Assessing Vocational Rehabilitation Agency Capacity to Engage in Evidence-Based Decision Making

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March 18th, 2025

Introduction

For decades, the Federal/State Vocational Rehabilitation System (VR) has been scrutinized regarding its efficacy in assisting people with disabilities to achieve employment. A 2005 Government Accountability Office report (GAO-05-865) highlighted the need for VR to be more responsive to new and evolving evidence (US Government Accountability Office, 2005). A year later, a U.S. Office of Management and Budget (OMB) report called for VR to achieve better results and accountability (Leahy, Chan, & Lui, 2014; Leahy, Chan, Lui, et al., 2014). A 2007 GAO report (GAO-07-521) drew attention to dramatic variations across VR agency outcomes and the need for additional economic (e.g. unemployment rates) and individual (e.g., disability severity) control variables to evaluate performance outcomes (US Government Accountability Office, 2007). In 2009, an OMB memo addressed accountability issues more broadly and stressed that many federally-funded programs lacked rigorous evaluations for public transparency and decision making (Orszag, 2009).

These early calls for accountability prompted research initiatives where multiple VR agencies collaborated to identify counseling and organizational best practices (Leahy, Chan, Lui, et al., 2014). Researchers also developed a VR return on investment (ROI) model that used VR case services data to evaluate the effectiveness of VR services (such as skills training and supported employment services) in achieving employment outcomes for various disability groups (Clapp et al., 2023; Dean et al., 2015, 2017, 2018, 2019; Schmidt et al., 2019). Despite these efforts, VR services are rarely systematically evaluated by VR agencies. Highlighting this issue across agencies, a 2014 GOA report indicated that federal agencies are limited in staff capacity to identify and use evidence in decision making (US Government Accountability Office, 2014).

In this study, we define the necessary types of software and expertise required to conduct rigorous empirical analyses that can inform effective policy: data management, data visualization, and statistical analysis. We then surveyed VR agencies to measure their internal capacity in these areas and evaluate their potential to effectively use data to inform programmatic decision making.

The Evidence-Based Policy-Making Act of 2018

In March of 2016, the Evidence-based Policy Commission Act was signed into law. The Act called for a 15-member bipartisan commission to make recommendations related to the "access, integration, use, and control of data to facilitate research and evidence-based evaluation of government programs" (U.S. House of Representatives, 2017). One of the primary findings of the Commission was the limited capacity across agencies to effectively utilize data for data-informed

decisions and policymaking (Bipartisan Policy Center, n.d.; Commission on Evidence-Based Policymaking, 2017).

Building on Commission recommendations, the Evidence-based Policy-Making Act of 2018 required that federal agencies utilize their data to "develop statistical evidence to support policymaking" (H.R.4174, 2019). The Act required that agencies submit annual plans to support evidence-based policy making to OMB that (1) identified relevant research questions, (2) data the agency will collect to answer these questions, (3) methods and analysis strategies for developing strong evidence, and (4) anticipated challenges, such as statutory limits of accessing relevant data (CIO.gov, n.d.). The Act also established three positions within government-funded agencies including evaluation officers, statistical officials, and chief data officers to achieve statistical evidence-building activities (H.R.4174, 2019).

Rehabilitation Services Administration Responsiveness to the Act

The Department of Education's Rehabilitation Services Administration (RSA) is responsible for providing "leadership and resources to assist state and other agencies in providing vocational rehabilitation" (see rsa.ed.gov/about). In response to the Evidence Based Policy-Making Act, RSA improved public access to data collected from their Vocational Rehabilitation grantees such as VR Program/Cost Reports (RSA-2), VR Financial Reports (RSA-17), Client Assistance Program Reports (RSA-227), Protection and Advocacy of Individual Rights (RSA-509), Grant Reallotment (RSA-692), and Resolution of Applicant/Client Appeals (RSA-722). In addition, they initiated a formal process where the public could make formal requests for deidentified RSA-911 case services data (Rehabilitation Services Administration, n.d.-a).

RSA also funded technical assistance centers to build evidence-based policy making at VR agencies. From 2016 to 2020, the Vocational Rehabilitation Technical Assistance Center for Program Evaluation and Quality Assurance (PEQA-TAC) was charged with assisting state VR agencies to conduct "high quality program evaluations and quality assurance practices that promote continuous program improvement" (Anderson et al., 2021). As part of this effort, the PEQA-TAC offered an online Certificate of Program Evaluation credential for VR personnel that covered qualitative and quantitative research methods, data collection strategies, data analysis strategies, and application of findings (Anderson et al., 2021).

