VIRGINIA DEPARTMENT OF EDUCATION

REPORT

Study for Transition to All Electronic Submission of all Information and Forms

OCTOBER 31, 2016

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Executive Summary

This study was commissioned to evaluate capabilities and abilities to transition Virginia Department of Education (VDOE) data collections to E-Submission format. To reach this goal, an understanding of all the processes involved in creating, changing, and managing data collections was required.

Analysis Methodology

To complete this study, we initially reviewed all available information contained within VDOE's website supporting the individual departments and the data collections they manage. We then met with the Education Information Management (EIM) team to understand the technical environment available and the capabilities it provides to the organization as a whole. Through conversation with EIM Data Management Stewards we gained an understanding of the standard process for updating existing and creating new data collections. Finally, we learned how data collections work when using the standard E-Submission capabilities built into the supporting environment.

Next, we facilitated comprehensive interviews with individual VDOE departmental offices to reconcile the published and documented data collections referred to as the 'Calendar of Reports.' Likewise, we identified other referenced unofficial data collections and sought out other mandated data collections that were not identified during our earlier discovery.

The final step was to apply our knowledge of the current environment and create a working definition of what E-Submission means within that context. This definition is the foundation of the rest of the study as it specifically identifies the true end goal of each data collection in transitioning all VDOE data collections to using an only E-Submissions model.

Definition of E-Submission

A standard definition of Electronic Submission, or E-Submission is submitting by electronic means via email, web form, file upload, or an electronic medium such as compact discs, hard disks, memory cards, or USB flash drives. This is a very broad definition that contains submission methods that are not practical when there are 132 school districts providing data at various times during the year to the departments and offices of VDOE. For this study, the definition used was designed to provide the lowest level of human intervention in order to maximize the value of the time of both the school division and VDOE staff.

The use of any external media such as compact discs and drives was not considered as these are not practical ways to collect information when methods exist that can provide the ability to transmit the data in a safe and secure environment using 100% online capabilities. This also prevents any interception of these physical devices.

Email was also removed from the definition as it will still require a significant manual effort to extract the attached data from the email, store it, and then perform an upload.

Additionally, as school system data can involve personally identifiable information (PII) on students and even school staff, email is not a secure enough method of transmitting these types of information.

So for this study, an E-Submission is submitting required data collections through a forms-based tool for data entry or a data file upload tool through VDOE's Single Sign-on for Web Systems (SSWS) access portal. These E-Submissions use automated email notifications for communicating on the progress of a data collection for a school division and where possible, employ digital signatures to reduce both paper consumption and time spent sending, faxing, or digitizing signed physical documents.

Types of E-Submission in Use

Using the above definition, we have identified the following types of E-Submission currently in use by VDOE.

- Data entry forms tools
- Data upload tools
- Spreadsheet upload tools

Legislation in Scope

§ 22.1-17.6. Public elementary and secondary schools and local school divisions; information and forms

B. The Department of Education shall study the transition to electronic submission of all information and forms to the Department of Education by public elementary and secondary schools and local school divisions and submit a report of its findings to the Chairmen of the House Committee on Education and the Senate Committee on Education and Health no later than November 1, 2016.

Findings

At the time of this report, there were fifty (50) E-Submissions currently supported by VDOE and submitted by the school divisions on a regular basis. For the purposes of this report a regular basis is considered any report collected on a planned regular schedule including monthly, quarterly, semi-annual, annual, and bi-annual. These include a broad range of purposes, some of which include tools for funding, full student data, or school division financial information.

At the time of this report, there were eleven (11) known data collections that do not currently use the standard processes supported by EIM. One of these data collections uses a collection process completely external to VDOE. The remaining 10 are email or physical mail submission processes.

There is one additional data collection that uses a vendor package for data collections. This team was the first adopter of technology for data collections and their implementation pre-dated the centralized VDOE IT model. While they are using a vendor product, this product

has been incorporated into the SSWS portal and for the purposes of this study is considered compliant with the standard processes.

When considering transitioning all the remaining data collections to E-Submission, there are four main areas to consider: the supporting environment, the supporting staff, the data collection creation with requisite update process, and the data collection process.

To sustain these data collections, there is a standard submission process for notifying school divisions of a data collection, collecting and reviewing the data, and securing the required signatures. This process is supported by a very robust environment that enables submission, verification, and reporting on the data collections.

