

An Alternative Analysis Framework for Selecting Integrated Public Health Technology Solutions

This month, guest authors Prachi Mehta, DrPh, PMP and Jay Govindan, MBA, PMP, Contractor to CDC write about *An Alternative Analysis Framework for Selecting Integrated Public Health Technology Solutions*. If you would like to volunteer to guest author a future CDC Unified Process Project Management Newsletter please contact the CDC UP at cdcup@cdc.gov.

A critical first step in the Enterprise Performance Life Cycle's (EPLC) Concept phase is conducting a thorough and systematic alternative analysis. This ensures that the chosen solution meets the functional, business, and technical needs of the program while aligning with the Operating Division's goals and objectives. With the emergence of Cloud-based solutions and Services Oriented Architecture, coupled with the Federal Government's strong push to leverage cloud based services, it is even more important to conduct a comprehensive alternatives analysis to objectively assess all available options and identify an optimal solution. At times, programs tend to either skip this step altogether, or conduct it very superficially as a paper exercise. Many factors, including lack of funding, time constraints, lack of a defined approach, prior experiences or opinions, etc. often contribute to this situation.

HHS and CDC Enterprise Framework provide broad guidelines for conducting such an analysis, and they are integrated into the requirements of EPLC and CDC Unified Process. At CDC, no new project can be initiated until potential technological options have been fully assessed for "goodness-of-fit". Although broad guidelines exist, the availability of a sound operational approach for conducting an alternatives analysis can potentially expedite the learning curve while reducing the need for duplicative work. The methodology outlined in this analysis lays the

groundwork for a possible approach on how projects can progress beyond broad guidelines into operational implementation.

This analysis focused on selecting an integrated technological solution to support survey data collection, analysis and reporting for the National Public Health Surveillance and Biosurveillance (NPHSB) Registry for Human Health. The NPHSB Registry is an electronic centralized repository of over 280 CDC based surveillance activities designed to foster collaboration among surveillance experts. The analysis was based on Software Engineering Institute's Commercial off-the-shelf Software Product Evaluation framework:

1. Gather Requirements for Final Integrated Solution,
2. Identify Selection Criteria,
3. Identify Products and Evaluate Against Criteria,
4. Validate Shortlisted Solutions and Select Final Solution.

As part of our assessment thirty products supporting data collection, analysis and reporting/data visualization were identified. A quantitative score was assigned to each product as a function of the weighted characteristic, criteria importance and whether or not the criteria was met as described in the methods section. The products with the ten highest scores were shortlisted.

These ten products, in different permutations translated to eight potential integrated solutions. Next a Strength-Weakness-Opportunities-Threats (SWOT) analysis was conducted to evaluate them qualitatively resulting in the selection of four solutions that were shortlisted for prototyping.

The prototyping phase involved developing a working model of four potential integrated solutions in CDC's Public Health Surveillance and Informatics Technology Program Office (proposed) Research & Development lab. The results of the prototyping



phase were presented to an informatics panel comprised of senior informatics positions at CDC who recommended a final integrated solution. The selected suite of products has already been implemented at CDC at the enterprise level which should ultimately result in cost savings while having the added advantage of being able to leverage the knowledge of subject matter experts.

Several factors contributed to the team's overall success in conducting the analysis:

- Having the availability of PMP certified professional who organized and managed the project team's contributions and a Systems Architect with prior experience in conducting this analysis and familiarity with industry standards
- Flexibility to bring resources in for short-term development and prototype testing
- Access to an informatics expert review panel for vetting, consultation and feedback
- Ability to do prototyping before selecting the final solution and having access to a Research and Development lab where trial versions of the software could be hosted on virtual systems
- Reaching out to existing users who had experience using the shortlisted tools reducing the learning curve and providing valuable insights about product functionality, limitations and use
- Leadership buy-in, dedicated resources for the effort and tying the initiative back to an enterprise wide practice/policy proved to be essential

The templates and framework created for this analysis such as the requirements, SWOT analysis, product scoring, etc. can be tailored by other programs to meet their unique requirements. In addition, the methodology used to arrive at the final solution, is well documented, has proven credibility among informatics peers and leaders.

This analysis demonstrates how an alternatives analysis can be operationalized in a programmatic context. While the NPHSB Registry is CDC-centric, the alternatives analysis framework may potentially be utilized for inter-agency efforts to develop similar cross-cutting solutions.

For more information on An Alternative Analysis Framework for Selecting Integrated Public Health Technology Solutions, the Project Management Community of Practice or the CDC UP please visit the CDC Unified Process website at <http://www.cdc.gov/cdcup/>. ■

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The CDC Unified Process Project Management Newsletter is authored by Daniel Vitek, MBA, PMP and published by the Office of Surveillance, Epidemiology, and Laboratory Services.

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