In 2021, RSA extended another round of funding for the Vocational Rehabilitation Technical Assistance Center for Quality Management (VRTAC-QM). Similar to the PEQA-TAC, the VRTAC-QM was funded to enhance VR service delivery and maximize outcomes through quality program and resource management (Rehabilitation Services Administration, n.d.-b). Despite concerted efforts to improve VR staff capacity in program evaluation and evidence-based decision making, however, a gap in understanding the internal infrastructure and capacity within VR programs remains.

VR Return on Investment (ROI) Project

In 2023, the research team responsible for developing the VR-ROI model and this paper received a grant to develop a simplified model that VR programs could apply to their data to support evidence-based decision making. The original VR-ROI model used a sophisticated structural model that required advanced knowledge of economic and statistical theory, as well as coding techniques, to

produce credible estimates. The simplified model was intended to be a more accessible version of the VR-ROI model that VR agencies across the country could adopt for their own agency to inform timely decisions. Before building out the model, however, researchers (we) were interested in evaluating the internal capacity within VR programs to extract program data, adapt and apply the model, and interpret results. We reasoned that a better understanding of VR internal capacity would help inform development of the simplified VR-ROI model and scale-out strategies.

In collaboration with the VRTAC-QM, we developed the Data Analysis and Management Capacity Survey (hereafter, the Capacity Survey) to compare the technical capacity of VR agency staff with the data and statistical requirements of estimating a simplified version of the VR-ROI model. The survey examined three such requirements:

- **Data management**. First, data management capabilities are required to access and pre-process the data. Capacity in this area allows the agency to create an analysis dataset by cleaning and linking data from different sources. This analysis dataset becomes the main input into the model being estimated.

- **Data visualization.** Second, model users need capacity in data visualization to both describe patterns in the raw data (pre-model estimation) and to interpret estimates from the statistical model (post-model estimation). The former is a useful way to understand the relevant variation in the data (an important input into the design and programming of any statistical analysis). The latter is essential for explaining the results of the model to the VR, policy, and academic communities in a way that audiences can understand.

- **Statistical analysis**. Third, model users need statistical knowledge, access to statistical analysis software, and programming skills to estimate the empirical model and credibly inform important research and policy questions.

Agency capacity in all three areas is deemed essential to the overall process. A better understanding of internal VR capacity will help inform development of the simplified VR-ROI model, overall progress towards evidence-based decision making at VR agencies, and the potential need for scale-out strategies in terms of internal capacity-building and/or external contracting to achieve goals.

Methods

Survey Development and Variables

We designed the Capacity Survey in collaboration with project staff from the VRTAC-QM to assess agency capacity in each of the three capabilities required to estimate the simplified VR-ROI model (i.e. data management, data visualization, and statistical analysis). We aimed for a short, targeted survey to increase the likelihood of responses. The survey contained 19 questions, 14 of which were multiple choice. We piloted the survey with two agency directors to assess whether any questions were confusing and how long it took to provide answers. Pilot participants provided

minor wording changes but did not indicate any points of confusion. The survey took approximately 10 to 15 minutes to complete.

Measures

The final survey included some overarching questions about (1) staffing levels for each capability, (2) typical education levels for staff in these types of roles, (3) current and/or future ability to contract with outside organizations for data analysis or impact evaluation studies, and (4) agency confidence in the data they collect. The survey also asked about the type of case management software used at the agency. VRTAC-QM colleagues hypothesized that the type of case management software might dictate how and what data could be extracted for use in estimation of a VR-ROI model.

The survey asked for details about (1) the availability of relevant software programs required to complete each required capability (e.g. SPSS for statistical analysis), and (2) staff expertise to use that software. For data management, we asked about Microsoft Excel, Microsoft Access, and SQL software; for data visualization, we asked about Tableau, Power BI, and Google Analytics; and for statistical analysis, we asked about Stata, SAS, SPSS, Python, and R. For each capability, respondents could also provide a write-in response with other software options. We also created a third capacity variable for each capability based on the intersection of software access and staff expertise using that software, reasoning that one without the other was not particularly useful.

