

A Shaky Start for Healthcare.gov

CASE STUDY

The administration of President Barack Obama has made Patient Protection and Affordable Care Act, often called "Obamacare", its chief domestic accomplishment and the centerpiece of Obama's legacy. Essential to Obama's health care reform plan is Healthcare.gov, a health insurance exchange Web site that facilitates the sale of private health insurance plans to U.S. residents, assists people eligible to sign up for Medicaid, and has a separate marketplace for small businesses.

The site allows users to compare prices on health insurance plans in their states, to enroll in a plan they choose, and to find out if they qualify for government health care subsidies. Users must sign up and create their own specific account first, providing some personal information, in order to receive detailed information about available health care plans in their area.

Healthcare.gov was launched on October 1, 2013, as promised, but visitors quickly encountered numerous technical problems. Software that assigned digital identities to enrollees and ensured that they saw only their own personal data was overwhelmed. Customers encountered cryptic error messages and could not log in to create accounts. There was insufficient computing capacity in the Herndon, Virginia, data center housing the system for the site. Many users received quotes that were incorrect because the feature used prices based on just two age groups.

It was estimated that only 1 percent of interested consumers were able to enroll through the site for the first week of operations, and many applications sent to insurers contained erroneous information. Thousands of enrollees for Healthcare.gov—at least one in five at the height of the problems—received inaccurate assignments to Medicaid or to private health plans. Some people were wrongly denied coverage.

Insurers received enrollment files from the federal exchange that were incomplete or inaccurate—as many as one in ten. The information includes who is enrolling and what subsidies they may receive. Some insurers reported being deluged with phone calls from people who believe they have signed up for a particular health plan, only to find that the company has no record of the enrollment. Enrollment problems with insurers persisted into November.

U.S. chief technology officer Todd Park stated on October 6 that Healthcare.gov's glitches were caused by an unexpectedly high volume of users. About 50,000–60,000 had been expected, but the site had to handle 250,000 simultaneous users. Over 8.1 million people visited Healthcare.gov between October 1 and October, 2013.

White House officials later admitted that Healthcare.gov's problems were not just caused by high traffic volume but also by software and system design issues. Stress tests performed by contractors a day before the launch date revealed the site slowed substantially with only 1,100 simultaneous users, far fewer than the 50,000–60,000 that were anticipated. Technical experts found out that the site was riddled with hardware and software defects, amounting to more than 600 items that needed to be fixed.

A major contributor to these problems was the part of the system's design that requires users to create individual accounts before shopping for health insurance. This means that before users can shop for coverage, they must input personal data that are exchanged among separate computer systems built or run by multiple vendors, including CGI Group, developer of healthcare.gov, Quality Software Services, and credit-checker Experian PLC. If any part of this web of systems fails to work properly, users will be blocked from entering the exchange marketplace. A bottleneck had been created where these systems interacted with a software component called Oracle Identity Manager supplied by Oracle Corporation that was embedded in the government's identity-checking system. Quality Software Services had subcontracted with Oracle for this part of the system. This problem might have been averted if the system allowed users to browse plans without first going through the complex registration process.

Problems persisted into the third week of operations, including pull-down menus that only worked intermittently and excruciatingly long wait times. For some weeks in October, the site was down 60 percent of the time.

What happened to Healthcare.gov is another example of IT project management gone awry, which often happens with large technology projects, especially those for the U.S. federal government. There was no single leader overseeing the

Healthcare.gov implementation. The U.S. Centers for Medicare and Medicaid Services (CMS) coordinated the development effort. However, CMS had a siloed management structure, and no single unit was designated to take charge of the entire project.

CMS parceled out the work for building and implementing the Healthcare.gov system to a number of different outside contractors. The front end of the Web site (including the user interface) was developed by the startup Development Seed. The back end (where all the heavy-duty processing of enrollment data and transactions with insurers takes place) was contracted to CGI Federal, a subsidiary of the Canadian multinational CGI Group, which received \$231 million for the project. CGI then subcontracted much of its work to other companies. This is common in large government projects. Functions relating to digital identity authentication were contracted to Experian, the global information services company noted for its credit-checking expertise.

