0	10.1%
New Hampshire	0	1	5.5%
New Jersey	1	1	7.8%
New Mexico	0	2	17.4%
New York	2	2	14.3%
North Carolina	0	3	13.5%
North Dakota	1	1	11.3%
Ohio	2	1	12.2%
Oklahoma	1	1	15.4%
Oregon	2	0	11.9%
Pennsylvania	3	2	11.3%
Rhode Island	5	2	11.3%
South Carolina	4	2	13.1%
South Dakota	5	2	11.3%
Tennessee	5	3	14.9%
Texas	0	3	16.3%
Utah	6	3	9.2%
Vermont	2	1	7.7%

Table A.2.4 cont.

State	Portals	Governors	State poverty levels *
Virginia	6	6	8.9%
Washington	7	2	9.1%
Washington, DC	4	0	19.8%
West Virginia	0	1	15.3%
Wisconsin	0	1	10.2%
Wyoming	5	6	10.3%

* Data from Housing and Household Economic Statistics Division (2007).

Appendix Three: URLs of Sites Reviewed

The following is a list of the sites reviewed for this study. Titles of the sites are taken from the header of the home page. The URLs are the final URLs loaded when accessing the websites. All sites were retrieved 1 May 2008.

Alabama
Alabama.gov: http://www.alabama.gov/portal/index.jsp
Office of Governor Bob Riley: http://governor.alabama.gov/

Alaska
State of Alaska: http://www.state.ak.us/
The Office of Governor Sarah Palin: http://gov.state.ak.us/

Arizona
Arizona @ Your Service: http://az.gov/webapp/portal/
Janet Napolitano – Governor of Arizona: http://www.azgovernor.gov/

Arkansas
Arkansas.gov: http://www.arkansas.gov/
Arkansas Governor Mike Beebe: http://www.governor.arkansas.gov/

California
CA.gov: http://www.ca.gov/
Office of the Governor: http://gov.ca.gov/

Colorado
Colorado.gov: http://www.colorado.gov/
Bill Ritter – Colorado's Governor: http://www.colorado.gov/governor/

Connecticut
CT.gov: http://www.ct.gov/
The Office of Governor M. Jodi Rell: http://www.ct.gov/governorrell/site/default.asp

Delaware
State of Delaware: http://www.delaware.gov/
Governor Ruth Ann Minner: http://governor.delaware.gov/

Florida
MyFlorida.com: http://www.myflorida.com/
Florida Governor Charlie Crist: http://www.flgov.com/

Georgia
Georgia.gov: http://www.georgia.gov/00/home/0,2061,4802,00.html
Governor Sonny Perdue: http://gov.georgia.gov/02/gov/home/0,2218,78006749,00.html

Hawaii
Hawaii.gov: http://www.ehawaii.gov/dakine/index.html
State of Hawai`i Governor Linda Lingle: http://hawaii.gov/gov

Idaho
Idaho: http://www.idaho.gov/
Idaho Governor C.L. "Butch" Otter: http://gov.idaho.gov/index.html

Illinois
Illinois: http://www.illinois.gov/
Rod R. Blagojevich – Governor: http://www.illinois.gov/gov/

Indiana
IN.gov: http://www.in.gov/
Indiana Governor Mitch Daniels: http://www.in.gov/gov/index.htm

Iowa
Iowa: http://www.iowa.gov/state/main/index.html
Governor Chet Culver: http://www.governor.iowa.gov/

Kansas
Kansas.gov: http://www.kansas.gov/index.php
Kansas Office of the Governor: http://www.governor.ks.gov/

Kentucky
Kentucky.gov: http://www.kentucky.gov/
Governor Steve Beshear: http://www.governor.ky.gov/

Louisiana
Louisiana.gov: http://www.louisiana.gov/wps/wcm/connect/Louisiana.gov/Home/
Office of the Governor: http://gov.louisiana.gov/

Maine
Maine.gov: http://www.maine.gov/portal/index.html
Office of the Governor: http://www.maine.gov/governor/baldacci/index.shtml

Maryland
Maryland.gov: http://www.maryland.gov/portal/server.pt?
Office of the Governor: http://www.gov.state.md.us/