In addition to the Capacity Survey data, we collected external data at the agency level from RSA to see how proxies that measure the size and financial health of agencies correlated with internal capacity. We used VR state grant awards, which are based on a statutory formula that accounts for population served, to measure size of the agency. We used maintenance of effort (MOE) deficits to measure the financial conditions of the agency. MOE deficits occur when an agency fails to expend the full amount of state funds committed to providing VR services. When this happens, Federal payments to the state are reduced by the amount of the shortfall. As it is not in the agency's interest to return Federal grant funds, MOE deficits are a proxy for the financial condition of the agency, where larger MOE deficits indicate less financial health.

Data Collection, Cleaning, and Analyses

The Capacity survey was programmed using the Alchemer survey platform and links were distributed to CSAVR membership via RehabNet on November 6th, 2023. Additional outreach included a survey reminder in a CSAVR news brief on November 19th, 2023, a reminder to CSAVR membership through RehabNet sent on December 11, 2023, and direct phone calls and/or emails from the VR-ROI research team to multiple VR directors during January 2024. The VRTAC-QM provided additional outreach through their Community of Practice. The survey remained open for 112 days until February 26th, 2024.

We requested one survey response from a Director or Commissioner or their designee (such as those working in data roles or with similar responsibilities) at each VR agency in the United States. In four instances, we received more than one response from a single agency. For one agency, a duplicate response was incomplete, so we retained the more complete response. For the other three agencies, we retained the survey response from the most senior respondent.

Survey responses were analyzed using descriptive techniques including cross-tabulations and means comparisons.

Participants

States either have one Combined agency that serves all eligible people with disabilities or two agencies (one Blind and one General) that separate services between those with Blindness or Low Vision and other disabilities. Of the 78 total VR agencies, 45 unique agencies representing 39 states responded to the survey for a 58% response rate. Of these, 10 were from one of the 22 VR Blind agencies (45% response rate), 14 were from one of 22 VR General agencies (64% response rate), and the remaining 21 were from one of 34 VR Combined agencies (62% response rate).

Response rates did not differ by agency size. The t-test difference in means of VR state grant awards between agencies who did and did not respond to the survey failed to reject the null of equal means (t = -0.311; p = 0.683). A similar test of difference in mean MOE deficits also resulted in a statistically insignificant difference (t = -1.526; p = 0.131).

Results

Quantitative Findings

Agency Confidence in Data Collected

Respondents rated their level of confidence about the reliability or accuracy of case-level data on a 5-point Likert-type scale from very low confidence to very high confidence. Respondents rated their data confidence as low (9%), neutral (13%), high (60%) and very high (18%). No respondents reported very low confidence in their case level data. The average rating across respondents was 3.87, a rating just short of a high level of confidence in their data.

Data Management Software, Expertise, and Capacity

Figure 1 reports on data management software access, staff expertise, and capacity (the combination of both access and expertise) related to Microsoft Excel, SQL, and Microsoft Access. Almost all agencies reported having Microsoft Excel software and staff expertise to use it. This was followed by SQL and Microsoft Access, which are both relational data management tools with additional data management power. There were not any significant differences based on the type of agency (i.e. Blind, General, or Combined).

