# Plan to Replace the Current Information Technology System Utilized by the Department of Professional and Occupational Regulation

A REPORT TO THE

Chairmen of the House Appropriations Committee and Senate Finance Committee and Department of Planning and Budget

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## PURPOSE OF REPORT

This report provides a preliminary plan to replace the current information technology (IT) system, including the licensing system, used by the Department of Professional and Occupational Regulation (DPOR).

Pursuant to Chapter 854 of the 2019 Acts of Assembly, Item 119, Paragraph C:

> *At a minimum, the new or improved information technology system should have the capacity to do the following: (i) accept and process applications and payments online; (ii) improve the ease of online renewals; and (iii) integrate licensing data with enforcement case management data. The plan should identify the expected staffing needs during and after the system upgrade or replacement project, how staffing needs will be met, and the cost of the proposed upgrade or project.*

## BACKGROUND

DPOR protects the health, safety, and welfare of the public by licensing qualified individuals and businesses and enforcing standards of professional conduct. The agency issues credentials to more than 300,000 individuals and business entities across approximately 300 license types, based on a combination of education, experience, and examination criteria established by statute and regulation.

DPOR processes about 25,000 new license applications annually and receives approximately 3,500 disciplinary complaints each year. The three information systems used to support the licensing, enforcement, financial and administrative service areas are increasingly outdated and cumbersome for existing staff to maintain. Moreover, the systems require significant investments in new technologies, based on contemporary business processes, to meet customer expectations for efficiency and effectiveness.

### *Licensing System*

DPOR's licensing system, EAGLES (Electronic Access to Government Licensing and Enforcement System), while relatively new[1] has proven difficult for users to learn and remains challenging for internal IT staff to maintain. The agency purchased the code from the vendor when the COTS system was completed, with plans to maintain and enhance the existing solution; however, staffing constraints severely limited post-production support to critical changes necessary to keep the system minimally compliant with statutory and regulatory changes.

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[1] Final release completed in October 2013; see Appendix A for full project timeline.

The EAGLES system is also limited in its scope. Whereas the original system was intended to support DPOR's licensing and enforcement efforts, due to time and cost overages, the enforcement case management component was removed through contract modifications.

### *Enforcement Case Management System*

ETS (Enforcement Tracking System) is a standalone enforcement case management system in use by DPOR since 1997. Developed in now obsolete programming language (PowerBuilder), the application offers few cloud alternatives needed to support the system over the next few years.

Written in-house by DPOR IT staff, the application is heavily customized to meet specific business requirements of complaint intake, investigations, and adjudication functions for disciplinary, unlicensed, recovery fund, and application files. While functionally robust in many ways, including the ability to track accounts receivable for orders and generate correspondence, the underlying technology is outdated and now results in numerous deployment, security, and functionality problems due to its interactions with the Windows operating system.

The lack of integration with the licensing system and other basic desktop applications also requires duplication of effort in terms of user workarounds to create spreadsheets or other data gathering tools.

### *Document Management System*

IRIS (Imaging Retrieval for Information Systems) allows DPOR employees desktop access to scanned images of applications. The document management system offers limited user-controlled configuration options necessary to support new document categories. A more robust system is necessary to allow DPOR to move toward paperless operations and process applications electronically.


## CURRENT STATUS

DPOR leadership initiated two independent reviews of the IT department beginning in the spring of 2019 to assess capacity for the necessary systems transformation. As a result of the audits and with assistance from VITA, the DPOR Director on an interim basis assigned a certified Project Management Professional to lead the IT staff, serve as agency AITR, and assume responsibility for technical aspects of website management, records management, and electronic forms.

Simultaneously, DPOR leadership engaged VCU's Performance Management Group (PMG) to conduct an organizational assessment of DPOR, broader in scope than just IT, as directed by the General Assembly. PMG found that DPOR's current business processes and IT systems led to employees reporting significant work challenges, limited opportunities for quality improvement and integration, and critical risk exposure.

Among other recommendations, PMG suggested an improved focus on documenting business requirements and standardizing processes, which will help promote success of newly developed IT systems, and transferring management of the licensing system infrastructure to the newly structured IT and business development function.