A. Supporting Environment

The Virginia Department of Education has built a robust environment to support data collections. This environment has been proactively designed to handle the significant user traffic and data volume while providing an appropriately secured environment for the student data they are responsible for reporting. VDOE currently supports over 8000 unique ID's within SSWS and this number continues to grow.

Given the E-Submission working definition for this study, this section will describe the supporting technical aspects of VDOE's Education Information Management (EIM) team. There are three key technical components: Data entry forms and uploads, automated notifications, and digital signatures.

The first key technical element is providing the data collection tools which contain the data entry forms and upload capabilities required to E-Submit data for data collections. For the staff submitting data, EIM provides SSWS as a single platform to log in to submit all their E-Submission data. Once a user logs into SSWS, they can access all necessary tools to enter or upload their data, subject to their individual security assignment. Each of these tools is customized depending on the needs of the data collection and may provide either a data entry form for directly entering the data or a data file upload capability so that a user can submit a complete set of data, such as the Student Data Collection.

The data provided by the school systems is placed in a staging area where it is checked for correctness against pre-determined edits. Once the data is verified as correct and accepted, it is moved to the Primary Storage Database.

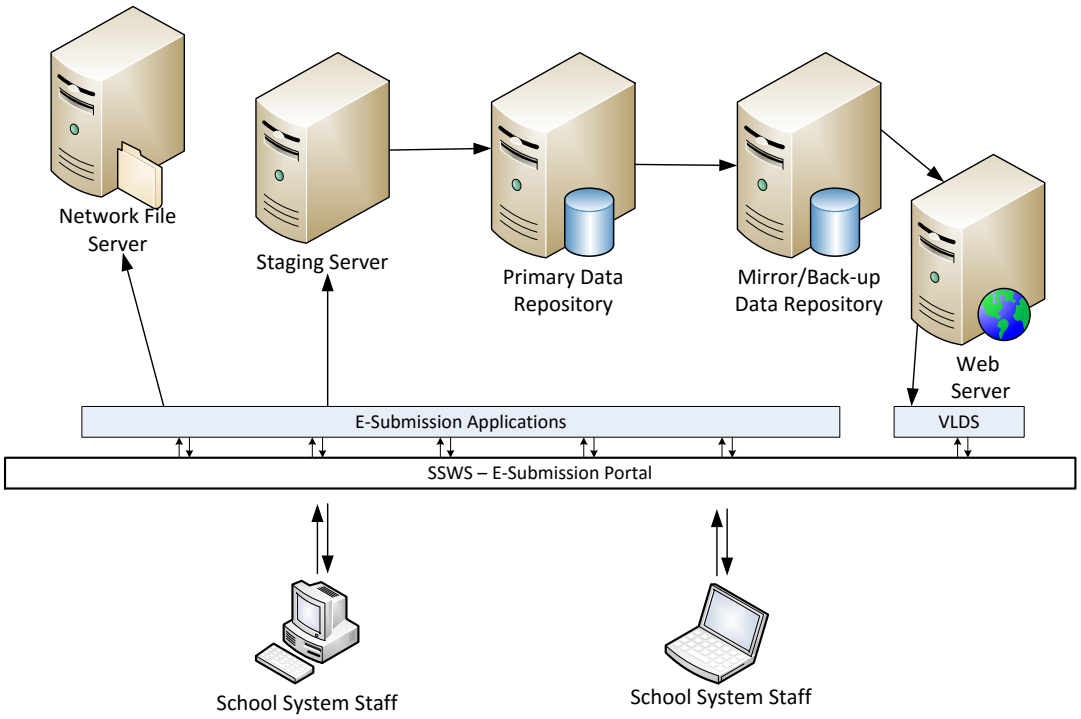
To provide a fail-safe, a separate mirrored environment exists that is a copy of the Primary Storage Database. This mirror can be used as a back-up should the Primary Storage become damaged or otherwise unavailable. Additionally, this mirrored environment is used for reporting and the Virginia Longitudinal Data Study (VLDS) system provides for ad-hoc or on-demand reporting. Using the mirrored environment for reporting keeps that load off the server so that it can perform its primary function to directly support data collections.

Interviews with the IT staff indicated that the current environment is sufficiently sized and capable of handling the current data collection load and can without change, support a significant increase in demand. At the time of the interview, VDOE's IT manager stated the environment could currently support double the volume of data collections without impacting performance.