<Insert Figure 1 about here >

Figure 1: Data Management Capacity

Data Management Capcity
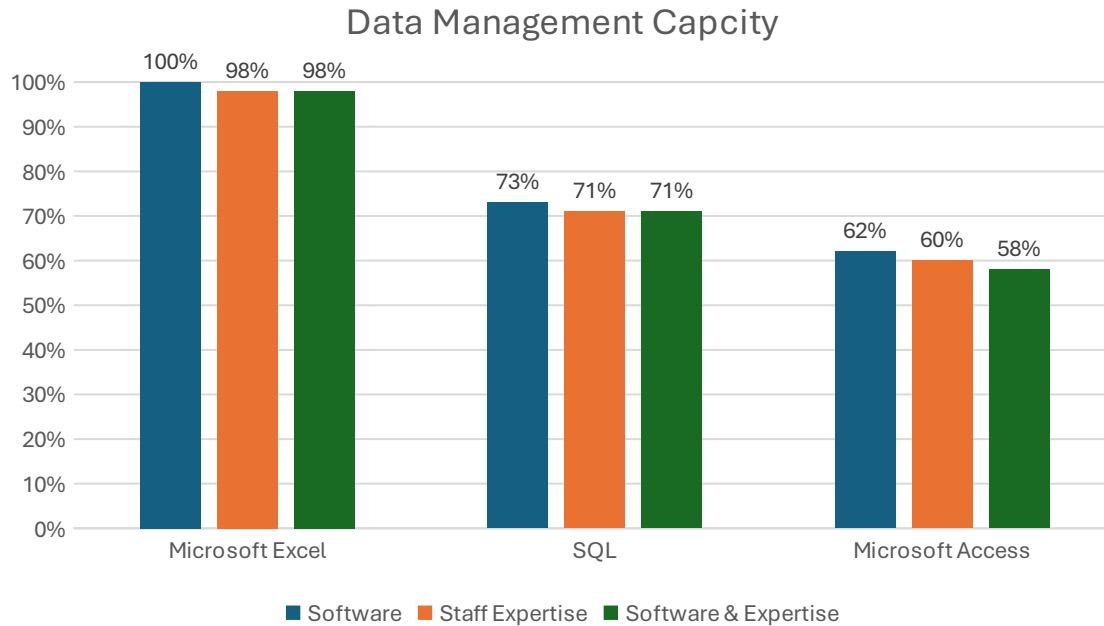
Data Visualization Software Access, Staff Expertise, and Capacity

Figure 2 reports on data visualization software access, staff expertise, and capacity related to popular data visualization software tools: Tableau, Power BI, and Google Analytics. Agencies primarily used Tableau or Power BI for their data visualization needs. Four agencies (9%) did not have any data visualization software tools, and 10 agencies (22%) did not have any staff with expertise to use data visualization tools. Again, there were not any significant differences based on the type of agency (i.e. Blind, General, or Combined).

<Insert figure 2 about here>

Figure 2: Data Visualization Capacity


Data Visualization Capacity
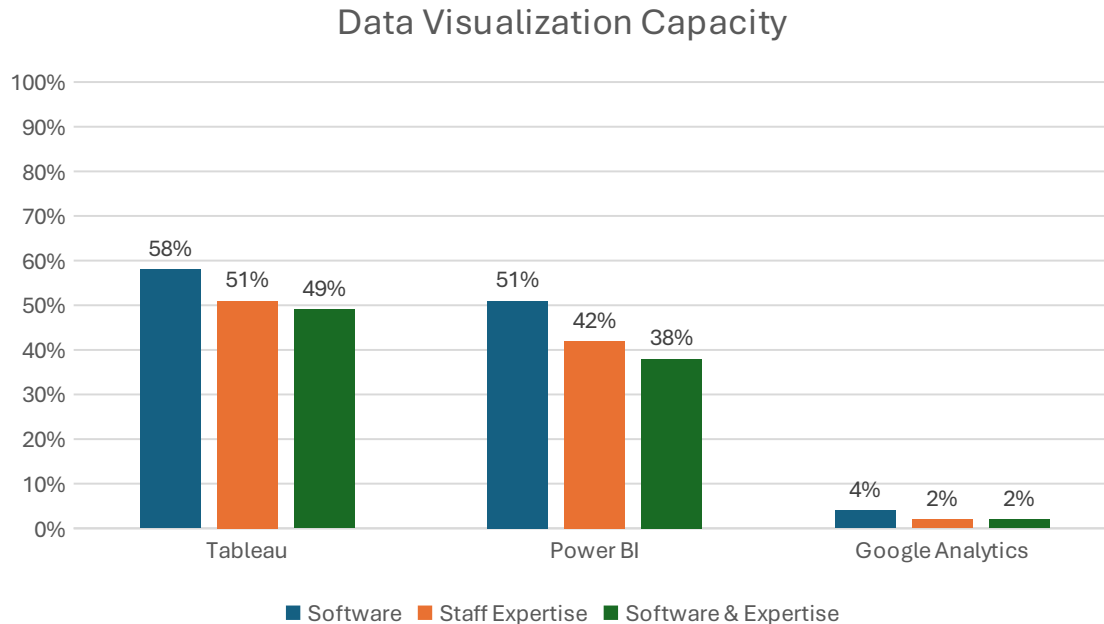
Statistical Software Access, Staff Expertise, and Capacity

Figure 3 reports on statistical software access, staff expertise, and capacity related to commonly used statistical programs: Stata, SAS, SPSS, Python, and R.[1] Twenty-nine agencies (64%) did not report access to any statistical software tools and 27 agencies (60%) did not have staff with the expertise to use any of them.