Critical infrastructure demands require immediate attention in order for DPOR to move forward on system transformation. DPOR's server infrastructure is comprised of older servers running end-of-life software that compromised the stability of the licensing system. Server upgrades will be completed in FY 2020 as they are critical to the continued operation of the agency's licensing function.

### System Replacement vs. Upgrade

DPOR's three mission-critical systems (EAGLES, ETS, IRIS) are aging, unsupported, unstable, and inefficient. Significant obstacles make systems upgrade impracticable with the goal of improving services and integrating data.

EAGLES and ETS are structurally incompatible in terms of data models and business rules. For example, the licensing system is designed based on entity and license type, whereas the enforcement case management system is based on the life cycle of complaint cases and orders. EAGLES relies on in-house IT staff to perform all configurations for letters, whereas ETS allows system users to amend templates and generate custom correspondence.

Systems replacement presents challenges and constraints as well, particularly given the complex processing structures of DPOR's multiple regulatory programs. Some license types are issued only to individuals, others to business entities. Some licenses must be related hierarchically to another license type (e.g., real estate salesperson to broker). No single data source is required for information required from applicants or licensees—multiple test vendors, schools, employers provide verification of examination, education, and experience qualifications.

DPOR will always need system users well versed in statutory and regulatory requirements in order to process applications and manage cases correctly, efficiently, and effectively. System logic and configuration rules cannot replace the licensing or intake specialist in this regard, particularly when laws and regulations change or guidance and interpretation must be applied. A major lesson learned from the EAGLES project was the perils of over-customization through system configuration, in lieu of adjusting business processes at the outset.

Rather than meet requirements already in use at DPOR, any IT system replacement requires a full requirements analysis and business process reengineering effort. Most licensing applications take weeks to complete and involve reams of paper documentation; we not only want to give applicants a faster and easier way to apply by submitting online, we want to streamline DPOR's backend processes to reduce paper handling and improve workflow. DPOR must have the

flexibility to make certain customizations, while streamlining as much as possible to take advantage of the agency's centralized structure and the power of a COTS application.

### *System Enhancements*

Throughout the process of working with VITA to develop a project schedule, staffing plan, cost estimate, and comprehensive fit-gap analysis for a specific solution, DPOR must continue to maintain its systems and serve its customers. Examples of efforts to maximize the capabilities of the existing technology while making progress toward new systems development include:

### Quick Pay

Prior to March 2019, licensees who wanted to pay their renewal fee online had to create an Online Services account. Licensees who forgot their password or had other technical difficulties, or whose employers or third-parties paid for their renewals, expressed frustration with the inability to submit renewal payments more easily.

In March 2019, DPOR launched Quick Pay, developed in-house by IT staff as a simplified online way for anyone to pay a licensee's renewal fees without registering an account. Today, unregistered guest payments for renewal fees constitute approximately 40% of all online transactions.

### Digital Credentials

Individual licenses and certificates issued by DPOR are now available in digital format, powered by free online credentialing service, Merit. DPOR partnered with Merit pursuant to Chapter 854 of the 2019 Acts of Assembly, Item 119, Paragraph D, at no cost to the agency or its licensees.

Accepting the digital license from Merit is optional for licensees, who will continue to receive regular mail from DPOR as usual, including the hard-copy license upon renewal.

### AEM Forms

DPOR procured Adobe Experience Manager (AEM) Forms to translate the hundreds of interactive, fillable forms and applications already developed into adaptive forms. Currently, as a result of browser compatibility issues, users often experience difficulty opening interactive PDF documents. Adaptive AEM forms will allow applicants to work with DPOR forms on any device (desktop or mobile) with any browser and, once ECOS-approved, submit electronically without the need for scanning or data entry.

Information Management staff is currently being trained on AEM Forms, which will allow seamless conversion of existing forms and applications. With ECOS approval, this solution will functionally allow DPOR to accept applications online with the existing EAGLES system.