Additionally, VDOE is in the process of upgrading all their servers as part of a regular infrastructure maintenance strategy. These new servers will provide additional capacity and capability to support any future increases in demand for services.

Figure 1 below provides a very high level view of this environment.

Figure 1 High Level Data Collection Infrastructure



The second key technical component of E-Submission for this study is the ability to provide automatic progress notifications for data collections the school divisions have submitted. This is built into the SSWS accounts for the school division staff who submit each of the data collections. A valid email address is part of the required information for having an account within the SSWS portal system; providing a simple and standard method for automating the communication of a data collection with the key staff members for each school division. These notifications are included in each E-Submission data collection based on the requirements for those individual data collections.

The last key technical component of the E-Submission definition is digital signatures. This technology is receiving increased interest as companies and governments work to reduce their consumption of paper and to retain a permanent electronic record. VDOE has already implemented a digital signature capability within their data collection environment. Up to two digital signatures can be collected on any data collection using digital signature. The Superintendent is one of the required signatures enabled.

The solution is based on the identity of the user connecting through SSWS to sign the data collection. Every account is identified based on the user based job title/role. Superintendents and Assistant Superintendents are identified with their accounts and are generally the school division staff that provide signatures attesting that the data is complete. When a data collection is verified and ready for approval, the identified approvers are electronically notified that their signature is required. They can then connect to SSWS, navigate to the appropriate data collection, and acknowledge on the digital signature form that they are approving the data collection for their respective division. The approver's name and a corresponding date and time are logged and the data collection is closed. The name associated with the user ID is used instead of the user ID as the user ID may change over time and the name positively the person at the time the digital signature is provided.

VDOE's digital signature capability is currently limited to two signatures approving a data collection for completion and a single submitter signature. This may be a limitation where regulations require additional signatories based on the needs of the data collection. Additionally, we found that required signatories will not always be school division employees. In these cases, the person who must sign off on the data collection will not have an account within SSWS and must submit a paper copy.

As with all good design, there is an established process to allow a data collection to become re-opened should an issue arise. The signatures are cleared by this process and the data collection will remain incomplete until the signatures are again received.

Legal acknowledgement is stored within the data collection information. Manual updates or manipulation of the data is prevented by strict security on the servers that contain the data. EIM staff do not have access to manipulate this data under any circumstance.

B. Supporting Staff

On average, the IT staff has an open work log of between 100 and 150 requests in their queue. These requests may include very simple changes and updates, major programmatic revisions to existing data collections, or completely new data collections.

To support these needs, the staff consists of Project Managers, Business Analysts, Designers, and Developers. The current staff has the skills, knowledge, and capabilities to properly document, design, develop, test, and deliver the data collection solutions, but are not able to meet the current level of demand. While meeting with several department offices, they discussed that the product provided by the EIM team is of excellent quality,

but they are too understaffed to meet the current demand for services. In several cases, outside vendors have been engaged to support data collections.

Interviews with the EIM IT staff discussed the topic of staff and their ability to meet a potential doubling in the number of data collections. The consensus was that they are currently unable to meet the demands of maintaining and updating the existing data collections and will not at their current staff levels, be able to manage an increase in workload. The EIM IT staff is focused solely on the technical and support portions of data collections – the tools used to support data collections. They do not manage the collections and do not provide support for any of the reporting needs on the data. They ensure the data is stored and available for reporting in VDOE's repository. Ownership for developing reports belongs to staff supporting the specific departments and offices.

The most significant staffing gap identified by EIM IT was Business Analysts and Designers. The nature of these positions require in-depth knowledge of the workings of the systems and a deep understanding of the businesses the systems support. This makes these positions harder to fill and requires lengthy time for new staff to become fully productive. As well, the prolonged onboarding time period reduces productivity for existing knowledgeable staff while they are mentoring new staff.

While more developers will be required to completely transition to all E-Submissions, the consensus of the EIM IT team was that by building the staff of Business Analysts and Designers, contract staff should be used to augment the development team as contractors may more easily turn quality requirements and designs to functioning tools.

C. Data Collection Creation and Update Process

While the scope of this study does not include VDOE's Software Development Lifecycle (SDLC) in implementing data collections solutions, there are key observations of the process that are noteworthy as they reflect how VDOE approaches data collections and its impact on the school systems. There is the particular and singular consideration of the school systems' time and mission and those values have been a common thread when meeting with every arm of the organization.