Findings also suggested a mismatch between software availability and staff capacity. For instance, 20% of agencies reported having staff expertise in SPSS, but only 13% of agencies reported having SPSS software. Conversely, 16% of agencies reported having SAS software but only 11% reported staff expertise to use it. When looking at the intersection of software and staff capacity, 71% of agencies have no statistical capacity.

<Insert figure 3 about here>

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[1] We note that Stata, SAS, and SPSS are proprietary programs that require purchasing the software and/or a license. Python and R are open-source software that can be freely downloaded and installed at no cost.

Figure 3: Statistical Capacity

Statistical Capacity
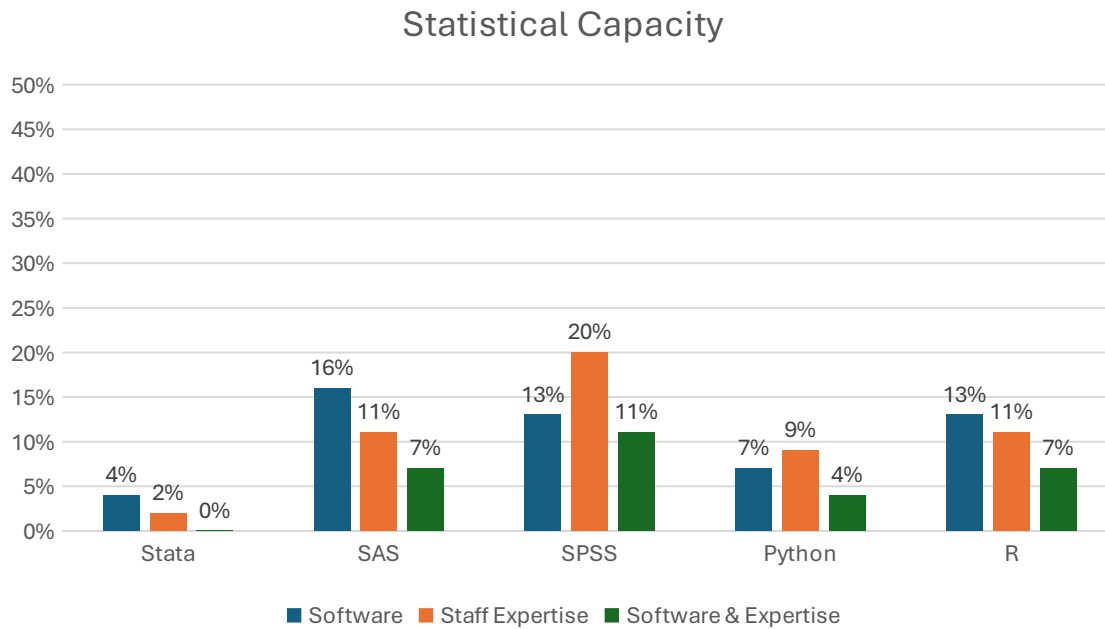
Across agency type, there were no significant differences based on any specific statistical software, but there were differences when capacity was measured across them. While 48% of Combined agencies and 43% of General agencies reported having at least one type of statistical software, no Blind agencies reported having any software available (Chi-square = 7.177; p = .028). Similarly, 42.9% of Combined agencies reported having both software and staff expertise in at least one statistical program, whereas 28.6% of General agencies and no Blind agencies reported having both (Chi-square = 6.058; p = .048).

Statistical capacity was not related to the size or financial health of VR programs. A t-test of the difference in means between agencies with and without reported statistical capacity resulted in statistically insignificant differences in means for VR state grant awards (t = -0.990; p = 0.328) and MOE deficits (t = 0.235; p = 0.815).

External Capacity

Finally, to assess strategies for data-driven decision making and estimation of a simplified VR-ROI model, we asked whether VR agencies contract with (or can contract with) external groups, such as consultants or university researchers, for data analysis and/or impact evaluation studies. Of the responding agencies, 75% answered in the affirmative.

Open-Ended Responses

Respondents provided open-ended feedback about (1) how they currently use data to inform decision making and (2) training or support that would be valuable for improving evidence-based decision making.

Current Use of Data

Respondents provided varied responses to the question "how does your agency use data to inform decision making?" Broadly, comments fell into four areas including (1) agency performance, (2) financial and programmatic planning, (3) staffing, and (4) public reporting and justification. Agencies also shared information about their ability to use data for these types of decisions. This included using dashboards, queries, and data visualization tools. One agency highlighted using data for ROI.

