Cause Mapping is a Root Cause Analysis method that captures basic cause-and-effect relationships supported with evidence.

Software Glitch in Electronic Voting System during Belgium's Federal Election

1 Problem

What
Problem(s)
Delay in announcement of election results, software bug in e-voting system

When
Date
May 25, 2014
E-voting used for election
Belgium
x86 PCs using DOS
Belgian federal elections

Impact to the Goals
Customer Service
Concern over accuracy of election results
Production/ Schedule
Delay in announcement of election results

2 Analysis

Customer Service
Concern over accuracy of election results
Evidence: Concern over the lack of transparency in the system
Evidence: Statement by Belgian government.

Issue counting some votes
Issues with electronic voting software
Evidence: Some votes were missed.

Production/ Schedule
Delay in announcement of election results
Evidence: Concern over the long-term impact of the glitch.

Why?

Effect

Cause

Evidence: Statement by Belgian government.

Software bug
Evidence: The problem was with computers using DOS (Jites software).
Evidence: The Jites system was first generation. There were issues with the software bug.

More than one operating system in use during elections

Cost?

Evidence: The software glitch impacted the older, first generation Jites system computers using DOS operating systems. The Jites system was certified and tested, but the test program should be reevaluated before future elections because it missed a significant software glitch. Another option would be to upgrade the first generation computers before the next election to reduce the risk of future issues by only having one system to test and maintain.

3 Solutions

The final step in the Cause Mapping process is to develop and implement solutions to reduce the risk of a similar problem from occurring in the future. In this example, the glitch was identified and quickly managed short-term and the election was able to proceed, but a long-term approach will be needed before the next elections.

The software glitch impacted the older, first generation Jites system computers using DOS operating systems. The Jites system was certified and tested, but the test program should be reevaluated before future elections because it missed a significant software glitch. Another option would be to upgrade the first generation computers before the next election to reduce the risk of future issues by only having one system to test and maintain.

Belgium held federal elections on May 25, 2014 and used an electronic voting system to collect and count many of the votes. While computing election results, officials realized that some of the votes weren't calculating correctly.

Announcement of the election results was delayed while the problem was addressed, but the bigger problem is that any software hiccups during elections make people question the validity of the vote. Government officials have stated that the problem was quickly addressed and that the impacted votes would not have changed the outcome of the election, but the lack of transparency in the process worries some. In fact, many countries have banned the use of electronic voting because of concern over potential issues and Belgium is one of the only European countries to still use e-voting machines.