Every department articulated some version of the following two questions in discussing their approach to any change or new data collection:

1. Is there a mandate or is this a "nice to have" change?
2. Is this data already collected elsewhere?

If there is not a mandate, the change does not move forward. If the data is already collected, the change does not move forward. VDOE very much understands the impact that data collections have on school systems and do not want to add to that burden unless absolutely necessary.

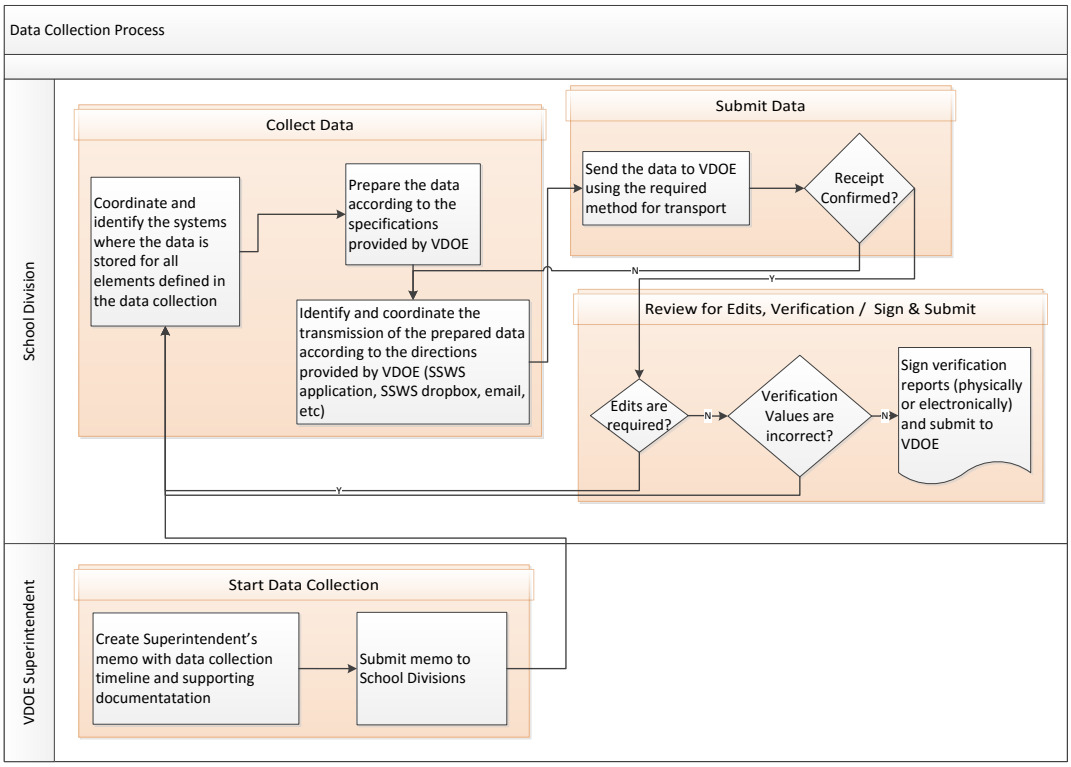
If a change or new collection must move forward, the school divisions become active participants in the design process. Where possible, VDOE works diligently to create solutions that aligns with how the school systems manage their own data.

D. Data Collection Submission Process

Every data collection using the standard E-Submission capabilities also follows the same general submission process. **Figure 2** provides a high level view of the process involved.

1. Superintendent issues memo starting the data collection and providing directions on how to proceed.
2. School divisions produce the required data in the requested format.
3. School divisions use the data collection tools within SSWS to submit the data.
4. The acceptance is acknowledged and edited for any issues.
5. School division are notified of any required corrections.
6. Once a data collection is complete and ready for acceptance, signoffs from the required parties (usually at least the Superintendent of the school system) are provided.
7. The data collection is closed.

Figure 2 High Level Data Collection Submission Process



E. Data Collection "Silos"

Data collections can be broad or targeted in scope. The Student Record Collection and the Master Schedule Collection are two very broad data collections. The data from these collections is available to and used by nearly all of the departments within VDOE. It

serves as their source of data for reporting, or as a key part in assembling their source data in combination with the other data collections these departments collect. These two collections are widely known and very familiar to all VDOE staff. The targeted scope collections tend to be more department-specific and the knowledge of those collections also tends to remain contained within those departments.

