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BIG DATA ANALYTICS

Lessons From Romney's ORCA Fail

Robert Plant, Associate Professor, School of Business Administration, University of Miami
11/14/2012
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The Republican Party's political intelligence system was created in a vacuum, and its spectacular failure shows us how not to roll out a big data solution.

At some point, every programmer thinks they are omnipotent -- they don't need to specify something formally, they don't need to use the rules of software engineering -- after, all they are a master of their programming universe. This behavior could be acceptable for a personal game or non-revenue generating solution. But as serious computer scientists know, this is completely unacceptable for mission-critical systems. If you hit the shutdown button in a nuclear power station, it's nice to know it's going to work.

Republican disaster

This is a lesson that the US Republican Party has learned the hard way. Mitt Romney's team created a PI (Political Intelligence) system named ORCA to help them win the election. While not big data in the corporate sense (with data rates of only about 1,200 voter records a minute, it was not even close to high frequency-trading systems), it was certainly intended to be the largest live-streaming data set in political history, with 30,000 poll workers using an App to enter exit poll information and connect to the mother ship of politicos back in Boston. Apart from the App not actually existing -- it was actually a Webpage, as revealed by John Ekdahl in Business Insider -- it appears that the system was not tested in a live environment.

More worryingly, according to Byron York in the Washington Examiner, the system was still "projecting a Romney victory of somewhere between 290 to 300 electoral votes."

Source: Mark Taylor

This very public fiasco has many lessons for the Big Data community.

First, it's important to understand the difference between Verification and Validation. Verification is the process where developers ask the question: "Are we building the right product?" Validation asks the question: "Are we building the product right?" Verification is the actual specification of the system, it does not entail how the system is actually coded and built.

Clearly define the operational requirements

In the environment of big data analytics, the ultimate recipient of the system, the business unit, needs to work hard and long with their technical colleagues to ensure that the developers understand the specification requirements of the end user. Additionally, they need to clearly define the operational requirements, such as latency times, interface requirement, security, and mobility constraints. Business users need to be warned that handing a spec over the wall to the tech team is a very poor idea. Yes,

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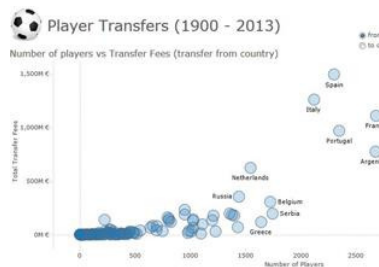
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the tech group will most likely be responsible for any failure, but finger pointing is not a value-added outcome.

Understand that Validation and testing are fundamental to any system. While this appears to be stating the obvious, many users assume their system is correct in its performance capabilities, and that the data set it's based upon is also correct. As an experiment, show a colleague a spreadsheet with numbers that look right, but in fact don't actually add up, and see if they can spot this discrepancy.

For Romney's team, not testing the system with a simulated test set equal or larger to that which was expected on Election Day, and not testing the IT infrastructure of the Boston Garden to function at load are rookie errors. Big data analytics users also shouldn't assume that their system will work at peak load, such as the mega shopping experience that is Thanksgiving's Black Thursday.

Systems need to be tested thoroughly at peak loads, as should the infrastructure to which they are connected. For example: Can the cloud provider handle the peak volume? Should more bandwidth be purchased from a second carrier?

Human intelligence needs to step in
Finally, the fact that the system was predicting a Republican win when it clearly was not going to happen is a strong indicator that the results that systems generate still need to be considered by human intelligence.

The prototyping of the ORCA system at the big event was in itself an error -- they would have benefited significantly from using prototypes at smaller events first (mayoral elections, local races), and fine-tuning the process along the way.

Executives and business users would do well to use the ORCA failure as a warning. Technology can be the answer if carefully developed, but it can lead to your downfall if poorly considered. The USA might have a different president today if a little more care had been taken with this particular big data application.