CMS set deadlines for the contractors, who were expected to attend meetings to hammer out the details of the specifications for the Web site. But the computer specialists skipped some of those sessions. Relations between CMS and its primary contractor CGI Federal had deteriorated in the months prior to the Healthcare.gov launch. Contractors for different parts of the system barely communicated with each other.

Some IT experts also criticized CMS's decision to use database software from a company called MarkLogic, which handles data management differently from more mainstream database management systems from companies such as IBM and Oracle. Work proceeded more slowly because so few people were familiar with MarkLogic, and MarkLogic continued to perform below expectations after the Healthcare.gov Web site was launched.

The Web site had not been thoroughly tested before it went live, so a number of software and hardware defects had not been detected. Testing of the system by insurers had been scheduled for July but didn't begin until the third week in September. CMS was responsible for testing the system during the final weeks, not its software developers. Usually software developers handle the portion of the testing for identifying remaining problems before users see the final product.

Fixing the account creation software exposed other problems. As few as 500 users could cripple the system.

Technology experts also faulted Healthcare.gov's developers for trying to go live with all parts of a

large and very complex system all at once. It would have been better to roll out system functions gradually. CGI believed that a full-function Healthcare.gov with all the anticipated bells and whistles was an unrealistic target. Given the time required to complete and test the software, it was impossible to launch a full-function exchange by Oct. 1. But government officials insisted that Oct. 1 was not negotiable and had become impatient with CGI's pattern of excuses for missed deadlines. The Obama administration kept on modifying regulations and policies until the summer of 2013, which meant that contractors had to deal with changing requirements.

The Healthcare.gov enrollment system is very complex. It connects to other federal computer networks, including SSA, IRS, VA, Office of Personnel Management, and the Peace Corps. It has to verify a considerable amount of personal information, including income and immigration status.

Vital components were never secured. There was insufficient access to a data center to prevent the Web site from crashing. No backup system for a Web site crash was created. The interaction between the data center where the information is stored and the system was so poorly configured that it had to be redesigned.

CMS had several warnings between March and July that the project was going off-track, but didn't seek deep White House involvement or change the leadership structure, according to officials, congressional aides and e-mails from the period. An administration report noted that inadequate management oversight and coordination among technical teams prevented real-time decision making and efficient responses to address the issues with the site. The House Energy and Commerce Committee, which had been investigating Healthcare.gov, found no evidence of extensive communication between CMS and the White House even in July, when CMS technology official Henry Chao expressed serious concern about the project.

In March, a White House Web site that tracks the status of major government technology projects labeled the project high risk. Officials attributed the downgrade to a lag in submitting information, and the project's status was upgraded the following month. The consulting firm McKinsey & Co. detailed the project's potential risks in a presentation between March 28 and April 8 to the top CMS official, Marilyn Tavenner, to Health and Human Services Secretary Kathleen Sebelius, and to White House Chief Technology Officer Todd Park.

The McKinsey report anticipated many of the site's pitfalls and urged the administration to name a single project leader to streamline decision-making. It also emphasized the importance of White House support for CMS to meet the Oct. 1 launch date. But according to documents from the period and officials, the White House's minimal involvement in the project's details didn't change after the McKinsey report.

By July, CMS officials were growing alarmed about the project's status, including a shortage of staff to address the ever-mounting list of problems. They brought more personnel on board while bickering with contractors over the distribution of resources. But the depth of the website's difficulties still didn't become apparent until weeks after the Oct. 1 launch.