This creates the concept of a Data Collection "Silo," where only staff within a department understands how to use and report on the data they collect. From the Data Collection Creation and Update Process section above, we know that VDOE's staff is very conscientious on their impact on the school systems, so when a department finds the data they need is available from another department's data collection, they will want to access that data, but will likely not have the knowledge to use and report on the data as it exists. This then requires involving the department that is the owner, or steward, of the data collection.

We found during our interviews that, as with EIM, the staff used for managing the data collections is already heavily utilized within their own departments and find it difficult to offer support and assistance to other departments needing help in interpreting and reporting on that same data. Additionally, some departments have only one resource managing the more technical aspects of their data collections. Departments requesting the data have to manage as best as they can to acquire the knowledge they need to properly report on the data. This issue only compounds when a new data need is ad-hoc or time-critical and the window of time does not allow for in-depth research.

F. Grant Applications

Imbedded in the data collection tools, by way of SSWS connection is a grants tool used by a number of different VDOE departments to collect grant applications from school divisions. Our research found that for the majority of grant applications, this system performs very well. There are a few applications that have additional requirements that are not supported and these grant applications remain paper or email based collections.

G. Excel Spreadsheet Data Collections

While Excel spreadsheet data collections do meet the standard of a data file upload, they present a different set of challenges. A standard file upload usually consists of a data file that has been generated by a school division's Student Information System (SIS). These files can be produced by their system and then uploaded using the appropriate data collection tool within SSWS.

Excel Spreadsheets are not stored in a format that be processed row by row as with the above mentioned data files. Additionally, these spreadsheets were often found to contain very complex capabilities including data entry forms, complex calculations, imports of data, and other functionality that require specialized skills in developing and maintaining Excel macros.

When the Excel tool must be upgraded, these spreadsheets must be heavily tested to confirm they will still function as designed. School Divisions must also be sure to keep their own licenses up to the same minimum VDOE uses for these spreadsheets.

H. Cultural Resistance

Through our interviews, we found that there was very little cultural resistance to using E-Submission. What we did encounter was concentrated to some data collections that do not have submissions from all school divisions and instead have a set of criteria schools must match for them to collect the information. While not collected through SSWS, the submissions are received by email and manually reviewed and saved. We also uncovered that while some departments have adopted the digital signature solution, others have not. We had reasons varying from the department wanted paper signatures to the signature requirements were too complex to work with the existing digital signature solution provided by EIM.

Recommendations

VDOE is positively positioned to support transition to full E-Submissions for data collections. They have planned for and invested in their infrastructure, and with the current server upgrade should easily handle a significant increase in data and user traffic without volume or processing issues. Through EIM's organizational strategic planning, a significant risk has been mitigated for this type of an effort. Were this not the case, a significant investment in manpower and computer hardware would likely have been required along with a lengthy and high-risk redesign and re-development of the entire data collection environment.

There are six areas where VDOE may make changes to fully transition to E-Submission of data collections: Support Staff, Data Collection "Silos," Excel Spreadsheets, Digital Signatures, Grant Applications, and Cultural Resistance.

A. Support Staff

As noted in the findings, EIM IT is currently understaffed for Business Analysts and Designers. Departmental interviews consistently reveal the existing staff produces quality work, however, there were specific instances that were identified by departments when their requests could not be handled by EIM IT for backlog reasons, or their opinion was "it is faster and easier" to work through a vendor. Given all available source information, there is insufficient staff to meet the current IT workload demand and it would be unable to successfully increase that workload with additional data collections.

As with any staff increase, the impact on existing staff must be considered since existing staff must provide training and mentoring as the new staff learns local processes, standards, and departmental business practices associated with data collections. Short term productivity decreases are expected as staff is hired over time; while anticipated long term expectations are additional quality as staff headcount rises with a corresponding increase in overall productivity.

B. Digital Signature

VDOE has already implemented a robust solution for data collection digital signatures, and using digital signature is the standard for new data collections. The existing solution meets the functional requirements for the majority of the existing data collections, yet the adoption rate is very low. The greatest hindrance to adoption is not the technology solution itself, but the perception of the technology by the those involved with the data collections – though as consumers we routinely use credit/debit cards and pin numbers as electronic signatures, as well as actual signatures on digital pads. This is an opportunity for topical training.

