Healthcare.gov Website Failure:
A Critical Incident Examplar

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EDITORIAL NOTE

This is an exemplar of a "critical incident", a new format for articles in the *Journal of Cases in Information Technology*. The idea of a critical incident is that of a short (3 page maximum), focused case study suitable for use in a single class session. As with any case study, critical incidents can be based on primary research (with permission of the organization being studies) or secondary sources as shown in this example. Critical incident submissions should also include a teaching note with learning outcomes, case questions and answers. Reviewers will consider all of these items, but JCIT will not publish answers. This critical incident was originally published in the *Journal of Critical Incidents* in 2014. JCIT reprints it here by permission of the Society for Case Research (SCR). SCR operates two conferences dedicated to case writing annually. Readers are encouraged to connect with SCR at their website www.sfcr.org.

On Wednesday, October 30, 2013, US news networks focused their attention on a House Energy and Commerce Committee hearing to investigate the failure of Healthcare.gov. The website's failed implementation had become a lightning rod for opponents to the Affordable Care Act (ACA). Under pressure including calls for her resignation, Secretary of Health and Human Services (HHS) Sebelius testified (*PPACA Implementation Failures, 2013)*.

In these early weeks, access to healthcare.gov has been a miserably frustrating experience for way too many Americans, including many who have waited years … for the security of health insurance. I am as frustrated and angry as anyone with the flawed launch of healthcare.gov, so let me say directly to these Americans: You deserve better. I apologize.

In late October of 2013, Chief Information Officers (CIO) throughout the US Federal government wondered what the causes of failure were and how these could have been avoided.

BUILDING HEALTHCARE.GOV

Designed as an online market place, Healthcare.gov allowed users to shop for and compare healthcare policies from private and public providers. Based on income, one may have qualified for premium

subsidies. For a typical customer interaction, the website verified an individual's identity and confirmed their income to calculate a subsidy. The website then presented a list of healthcare options for customers to choose. The Administration forecasted that up to seven million individuals would apply for insurance in the first six months of operation, with 500,000 in October alone. However, by the end of October of 2013 there were few enrollments.

In December 2011, HHS initiated the development of Healthcare.gov by awarding several contacts. This development effort enabled implementation of President Obama's flagship legislative victory, the Affordable Care Act. Accordingly, the website development garnered much attention from both admirers and foes. With only 22 months to develop the system, all eyes were on the October 1, 2013 official rollout date (Lafraniere, 2013).

Advocates heralded the development of Healthcare.gov in the months leading to go live. "Open by design, open by default. That's a huge win for the American people," claimed Alex Howard (2013). The technical approach included iterative development in Github, an open source system that allowed anyone to view program code. However, HHS removed access to the program code in October after open source advocates offered to help fix the beleaguered system (Writer, 2013).

Part of the challenge was "Healthcare.gov is not so much a website as an interface for assessing a collection of databases and information systems" (Foster, 2013). The system had to pull information from disparate but critical data sources. The credit-reporting firm Experian, for example, authenticated users' identity and verified income. The Internal Revenue Service (IRS) taxed non-enrollees. Medicaid and health plan carriers provided available healthcare choices. Each source was essential but simple inconsistencies in data such as with one's address could undermine the process. Creating a real-time health plan selection process produced a high level of underlying complexity (Patient Protection and Affordable Care Act: Status, 2013). In the words of Gallaher (2013) this was "hyper complexity".

The involvement of so many stakeholders accentuated overall project complexity. The entire Healthcare.gov project was under the purview of HHS. Its sub-agency, the Centers for Medicare and Medicaid Services (CMS), provided primary oversight and served as general contractor. Over 55 contractors developed the three major areas of Healthcare.gov. First, CGI Federal and Quality Software Solutions Inc. developed middleware and integrated backend services to connect to insurers. Second, Aquilent and Development Seed developed the front-end user website. Third, HHS contracted Verizon for data center and cloud storage services (Hu, 2013).

Another source of complexity was late arriving project specifications. The legislation authoring the ACA consisted of over 2,400 pages of text. Through regulatory processes these were transformed into over 13,000 pages of regulations. This lengthy process delayed developers in starting their work. Even after HHS provided specifications, they were not frozen. HHS called for changes up to a month prior to the October 1, 2013 release date. As these "rolling changes" occurred, the "go live" date for the system remained unchanged.

Late and changing requirements also had an impact on testing. It was not possible to perform full or even limited testing of the complete system with realistic user loads. Instead, the first real test of the system was on October 1, 2013. Memos leaked to the public from CGI Federal (email communications, September 6, 2013) indicated, "limited testing timeframe" as a major risk. The email stated, "The timeframes for testing … are not adequate to complete full functional, system and integration testing activates". CGI Federal did establish a mitigation strategy, namely Work with CMS to establish a realistic schedule that will allow for the necessary testing. Such mitigation however, was highly unlikely for political reasons.

