

Freedom and Unity: Tackling Data Challenges Together

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Every day, schools, districts, and states generate, consume and rely on data and data systems for their operations. From enrollment to attendance, to knowing who's teaching what course, our education system needs IT and data infrastructure to perform its important work. Sure, both State Education Agencies (SEAs) and Local Education Agencies (LEAs) are obligated by state and federal laws to collect, manage, protect and report certain data. But we also need these data to make decisions, set budgets and run the critical functions of our organizations.

In today's environment of rapid technological change, reduced student counts and increasing costs, data are crucial to identifying challenges, visualizing opportunities and implementing solutions. This means our education system doesn't just need data to survive, it needs data to thrive.

To know what we're doing well and where we can grow, we first need to know what's happening. Data help us explore that. They're our best approximation of the world around us. We can collect and examine them to try to know and understand our conditions through the scientific method. They are important because it's extremely hard to make progress on our long-term goals if we don't have a means to measure what and how well we're doing right now.

But, ask yourself, do any of the following apply to you?

- Are your IT and data systems old and hard to use?
- Are your systems held together by people with special knowledge that isn't shared with others?
- Do you have lots of different ways data come into your organization, but those data don't live together in an easy-to-access, shared, intuitive tool?
- Do your systems make completing basic reporting requirements burdensome and so time consuming that putting data together to explore interesting questions is extremely difficult?

If you answered yes to any of the questions above, I hear you and share your pain.

The silver lining is that Vermont is grappling with these challenges in good company with other education agencies, branches of government and private sector organizations across the nation and the globe.

It's hard, complicated, unsung work and the stakes are high. For those exact reasons, it's important that we do it.

I used the term "infrastructure" to describe data and IT systems because that's exactly what they are. Just like the roads and bridges surrounding and connecting your home to your community and to the rest of our state, when your data systems are well-designed and

maintained you don't tend to notice them, even though you benefit a lot from what they do for you each day.

On balance, infrastructure isn't something that organizations regularly focus on, though, unless there's something very wrong with those systems that's apparent and frustrating to everyone. But, even then, it's not a given that resources will be deployed to address those challenges quickly.

If we want to be data-driven organizations, if we want to have the information we need on hand when we must take important decisions, if we want to be able to leverage data to support improved outcomes for kids, then it's time to deploy those resources. It's time to pay attention to data infrastructure.

We at the Vermont Agency of Education (AOE) know we have a lot to improve on. Our current internal structures and tools for managing and using data are not up to the challenges of today, much less to the demands of being leveraged for the future.

We also know we need to partner with Local Education Agency (LEA) staff to make our efforts successful as a state. While improvements at AOE will certainly streamline data management and use capabilities, SU/SD staff engagement is essential to the overall success of this transformation.

Improvement at the state level alone will not yield the sort of paradigm shift we need to create strong, resilient and responsive education data infrastructure. In Vermont, we've chosen to operate in a federated manner. Now, we need to unite that Federation to make this crucial effort.

This work is going to require some culture change, both at the AOE and in the greater #VTed field. It's going to require us to have the courage to look at what it actually takes to do this work well, to make a plan to do it and then marshal our discipline to follow through.

We'll have to take a hard look at our collective statewide resources and be strategic about how we deploy updates and solutions. It's going to require us to compromise and engage with one another, to help each other, and to take responsibility for understanding our strengths and weaknesses. It's going to require us all to roll up our sleeves.

It will also call us to be brave enough to agree that we're not going to make any more excuses, only adjustments, together. As Vermonters, I believe we'll be good at this. After all, our state motto is "Freedom and Unity."

In this spirit, AOE is tackling the following challenges as part of how we advance our data and IT infrastructure:

- A disjointed approach to tool and skill modernization across IT and Data Teams
- Many, disparate points of data collection spread out across various IT platforms and in different teams throughout the agency
- Too many data sets that aren't integrated in a consistent, logical way
- No single, unified data model (method and means of organizing and relating data together)

- Data collection and management processes not having been documented in a standardized way
- Data governance not applied uniformly
- Heavy reliance on processes that cannot be scaled
- Heavy reliance on manual work to meet compliance reporting
- Data staff spread out around the agency in various teams, making day-to-day collaboration challenging

We recognize things need to change and we are taking steps to adjust.

In October of 2018, at the direction of Secretary French, the AOE underwent a reorganization. For the first time, a Data Management and Analysis Division was created. This transition brought together data and measurement teams formerly scattered across the agency, giving us a unified structure and a common purpose.

Our explicit role is to be the bridge between the Agency of Digital Services (ADS) technical and AOE program staff. We are the translators between the IT and the education and administration functions of our organization. We are the data stewards, the data scientists, the experts in measurement and the data analysts. We help others use data to support their work in empirical ways.

Next, we developed a set of strategic priorities for the three to five years ahead. They are breakthrough objectives. If we can make meaningful progress in these areas, it will be game-changing for Vermont's education data infrastructure. As we move forward with this work, we will refine them, but broadly, they are:

1. Modernize, standardize and fully leverage collection, management, storage and data analysis platforms, tools and methodologies. Ultimately, we've got to have the right tools to do the job. Think about it: It's a real bear to try to hang drywall with a screwdriver.
2. **Move from a reactive culture to a proactive culture.** that supports innovation and continuous improvement. We need to be flexible and responsive, both to the needs of the field and advances in data science. We need to be able to harness our information to help take decisions that are forward thinking instead of reactive. We can always be better. We should strive to improve how we work as well as our capacity to support the work of others. Vermont students, taxpayers and residents deserve no less.
3. **Effectively coordinate to execute cross-functional workflows.** By prioritizing a close examination of how we work, we're establishing standard operating procedures, workflow documentation and instantiating business process management best practices. If you improve your processes, you can improve your work.
4. **Strengthen security and privacy frameworks while reducing burden of supporting secure and sound data handling.** At AOE, we take our federal and state student data privacy responsibilities very seriously. This can be a tough task with the tiny size conditions we have here. Therefore, we're taking every opportunity to create processes and automation that help us uphold the imperative to protect student data while providing as much information as possible to the public.
5. **Empower AOE and stakeholders with data to support an evidence and result-based approach to decision making.** The AOE is committed to transparency. We're in the process

of creating tools that are more flexible and provide more interactivity for public reporting. This modernization will eventually allow us more opportunity to take on one-off projects and respond to changing data needs. We'd like to be able to take on the analysis efforts that we as Vermonters want and need, beyond our statutorily-mandated reporting and analysis requirements (which are hefty). Our goal is to answer this call while balancing our constrained resources.

To advance this work, we've begun a sustained process of engagement with SU/SD stakeholders around data infrastructure, data needs, and the challenges and opportunities ahead. Our goal is to create collaboration, build a shared understanding of our roles and responsibilities around education data in Vermont, and identify high leverage work we can tackle together in the months and years ahead.

We've started this effort by working with the field on the Student Longitudinal Data System (SLDS) over recent months, but we'll be expanding our focus to consider broader themes and initiatives as we make collective progress.

Like any road or bridge that helps us get where we need to go, data infrastructure is crucial. We need to take care of it together, so we welcome your involvement in strengthening Vermont's data landscape. Your participation is key to our shared success. Let's get to work.