The number and title of people required to approve a data collection is at times driven by the mandate itself. At other times, the data required for a data collection comes from multiple places within school divisions, meaning responsibilities are spread across multiple people and in turn, those responsible parties must sign off on portions because they do not or cannot delegate that authority and accountability. An evaluation is needed to identify what data collections require more than two signatures to fully understand the requirements. The results of that evaluation will determine if additional signatures are cultural in nature or governed by business or mandated drivers.

We uncovered at least one case where a signature is required from the School Board President. As this role is not an employee of the school system, they are not eligible for an SSWS account and cannot provide a digital signature using the current design. There are options available to enable these individuals to provide digital signatures that will neither compromise VDOE's environment security, nor require VDOE to provide accounts for School Board members. An evaluation is required to assess how many data collections are impacted by this condition. If the number is negligible, this option may not be feasible to pursue unless it becomes mandated that all signatures are digital.

C. Data Collection "Silos"

Staff level or knowledge sharing issues are often the hardest obstacles for organizations to overcome. By their nature, both of these issues take staff away from accomplishing tasks to provide support and/or mentoring. The long-term benefits do justify the effort, but the short-term costs often make organizations reconsider or even remain with the status-quo. This risk is compounded when taking into account that mission-critical knowledge for data collections kept within a single person within a department represents a single point-of-failure within an organization that can be crippling should this staff member leave their position.

VDOE has a decentralized approach to managing their data collections and this is very beneficial for keeping in-depth business knowledge within the technical staff supporting the business. This does introduce the possibility of a single person supporting a department because there is not a workload justification for more than one person, which makes it harder to provide back-up resources. If the supporting staff is centralized, cross-training will become easier, but the departments may find their day-to-day support

changing and possibly more difficult to receive as staff will now need to be managed across departments instead of imbedded within the department.

Other organizations have made use of "Ad-hoc Reporting Teams" as an approach to handling these types of requests. This approach provides a small staff able to respond to any reporting or inquiry need across the entire organization while the regular support staff continue to provide the day-to-day support the departments need. Staffing a team like this would require resources that can gain an in-depth knowledge across all the data collections so that they can respond to any and all requests. Creating an "ad-hoc" reporting team would provide help for departments needing to access data from other departments but would do little to mitigate the risk of having a single staff member supporting an entire department.

An evaluation is needed to review the workload demands on the technical staff within the departments supporting data collections. This study would identify staff in single point-of-failure roles and also quantify the ad-hoc reporting needs of each department.

D. Grant Applications

Overall, the tool in place to accept and process grant applications meets the needs of most grant applications. During the interview process, several grant applications were discovered which could not use this tool due to some limitations within the grant system. School divisions currently submit grants both electronically and in paper form and must manage two different methods for submitting the same type of application. Having a single method for all similar submissions will simplify the grant process for the school divisions and remove several email submitted items. An evaluation is required to review the remaining manually submitted grant applications to fully understand what is needed to include them in the grant E-Submission system.

E. Excel Spreadsheet Data Collections

While the Excel Spreadsheet format does work, it carries more risk than the entry forms or traditional file upload processes currently used by VDOE. The major risk is these spreadsheets are dependent on a vendor who has in the past modified their tool so that changes were required to any spreadsheets using the macros like the ones currently in use at VDOE. At a minimum, any time a new version of Excel is released, every spreadsheet must be tested to confirm it functions properly within that version. VDOE does not control what software versions the school systems support and this creates complexity for maintaining compatibility across multiple versions of Excel. By migrating away from this approach, data collections will not be tethered to an external vendor's tool, whereby their changes can introduce unanticipated issues into data collections.

Development in Excel also requires a particular skillset that is not always easily retained in-house. Currently, this skillset is managed outside of the EIM IT staff within the departments using the Excel spreadsheets for their data collections. There is inherent risk in this model from a resource and support perspective. Without documented business

logic and knowledgeable resources to utilize the data collection spreadsheets, the Department will be at unsupported risk.

Changing these data collections will require significant effort and will be a high-risk project. However, the long-term risk for these data collections can be reduced considerably if they are migrated away from Excel, as these data collections will no longer be at risk for problems related to vendor product change. Remaining with Excel will continue to be a long-term medium to medium-high risk. We found during interviews that at least one data collection made this migration without issue.

