Exponent®

THOUGHT LEADERSHIP

PUBLISHED 3Q 2019

The Importance of Project Management in Timely Software Deployment

September 19, 2019

In 2002, the National Institute of Standards and Technology estimated that software errors cost the U.S. economy an estimated $59.5 billion annually.[1] Since then, multiple studies have shown that large-scale software implementations routinely experience significant budget and schedule overruns. In 2013, the Standish Group, an IT research advisory firm, issued a report documenting that in 2012 as much as 74% of IT software project implementations ran behind schedule.[2] Panorama Consulting found that 54% of enterprise resource planning implementation projects in 2013 were over budget to varying degrees.[3] The dominant reason for budget overruns for software systems was expansion of project scope (17%), while the second dominant reason was unanticipated technical or organizational problems (15%).[4]

The licensed professional electrical and computer engineers in Exponent's Electrical Engineering and Computer Science practice have investigated large-scale enterprise software systems for over ten years. Based on experience, poor project management in the early stages of software construction can contribute to ineffective solutions, development delays, personal injury, and potential litigation.

A number of project management missteps can adversely affect the timing and quality of software deployment. One common issue is a misalignment between customer requirements and system design during the requirements engineering phase of a project. This can occur for a variety of reasons including poor communication, resource overloading, aggressive marketing, and lack of adequate requirements engineering. These factors can lead to a failure of the software to meet the customer's expectations.

Alternatively, the software product may meet a customer's expectations but experience significant installation delays. Common contributors include frequent changes to project scope or customer requirements, establishing unreasonable project timelines, accidents, and inaccurate cost estimates at the project's onset.

Our team at Exponent recently investigated an insurance claim that involved an enterprise-scale software deployment delay. We were asked to determine whether the requested multi-million-dollar claim was reasonable based on the scope of work for the software installation and to evaluate whether a fire that had occurred at the facility had contributed to the deployment delay. To complete this task, we coupled our experience in fire investigation with our experience in project management and electrical and software engineering to identify the software components needed for effective installation.

---

[1] Software Errors Cost U.S. Economy $59.5 Billion Annually. NIST News Report. http://www.abeacha.com/NIST_press_release_bugs_cost.htm

[2] Chaos Manifesto 2013. The Standish Group

[3] See p. 12 of the 2014 ERP Report by Panorama Consulting Solutions

[4] Ibid

The Importance of Project Management in Timely Software Deployment

After performing an in-depth analysis of the project timeline, scope, and work performed, we calculated the cost for the delay to be ~20% of the original multi-million-dollar claim, because our estimate excluded costs that would have been incurred regardless of the incident. We also demonstrated how the delay caused by the fire incident actually provided a benefit to the organization, as it allowed the developers more time to rectify existing gaps in the software system. The matter was quickly settled after our report was delivered.

This project illustrates Exponent's multi-disciplinary approach to problem solving and software failure investigations. Our team includes certified software quality engineers, project management professionals, and subject matter experts in multiple technical areas where software is used as an application. Our experience over decades of failure investigations enables us to determine the root cause of software failure, to elucidate risks based on industry standards, and to provide peer-reviewed, well-supported opinions on the results of each investigation.

Brian D'Andrade, Ph.D., P.E.
Electrical Engineering & Computer Science
Principal Engineer
Bowie
(301) 291-2559 | bdandrade@exponent.com

Exponent Office Locations
Atlanta, Austin, Boston Area (Maynard, Natick), Chicago Area (Downtown Chicago, Warrenville), Denver, Detroit, Houston, Miami, New York, Philadelphia, Phoenix, Northern California Area (Menlo Park, Oakland, Sacramento), Seattle, Southern California Area (Los Angeles, Orange County, Pasadena), Washington DC Area (District of Columbia, Maryland, Virginia)

International Offices:
Basel, Switzerland; Derby, Harrogate and London, UK; Düsseldorf, Germany; Shanghai and Hong Kong, China

www.exponent.com