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— Robert Plant, *Associate Professor, School of Business Administration, University of Miami*

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SharCo, User Rank: Petabyte Pathfinder
11/20/2012 | 8:56:53 AM

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Re: The Good, the Bad, the Ugly data
I agree, it is comical. It's also amusing but in a bad (or is it sad?) kind of way. They basically trudged down a road to disaster that resulted in their eventual embarrassment and humiliation.

I would look at the process they followed and wonder: Why didn't they do testing? Did they find testing irrelevant? Or were they extremely overconfident that they believed they got it right, right off the bat?

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Saul Sherry, User Rank: Blogger
11/18/2012 | 8:01:47 AM

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Re: The Good, the Bad, the Ugly data
I guess it's lucky that so much of the focus instead has gone to Nate Silver, the first true hero of big data. I noticed there is a big interview with him in The Observer (Britain) today, will be interesting to see how far beyond the election this lesson gets picked up on.

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pauls, User Rank: Bit Player
11/16/2012 | 7:18:38 PM

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Re: The Good, the Bad, the Ugly data
I don't think it would have been bad. If he did win it would have more than likely meant they used the data correctly. That would have been a good thing. It's somewhat embarrassing that the process they used to predict was wrong. This type of thing can give big data a little black eye to people who don't really understand it.

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Saul Sherry, User Rank: Blogger
11/16/2012 | 6:07:50 AM

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Re: The Good, the Bad, the Ugly data
Here's hoping such a publicly learned lesson can help those of us with smaller budgets to test in good time. It ties in to governments globally needing to prove (or at least look like) they can use data to drive change... @pauls - do you think it would have been a bad overall sign for the US's ability to leverage big data on a governmental level if he'd got in?

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pauls, User Rank: Bit Player
11/15/2012 | 8:41:17 PM

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Re: The Good, the Bad, the Ugly data
This is kind of comical and I'm not too surprised. Not testing something like this out during the primaries was just not smart. It's not surprising though coming from the Romney camp. He is a bit on the arrogant side and that transcended down to his camp.

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legalcio, User Rank: Exabyte Executive
11/14/2012 | 8:30:39 PM

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Re: The Good, the Bad, the Ugly data
It strikes me that the ORCA prototype had the perfect test environment in the god-awfully long primary season. Every primary was an opportunity to test. Did the Romney campaign do any testing in the primaries? Sometimes the harpoon misses the target.

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mharden, User Rank: Exabyte Executive
11/14/2012 | 12:00:17 PM

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Re: The Good, the Bad, the Ugly data
@Saul - The democrats probably realized that **('Republicans don't get data')** long before election night. I guess they strategicly chose to look at the proverbial pitcher "half-full" and thought that would be enough for the White House".

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mharden, User Rank: Exabyte Executive
11/14/2012 | 11:56:01 AM

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Re: verification and validation
I have to believe with all the money the Romney coalition raised along with the political experts he had at his disposal, they would have hired competent IT managers and developers to not implement something that they didn't test. Here we go again. The old saying "We never have time to get it right, but we always have time to do it over" reigns king again. In this case they will have at least 4 years until they try again. Maybe they can use the mid-term elections in 2 years to test the system then.

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sarapeters, User Rank: Petabyte Pathfinder
11/14/2012 | 11:40:04 AM

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verification and validation
Well said Robert: *"Verification is the process where developers ask the question: "Are we building the right product?" Validation asks the question: "Are we building the product right?""* This logic applies to any product/project, and yet it seems like very few organizations ask both of those questions.

As for ORCA... I suppose it could have been a failure of the system, or if could be that a bunch of swing voters came to their senses at the last minute and decided to vote for Obama. :) Either way I'm relieved that the Romney people were wrong.

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Saul Sherry, User Rank: Blogger
11/14/2012 | 9:32:07 AM

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Re: The Good, the Bad, the Ugly data
Very public too @Anna. If this had happened in the run up to the election you could imagine the Democratic spin machine leaping on a 'Republicans don't get data' slogan.

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