F. Cultural Resistance

Cultural resistance is a common thread in the world of IT and in organizations as a whole. Resistance is often a reaction to changes when team members do not feel involved, but are subject to the change. Team members are also resistant when they are concerned about their job evolution through change; oftentimes they are most anxious that their perceived value may be altered or removed.

We discovered that while most departments have moved to E-Submissions for virtually every data collection, others continue to work with paper applications, email submitted documents, and other manually intensive processes. In some cases, groups we met worked in this manner for quite some time and the level of control and "hands on" contact was important to them. However, there were no technical or functional impediments identified in our data collections review that would prevent transition to an automated process.

In other cases, the items that were not yet automated were less frequently used, submitted by a subset of school systems, or were so limited in scale that automation may not be worth the relative effort to the department. We also learned that departments reserved their outreach to EIM for more significant work since they were aware of the staff limitations on the EIM team.

Our interviews uncovered that fully migrating to digital signatures might present another cultural challenge in migrating to all automated E-Submissions. While there has been some adoption and all new data collections are expected to use digital signatures, in some cases interviews revealed that paper signatures are preferable, or the number of signatures currently collected on some data collections are more than the two allowed in the current digital signature solution.

In these scenarios a team centered approach to define, develop, and implement changes to the data collection or digital signature process will strengthen buy-in and acceptance. The teamwork must be genuine, seeking the true anxiety about migrating work to a complete digital solution. Coordinating with department leadership to provide guidance on how staff will adjust to re-focus the time that was spent on manual tasks into making their programs easier to support will help alleviate concerns about the value in the new daily tasks and associated processes.

Conclusion

VDOE has built a robust environment and set of processes to continue to support the existing E-Submission data collections and expand to incorporate the remaining data collections that are not already E-Submissions. The current server migration effort demonstrates that they have a strategy to keep the environment up to date and are fully capable of meeting their needs into the future.

VDOE has challenges to address, but none are insurmountable. The most significant are the resource needs within EIM IT and within the departments where staff does not have an identified back-up for critical work.

Without additional Business Analysts and Designers, EIM will be unable to sustain an increase in the number of data collections they can build or support. This is a limiting factor to further E-Submission adoption and will not change until additional high quality staff is added to support the existing workload and the additional data collections that would migrate to E-Submission. Addressing this need will make all the others possible.

With additional resources, VDOE can manage the remaining issues over time. The following list recommends the relative order for addressing this report's findings, so that greater benefits are realized sooner.

Item	Supporting Reason
Digital Signature study	The selected solution is robust enough to support migrating the remaining data collections. Addressing this in coordination with the departments across VDOE will also begin addressing the cultural resistance around adopting digital signatures.
Grant application study	The Grant Application will be able to support adding all the grants not currently handled by E-Submission and will ease the transition.
Excel Spreadsheet data collections	This effort will require a significant amount of time and dedicated resources to complete. While this recommendation covers a very small subset of data collections, these data collections represent the majority of risk in the current list of E-Submission data collections.
Cultural resistance to changing manual processes	Managing this will take time, careful planning, and leadership support from the departments affected by migrating their data collections to E-Submission.
Data collection "Silos"	As the number of E-Submission data collections increases, VDOE will need to modify their staffing model to eliminate the single point-of-failure positions and provide cross-over training to support greater access to reporting data.

Appendix A – Notes

Q: Can you confirm the mapping of applications to reports?
A: EIM is not responsible for anything beyond data collection tool creation. This includes support of the tool, but not creating reports.

Q: The departments and offices listed on the data collections do not always match up with the corresponding report on the Calendar of Reports. Could you provide reasons for these differences?
A: EIM is not responsible for tracking that information. System owners are responsible for maintaining that information.

Q: The Calendar of Reports does not consistently match the reports listed on the various data collection pages. Should these remain in sync? Is there a process in place for maintaining these two entities?
A: EIM is not responsible for maintaining that information. System owners are responsible for maintaining that information.

Q: Could you provide a brief description of the overall system architecture supporting the data collection and reporting processes?
A: VDOE maintains a standard Development/Testing/Production configuration to support data collection tool creation and maintenance. Production consists of two clustered application servers with two Oracle rack database servers. The Testing environment mirrors the Production environment.