Agency performance. Agencies described using data to track the timeliness of services, such as time from application to eligibility determination and plan development. They examined receipt of services for various groups of consumers to identify patterns in the data and answer critical questions, and they highlighted assessment of annual progress across their program in terms of indicators (e.g. new applications, services delivered) by regions, offices, and counselors.

Financial and programmatic planning. Respondents described using data for budgeting and fiscal forecasting. Budgeting decisions focused on distribution of funds across district offices, resource allocations, including staffing patterns, and procurement decisions. Forecasting was used to assess future agency spending and budgetary needs.

Staffing. Some respondents described using data to inform staffing levels and to assess the agency's ability to meet consumer demand, including anticipated waitlist times to receive services. They also used data to assess counselor performance and to determine areas where staff may need additional training. Similarly, agencies used data to evaluate the performance of specific vendors, and the types of vendors needed to meet demand for services.

Public reporting and justifications. A few agencies highlighted using data to report to the public and request and/or rationalize funding. This included reports to the Governor's office, State Rehabilitation Council, and other legislative hearings.

Training Needs

Respondents highlighted training needs across all capabilities. Seven respondents mentioned a need for data management training generally and for particular software programs such as SQL and Access. Eighteen respondents expressed interest in data visualization training including general knowledge, specific programs (e.g. Tableau and Power BI), dashboards, and accessibility. Seventeen respondents desired data and statistical analysis training. Finally, five respondents indicated a need for data interpretation skills and how to effectively share and explain data to field staff.

Discussion

In assessing our results, we highlight several key findings from our analysis. First, agency confidence in the reliability of their data was relatively high. This increases confidence that these data could inform VR decision making with appropriate analyses. In terms of the three required capacity areas (data management, data visualization, and statistical analysis), however, results

were variable and pointed to capacity gaps that would significantly hinder most agencies' application of even a simplified version of the VR-ROI model.

Capacity Survey findings indicated that data management capacity was generally high and staff expertise and software tools were closely matched. For the data visualization category, software program availability was not as strong, but was still generally robust. Visualization software availability slightly exceeded staff capacity to use it, which suggests staff development opportunities could be helpful to build agency capacity for describing data and presenting findings.

Statistical software access, staff expertise, and overall capacity were relatively low for statistical analysis. When examining statistical capacity, 60% of agencies responded "not applicable – staff do not have competence in the listed software packages (including SPSS, SAS, R, Python, Stata, and other)" and 71% of program respondents indicated that they lacked internal statistical capacity to analyze data using any of the listed programs. Additionally, no Blind agencies reported having statistical capacity, which might suggest accessibility issues with statistical software.

Agencies can potentially address internal capacity shortfalls by turning to external consultants or university partners. To assess whether there are implicit or explicit barriers to doing so, we asked whether agencies have the option to contract with external groups. Most respondents (75%) said their agency could or does contract with external consultants to meet their data analysis needs. While this is a potentially important way to close the gap between agency capacity and the need for empirical evidence, we note that our survey is not able to inform the cost or quality of consulting services provided.

Recommendations

Overall, results suggested that many state VR agencies lack internal capacity to meet requirements outlined in the Evidence-Based Policy-Making Act of 2018. While the onus of the Act is on Federal Agencies (i.e., RSA), VR agencies are required to comply with regulations as outlined in 2 CFR 200 and 34 CFR 361, 363, and 367, which collectively have reporting and performance accountability requirements. Potential solutions to overcome capacity deficits include expanding internal capacity, expanding agency/consultant partnerships, and building cross-agency collaborations.

Expanding internal capacity. Past research indicates that people hired into program evaluation and quality assurance (PEQA) positions often lack program evaluation experience and that few training and networking opportunities exist to build skills and opportunities in this area (Anderson et al., 2021; Shoemaker & Sabella, 2010). RSA supported two consecutive technical assistance grants (PEQA-TAC 2016-2020 and VRTAC-QM 2021-2025) to address this need and improve the evaluation and evidence-based decision-making capacity within state/Federal VR Programs. The first grant, PEQA-TAC, offered an online Certificate of Program Evaluation course that addressed research methods, data analysis strategies, and interpretation of findings (Anderson et al., 2021; Sabella et al., 2018). Across four years of implementation, 76 PEQA staff applied for and were invited to participate in the certificate program and 38 (representing 21 different VR agencies) completed the course. Of the 76 recruited participants, 28 (37%) dropped out of the program due to job changes and an additional 5 transitioned to new positions after completing the course (Anderson et al., 2021). These high levels of job transitions signal a need for sustained training in program evaluation competencies, but the Certificate of Program Evaluation course was discontinued when the PEQA-TAC grant concluded.

