Modernizing a mosquito district through process discovery and technological innovations.

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ABSTRACT   Alameda County Mosquito Abatement District (ACMAD) has been modernizing its information technology (IT) infrastructure, workflows, and analytical processes over the past 2 years. Our vision is to increase fiscal responsibility, efficiency, and transparency of the District to its employees, the Board of Trustees and the public. We analyzed the current business model and developed solutions to enhance daily operations. Internal systems, policies and processes were systematically inspected for relevance; although many had worked, they were wildly inefficient. ACMAD has changed its operational model from a paper-based cumbersome organization, to a cloud-based, open and distributive environment. We learned through modernization projects that many mosquito districts share similar issues that arise from being small to medium sized government entities. To increase fiscal responsibility, we renegotiated contracts by partnering with larger entities to reduce cost. Upgrading our IT infrastructure gave us the ability to move storage, human resources, mosquito fish management and geodatabase into the cloud. By reducing reliance for hardware on premise, there was less need for IT resources. By adding redundancies to connecting systems we have achieved 5 9's uptime (99.999%). Developing a substantially enhanced geo-database allowed us to empower our employees in the field and laboratory to work collaboratively rather than in siloed departments. Information now flows instantly among support staff, operations and the lab. Requests for service from the public are automatically assigned to technicians in the field with zero wait time. A technician can respond within 5 minutes after the office receives a call for service: that's faster than Amazon. The future will be dependent on the ability to share data internally, and to distribute it to partners worldwide. We are now looking at innovations in satellite imagery, virtualization, unmanned air systems and artificial intelligence as needed tools in the next evolution of the ever-changing landscape of mosquito control.