Critics also singled out the need for stronger program management. For example, there was not a unified system for tracking errors. After hearing of 400 known software bugs, Richard Spires, a well-known government CIO, observed: "Given the number of problems. If politics wasn't an issue, I would have immediately shut it down." (Kash, 2013).

Overall costs for Healthcare.gov were difficult to determine as many cost elements were intertwined with related costs such as the startup of call centers. Initial estimates were $93.7 million

dollars. Reported actual figures in late October varied from $170 to $600 million (Patient Protection and Affordable Care Act: Status, 2013, Kessler, 2013, Hu 2013). By comparison the initial implementation of Facebook.com was a reported $500 million.

LAUNCHING HEALTHCARE.GOV

Unfortunately, users experienced extremely slow response time at launch and many could not sign-up for insurance. The website faced chronic crashes. An early two-day Verizon network outage exacerbated these problems. Throughout the early days of the launch, daily news reports reemphasized the problems users experienced in using the site. Even President Obama attempted to use the system and said on October 30 "There's no denying it. The website is too slow ... and I'm not happy about it." (Neuman, 2013). Beyond embarrassing website failures that all users experienced, Healthcare.gov cast a pale across the overall implementation of the ACA.

CHALLENGE

In late October 2013, government CIOs had to wonder what aspects of Healthcare.gov led to the troubled implementation and how these could have been avoided. Beyond technical issues, CMS had committed numerous "deadly sins" in project management (Gallaher, 2013). Going live on October 1 with a flawed website threatened user confidence and cast doubts on the Act. Failure to go live October 1, however, could also have had the same effect.

HEALTHCARE.GOV WEBSITE FAILURE

Teaching Note

CRITICAL INCIDENT OVERVIEW

This critical incident is a **descriptive** case covering the oft-reported failure of Healthcare.gov website. The incident provides a broad overview of the desired functionality of the site, its construction, testing and its ultimate implementation problems. The failure was caused by a combination of factors including technical complexity, late arriving specifications and poor project management. Although projects typically experience cost and time overruns, the inflexible deadline (October 1) for this

project resulted in a hastily delivered website, one that failed despite running 100-500% over budget (depending on whose estimates one uses). This incident focuses on project management, technical and procurement aspects of the website's failure.

Instructors can use this incident primarily in information system related courses, especially those in information systems management, project management and systems development. Public Administration students may also examine this incident to see the impact of technology implementations on public policy. Students in undergraduate and graduate programs can benefit from this critical incident.

RESEARCH METHODS

The authors wrote this critical incident based on publicly available news reports. Nothing in this critical incident has been disguised.

LEARNING OBJECTIVES (LO)

The learning objectives of this critical incident are for students to:

1. Analyze the factors that lead to complexity and likelihood of failed implementation in large scale Government to Constituent (G2C) system development and acquisition.
2. Synthesize approaches to overcome these factors and increase the likelihood of success.
3. Evaluate system testing approaches for a large scale web-based system.
4. Evaluate project managers' response to testing results and the lessons leaders can learn about system implementation from this incident.

QUESTIONS

1. What factors made Healthcare.gov a complex system to implement? What effect did the complexity of Healthcare.gov have on the likelihood of project success? (L01)
2. Focusing on project organization, requirements and technical aspects, how could these complexities be reduced to increase the likelihood of success? (LO2)
3. Evaluate the system testing approach taken in Healthcare.gov. What improvements would you recommend? (LO3)
4. What should project managers have done upon receiving the CGI Federal memo (p. 2, paragraph 5) identifying implementation risks based on inadequate testing prior to the October 1 rollout? (LO4)

Instructors interested in using this critical incident can contact the authors for suggested answers to these questions.

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Kevin Huggins is a Professor of Computer Science and Data Analytics at Harrisburg University of Science and Technology where he primarily supports the Data Analytics graduate program. A retired military officer, Kevin spent the early part of his career in military intelligence, with extensive experience in Latin America. The remaining part was spent in academia as a faculty member in the Department of Electrical Engineering and Computer Science at the US Military Academy. While there, Kevin served as the Director of Research in Network Science as well as the Director of the Information Technology Program. Additionally, Dr. Huggins was a visiting scientist at the École de Techniques Avancées in Paris, France where he studied parallel algorithms for multi-processor system-on-chip (MPSoC) architectures. His current research interest includes data analytic applications to cybersecurity. Fluent in Spanish and French, Kevin is also interested in international engineering education. While at West Point, he led multiple initiatives to improve the cultural and linguistic abilities of engineering students. Finally, an internationally recognized expert in engineering education assessment and accreditation processes, Kevin is regularly invited for speaking and consulting engagements.