The most recent technical assistance grant, VRTAC-QM, offers intensive technical assistance to VR agencies as well as self-paced micro-training presentations in a variety of evidence-based service delivery topics including VR data and analytics. The VRTAC-QM, however, does not provide comprehensive statistical training that was offered through the PEQA-TAC, which may be required for building and sustaining internal data management and analysis capacity.

The current landscape of under-skilled PEQA staff coupled with high rates of turnover will require significant and sustained efforts to bring along or build internal data management and analysis capacity. This may require an emphasis on these skills in VR graduate training programs and additional university-sponsored course offerings that cater to working professionals. VR commitments to support and pay for both training and statistical programs are also needed.

Expanding agency/consultant partnerships. Another strategy to increase capacity is to develop consultant partnerships. These would augment the working knowledge of internal practitioners regarding programs, data, and individuals served with the data management, visualization, and/or statistical skills of established VR researchers. Several academic research groups have used data to explore VR service provision and effectiveness for varied disability groups. If demand for such services were operationalized through a call for proposals from VR state agencies, consultant relationships could be developed and expanded. RSA could also support partnership building through allocated funding, data support, and guidance regarding evidence-based research questions of interest across the state/Federal VR agencies. A more parsimonious and efficient solution may require building a cadre of RSA data analysts who support or fulfill these duties across VR programs. Expansion of external capacity would likely require ongoing commitment and sustained funding streams to maintain continuity and capacity.

Building cross-agency collaborations. Finally, capitalizing on pooled resources across state agencies is another option for expanding statistical expertise. State data centers; epidemiologists; economic forecasters; and commerce, labor, and health department data experts could potentially be leveraged to assist with evidence-building for VR decision making. Opportunities for cross-agency collaborations (particularly within labor-focused departments) might be more feasible because of Workforce Innovation and Opportunity Act (WIOA) common indicators, where certain analysts would have foundational knowledge of important programmatic inputs and outcomes.

Limitations
The study has some limitations that may shape these recommendations and conclusions. First, respondent answers may not accurately reflect agency capacity. The survey targeted VR Directors or Commissioners who manage large budgets, staff, and programs. While directors could identify an appropriate designee, respondents may not be fully aware of the data management, visualization, and statistical capacity of staff members, and their answers may not reflect actual internal capacity. It is not obvious whether this would bias our estimates up or down. Second, because individuals self-selected into the study, it is possible that participating VR program directors represent programs that are systematically different than non-participating VR directors. One possibility is that directors running agencies with low evidence-based capacities might choose not to participate. In alignment with this possibility, the lowest response rates were from Blind agencies, who also reported significantly lower statistical capacity than the General or Combined

agencies among those participating in the study. If this bias is reflected in the sample, we suggest our results would underestimate the true level of agency capacity.

Finally, response bias (or systematically inaccurate responses by respondents) is a potential factor. For instance, respondents reported high levels of confidence in the data they collected but feedback from a presentation of our findings to VRTAC-QM partners revealed counter evidence, where VR stakeholders expressed concerns about the accuracy of staff-collected data. This type of bias is also likely to result in estimates that underestimate true capacity.

Overall, the stated limitations most likely understated capacity issues rather than inflating them. For this reason, concerns about VR ability to implement evidence-based decision making remain. This also calls into question the value of simplifying the VR-ROI model when few agencies have the statistical capacity to deal with a simplified (and potentially less-accurate) model.

Conclusion

The Evidence-based Policy-Making Act of 2018 calls on federal agencies to use government data and rigorous data analysis techniques as a routine part of policy making. To meet this goal, government agencies need to build internal and external data management, visualization, and statistical capacities. For the VR program, our study indicates that additional infrastructure is required to overcome the challenges inherent in informing policy on the basis of data-driven, statistically-sound analyses. Doing so will require both the support and commitment of RSA, individual VR agencies, and the research community.

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