The White House assembled experts from government and industry who worked frantically to fix the system. The Obama administration appointed contractor Quality Software Services Inc. (QSSI) to coordinate the work involved in fixing the Web site. QSSI had worked earlier on the Web site's back-end. Former deputy director of the Office of Management and Budget Jeffrey Zients was appointed to act as the adviser to CMS. In January 2014, Accenture replaced CGI Group as the Web site's lead contractor.

Work on fixing the Web site continued through October and November 2013, and the Web site appeared to be working more smoothly. For the vast majority of users, Healthcare.gov was working more than 90 percent of the time. Response time (the time required for a Web page to load) was reduced from 8 seconds to less than one. The incidence of error messages preventing people from using the site went from 6 percent down to .75 percent. But on November 13, the Obama administration revealed that less than 27,000 people had signed up for private health insurance using Healthcare.gov. Only 137,000 people had done so by November 30. These enrollment numbers were well below what the government had forecast. Healthcare.gov also forced the Obama administration to delay by one year an online exchange for small business.

A spokeswoman for the Centers for Medicare and Medicaid Services said on Nov. 19 that the government had fixed "two-thirds of the high-priority bugs" that were responsible for inaccuracies in enrollment data. Mr. Chao said the government was still working on "back office systems," including those needed to pay insurance companies.

Reuters reported in mid-October 2013, that the total cost of building Healthcare.gov using contractors had tripled from an initial estimate of \$93.7 million to

about \$292 million. Overall cost for building the Web site reached \$500 million by October 2013.

By early 2014, Healthcare.gov was working much better, but was not problem-free. The Healthcare.gov site went down shortly after midnight March 30, 2014 and remained unusable until about 7:45 a.m. the following morning. It then experienced another problem around noon that same day that prevented new users from creating accounts, while some people who already had accounts were unable to log in. Some of the hundreds of thousands of Americans trying to sign up for health care at the last minute of the enrollment period were unable to do so. Obama administration officials nevertheless remained confident that they would reach their initial target of seven million health insurance signups by the March 31, 2014 deadline.

On July 30, 2014 the U.S. Government Accountability Office (GAO) released a non-partisan study finding that the Healthcare.gov Web site was developed without effective planning or oversight practices. Kathleen Sibelius resigned as Secretary for Health and Human Services on April 10, 2014 and was replaced by Sylvia Mathews Burwell on June 9 of that year.

Sources: Robert Pear, "Health Website Failures Impede Signup Surge as Deadline Nears," *New York Times*, March 31, 2014; Spencer E. Ante and Louis Radnofsky, "New Technical Woes Hobble Health Insurance Sign-Ups at Zero Hour," *Wall Street Journal*, March 31, 2014; "How HealthCare.gov Was Supposed to Work and How It Didn't," *New York Times*, December 2, 2013; Sheryl Gay Stolberg and Michael D. Shear, "Inside the Race to Rescue a Health Care Site, and Obama," *New York Times*, November 30, 2013; Gautham Nagesh, "Health Website Problems Weren't Flagged in Time," *Wall Street Journal*, December 2, 2013; Christopher Weaver and Louise Radnofsky, "Healthcare.gov's Flaws Found, Fixes Eyed," *Wall Street Journal*, October 10, 2013 and "Federal Health Site Stymied by Lack of Direction," *Wall Street Journal*, October 28, 2013; Christopher Weaver, "Errors Continue to Plague Government Health Site," *Wall Street Journal*, December 13, 2013; Jack Gillum and Julie Pace, "Builders of Obama's Health Website Saw Red Flags," *Associated Press*, October 22, 2013; "Fast Recovery for Health Care Web Site," *New York Times*, December 2, 2013; and Eric Lipton, Jan Austen, and Sharon LaFraniere, "Tension and Flaws Before Health Website Crash," *New York Times*, November 22, 2013.

CASE STUDY QUESTIONS

- 14-13** Why was the Healthcare.gov project so important?
- 14-14** Evaluate the key risk factors in this project.
- 14-15** Classify and describe the problems encountered by this project. What management, organization, and technology factors were responsible for these problems?