# REPLACEMENT PROJECT PRELIMINARY PLAN

Replacing DPOR's current IT systems is a multi-year effort that begins with gathering and documenting the business requirements and process flows necessary to develop the scope of work. The primarily objective is to replace the three current mission-critical systems with vendor-supplied, cloud-based solutions for functional and technical improvements, leveraging the marketplace for post-production system support rather than relying solely on in-house IT staff resources.

## Estimated Funding Needs

Estimated funding is unknown until a scope of work is developed, although an assumption ranging from $5 million to $10 million during the project does not seem unreasonable based on the EAGLES project alone and recent similar IT projects in other states. Pennsylvania, for instance, in 2018 completed its rollout of a new licensing system (developed primarily in-house) at a cost of $4 million.

Post-production support after the project should not be underestimated, perhaps averaging up to a million dollars annually, to ensure adequate resources are available to mitigate risks associated with unsupported systems and changes to business requirements.

In order to finance the necessary investments, DPOR reserved $22 million as directed by the General Assembly.

## Estimated Staffing Needs

DPOR is utilizing a hybrid approach to meet current IT staffing requirements, with staff augmentation and VITA services for short-term needs, and permanent/long-term systems support handled by 3-4 full-time employees in the IT and Business Development division (which also includes the transfer of IT-related responsibilities for EAGLES and technical aspects of website management, records management, and electronic forms from the licensing division).

In order to initiate the requirements analysis and business process documentation necessary to begin the replacement project, two systems analysts and two business analysts are needed. In addition, a database administrator and at least one, if not two, application engineers are required to work with the current DPOR team and VITA on the scope of work.

# APPENDIX A

## *EAGLES Project Timeline*

In 2000, DPOR embarked on the EAGLES project by gathering requirements and beginning the analysis to conduct an in-house replacement of its legacy licensing system. After the creation of VITA in 2003, DPOR determined instead to pursue a commercial-off-the-shelf (COTS) system.

| DATE | EVENT |
|---|---|
| March 2007 | Issued Request for Proposal  (RFP) |
| August 2007 | Entered into COTS contract with Versa<br>• Price: $1,989,600<br>• Period of Performance: August 20, 2007 to July 31, 2009 |
| October 2007 | Project started by Versa |
| August 2008 | VITA approved request for following changes:<br>• Completion date extended to January 2010<br>• Increase budget<br>• Reduce scope to remove ETS component |
| March 2009 | Go-live of Release 1 regulatory programs:<br>• Board for Architects, Professional Engineers, Land Surveyors, Certified Interior Designers and Landscape Architects<br>• Board for Barbers and Cosmetology<br>• Board for Hearing Aid Specialists and Opticians<br>• Auctioneers Board<br>• Board for Soil Scientists, Wetland Professionals, and Geologists |
| November 2009 | Contract Modification #13<br>• Project re-baselined  (scope of license types expanded from 205 to 305)<br>• Contract separated into two projects<br>• Project 1—licensing, completion date extended to January 2014<br>• Project 2—ETS, to begin after implementation of Project 1<br>• Price increased to $2,939,800 |
| October 2010 | New version of Versa: Regulation released (VR 2.3.0) |
| November 2010 | Contract Modification #17<br>• Schedule adjusted to accelerate completion date to August 2012<br>• Funds reallocated from ETS project to Dual Signature customization<br>• Price increased to $3,289,800 |
| November 2011 | Go-live of Release 2 regulatory programs:<br>• Polygraph Examiners Advisory Board<br>• Board for Waterworks and Wastewater Works and Onsite Sewage System Professionals<br>• Board for Contractors |
| August 2012 | Contract Modification #18<br>• Release 3 separated into 3A and 3B<br>• Completion date extended to December 2013 |

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| **February 2013** | **Go-live of Release 3A regulatory programs:** <br> • Real Estate Board <br> • Fair Housing Board |
| **October 2013** | **Go-live of Release 3B regulatory programs:** <br> • Board for Asbestos, Lead and Home Inspectors <br> • Real Estate Appraiser Board <br> • Board for Waste Management Facility Operators <br> • Cemetery Board |
| **April 2014** | **Final payment to vendor** |