Massachusetts
Mass.Gov:
http://www.mass.gov/?pageID=mg2homepage&L=1&L0=Home&sid=massgov2
Governor Deval Patrick:
http://www.mass.gov/?pageID=gov3homepage&L=1&L0=Home&sid=Agov3

Michigan
Michigan.gov: http://www.michigan.gov/
Office of the Governor: http://www.michigan.gov/gov

Minnesota
Minnesota North Star: http://www.state.mn.us/portal/mn/jsp/home.do?agency=NorthStar
Office of the Governor, Tim Pawlenty: http://www.governor.state.mn.us/

Mississippi
Mississippi.gov: http://www.mississippi.gov/
Haley Barbour: http://www.governorbarbour.com/

Missouri
Show-me Missouri: http://www.missouri.gov/
Missouri Governor Matt Blunt: http://gov.missouri.gov/index.htm

Montana
MT.gov: http://mt.gov/default.asp
Governor Brian Schweitzer: http://governor.mt.gov/

Nebraska
Nebraska.gov: http://www.nebraska.gov/index.phtml
From the Office of Governor Dave Heineman: http://www.governor.nebraska.gov/

Nevada
Welcome to Nevada: http://www.nv.gov/
Governor Jim Gibbons: http://gov.state.nv.us/

New Hampshire
NH.gov: http://www.nh.gov/
John Lynch: http://www.nh.gov/governor/

New Jersey
The Official Web Site for the State of New Jersey: http://www.state.nj.us/
Office of the Governor: http://www.state.nj.us/governor/

New Mexico
Welcome to New Mexico: http://www.newmexico.gov/
Bill Richardson: http://www.governor.state.nm.us/index2.php

New York
New York State: http://www.state.ny.us/
www.ny.gov/governor: http://www.ny.gov/governor/

North Carolina
North Carolina: http://www.ncgov.com/
Office of the Governor: http://www.governor.state.nc.us/

North Dakota
North Dakota: http://www.nd.gov/
John Hoeven: http://governor.nd.gov/

Ohio
Ohio.gov: http://ohio.gov/
Office of the Governor: http://www.governor.ohio.gov/

Oklahoma
Oklahoma: http://www.ok.gov/
Governor Brad Henry: http://www.gov.ok.gov/index.php

Oregon
Oregon.gov: http://www.oregon.gov/
Governor Ted Kulongoski: http://governor.oregon.gov/

Pennsylvania
Pennsylvania: http://www.pa.gov/portal/server.pt
Edward G. Rendell: http://www.governor.state.pa.us/portal/server.pt?

Rhode Island
RI.gov: http://www.ri.gov/
Donald L. Carcieri: http://www.governor.ri.gov/

South Carolina
SC.gov: http://sc.gov/
Office of the Governor – Mark Sanford: http://www.scgovernor.com/

South Dakota
South Dakota: http://www.sd.gov/
Governor Mike Rounds: http://www.state.sd.us/governor/

Tennessee
Tennessee.gov: http://www.tennessee.gov/
Phil Bredesen: http://www.tennesseeanytime.org/governor/Welcome.do

Texas
Texas Online: http://www.state.tx.us/
Office of the Governor: http://www.governor.state.tx.us/

Utah
Utah.gov: http://www.utah.gov/
Governor John Huntsman, Jr.: http://www.utah.gov/governor/

Vermont
Vermont: http://vermont.gov/portal/
Vermont Governor Jim Douglas: http://governor.vermont.gov/

Virginia
The Official Web Site of the Commonwealth of Virginia:
http://www.virginia.gov/cmsportal2/
Governor Tim Kaine: http://www.governor.virginia.gov/

Washington
Access Washington: http://access.wa.gov/
Governor Chris Gregoire: http://www.governor.wa.gov/

Washington, DC
District of Columbia: http://www.dc.gov/
Mayor's Home: http://dc.gov/mayor/index.shtm

West Virginia
WV.gov: http://www.wv.gov/
Governor Joe Manchin III: http://www.wvgov.org/

Wisconsin
State of Wisconsin:
http://www.wisconsin.gov/state/home/app?COMMAND=gov.wi.state.cpp.command.
LoadPortalHome
Jim Doyle: http://www.wisgov.state.wi.us/

Wyoming
Wyoming Welcomes You: http://wyoming.gov/
Office of Governor Dace Freudenthal: http://governor.wy.gov/

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