The Production environment is supported by a mirrored server that can be used for recovery efforts or as an actual replacement for the Production server if required. This mirror is supported by separate hardware. This same mirror also serves as a duplicate environment for Testing.

When data is uploaded or entered on forms, it is placed in a staging environment. Once the data is acceptable, it is moved from staging to the standard VDOE repository database. The mirror is populated based on the updates to the repository database. In some cases, the uploaded file is saved on a network drive, but that is more of an exception than a normal process.

Teacher licensing is using their own servers. There are additional servers running Oracle Financials.

The Mirror server is used to support the VA Longitudinal Data Study (VLDS) reporting system. VLDS is a reporting environment that provides access to aggregated data. Detailed data is not available.

Q: Could you describe the process for uploads through the portal from upload through staging and through completion? When are edits applied? Is there a workflow or other automated process? Are there reports based on the uploads?

A: Depending upon the type of file, it is either processed into staging or is first stored on a network drive. Excel documents must first have additional processing to convert the spreadsheet data into a format that can upload into staging.

Edits are performed against the data based on the requirements of the specific data collection. Edits range from warnings to hard edits that have to get corrected. Warnings can be accepted as-is. Some data collections allow accepting the upload with the warnings while others require manually accepting the warnings.

Notifications are sent to the email address on file for the submitter of uploaded file.

Depending on the data collection, the digital signature process is followed or a manual signature process is followed. In either case the signature is required to close out the data collection.

The process is managed by the application that is used for the data collection. They follow a fairly standard process.

Reports are produced on the data collections to assist the school divisions in verifying their data is correct.

Q: Could you describe the process for forms entry interfaces from entry through possibly staging to completion? When are edits applied? Is there a workflow or other automated process? Are there reports based on the entered data?

A: Forms follow the same basic process as uploads. Edits can be applied directly to the form, but then the data is moved to staging and the same approval process applies as well as the same notifications and reports.

Q: Could you describe the process for uploads of the Excel-based financial uploads through the portal from upload through staging and through completion? When are edits applied? Is there a workflow or other automated process? Are there reports based on the upload?

A: This topic was covered as part of the standard file upload. Excel-based uploads are also detailed in that response.

Q: Are notifications used to communicate with school systems during the upload/forms reporting processes?

A: These are included in the process. Automatic emails are generated for failed uploads, passed uploads with errors, warning messages or successful uploads. For security reasons, the details are not included in the emails and they person notified must log into SSWS to get the details. The process is as effective it can be considering the contact points are all external to VDOE.

Q: How are digital signatures used on the data collections that allow them? What difficulties exist for expanding that ability across other data collections?

A: This is currently in use on VPI, SEGM, SPED Indictors, VPSARP, EISTCP, and Omega. The signature is based on the ID that was used to connect to SSWS. The ID has to match the ID required to sign for the particular data collection. This is generally the

Superintendent and an Assistant Superintendent. Double approvals are what is standard for a full data collection. The submitter signature is captured at submission. The name is used instead of the ID along with a timestamp to signify a digital signature. If a data collection must be reset and started over, signatures stored are cleared and the process must start over from the very beginning.

Digital signatures are only added when requested. EIM is not pushing to have it adopted.

Q: Is there any functionality available for VDOE staff to be able to view and generate ad-hoc reports on the collected data?

A: VLDS is the ad-hoc reporting environment and is part of the mirrored production server. Only aggregated data is available access is based on user id's.

Q: Discuss the development process from ideation to implementation. We want just a high-level overview to understand the level of effort for both new data collections and changes to existing data collections.

A: The data stewards are the trigger for any changes or new data collections. A service request is sent to EIM and meetings are held with the requesting team. The first thing confirmed is the data is not available already. Then there are meetings, requirements, and design sessions. A standard development process is followed. If the schools are involved, that is done by the data stewards.

Q: Will there be a significant strain on your organization if the number of data collections needs to double?

A: The infrastructure is ready to handle that load. Server upgrades are also in process. The current staff is not sufficient. With 100 to 150 ongoing projects, the staff is already over-taxed. The gap is with Business Analysts and Designers. Developers can be added on contract as good requirements and designs can handled by contract staff.

Q: Is this office involved with creating and implementing training for any of the data collection efforts?

A: Data stewards are responsible for user training and documentation.