WIOA System Assessments

Case Studies from
Washington, Utah, Colorado, and Tennessee

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NASWA
NATIONAL ASSOCIATION OF STATE WORKFORCE AGENCIES

National Association
of Workforce Boards

World Data Insights

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CASE STUDY #1: SYSTEMS IN PROGRESS

Washington State's Experiences with Upgrading State Workforce Data Systems to Meet WIOA Guidelines

Report on the Workforce Data Assessment visit to Washington State in March 2017 conducted by the National Association of State Workforce Agencies (NASWA), National Association of Workforce Boards (NAWB), and World Data Insights.

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Executive Summary

In March 2017, representatives of Washington's State Workforce Agency, local workforce boards, and other key workforce system stakeholders participated in a US Department of Labor funded project to study state level experiences in developing workforce data systems and implementing reforms mandated under the Workforce Innovation Opportunity Act (WIOA). Part of a larger project assessing workforce data systems nationwide, the primary goal of this study is to identify best practices and lessons learned that can help other states with their own implementation plans and to clarify potential next steps for Washington.

Washington's workforce system, known as WorkSourceWA, is relatively new. Implementers focused their initial development resources on customizing the Monster Government Solutions COTS platform to collect data on Washington job seekers, provide basic case management functions and to meet federal WIOA mandated performance reporting requirements.

To date, Washington workforce stakeholders support the steps taken to customize and implement a brand new COTS system despite hiccups in the implementation process. Study participants found the current tool considerably better and more functional than the legacy system it replaced, highlighting in particular their new ability to ghost user accounts, minimize data entry functions, and produce federally mandated reports on demand.

However, the state was still early in the implementation process at the time of writing. Full report services at the state and local level had yet to be implemented. User services that had been available in the legacy system that were integral to operations for different stakeholders were no longer available. With the full knowledge that additional services are coming in due course, participants consider the transition process to be largely positive, despite their reservations on the system's current limitations.

Two major factors have helped Washington implementers move forward with relative ease. The first is an existing strongly collaborative culture across state agencies that enables implementers to work through and develop the operational processes that underpin implementation. And the second is the establishment of a project management and communication process that helped implementers keep workforce stakeholders involved in and aware of changes to the implementation timeline. Having set a positive tone, state implementers will now need to prioritize how it manages current and develops new services in the face of ongoing and competing demands from different stakeholders.

Summary Recommendations

Participants identified multiple issues that state implementers may want to prioritize for near- and long-term implementation. While the majority are listed in the body of this study, three major issues emerged as most pressing.

- <u>Addressing state and local level reporting needs</u> – With little to no capacity to use WorkSourceWA to track and report on state and local level services, multiple stakeholders are limited in how they currently use the system to generate reports and provide workforce analytical services. Participants cited the lack of reporting services as their most pressing concern with the new system.
- <u>Identifying and mapping data available within WorkSourceWA</u> – The lack of current knowledge of what is in the state's data stores hinders the ability of state implementers to identify and develop additional report services. Developing data dictionaries and otherwise making data stores accessible to users will help implementers develop new report templates and provide analytic teams with self-service data to meet multiple customer service needs.
- <u>Negotiating data sharing agreements with owners of data from other state and federal systems</u> – Washington implementers must assure that they have the policy and technical mechanisms in place that enable users to access workforce data from other systems and tools within the WorkSourceWA environment. Resolving any legal and policy issues that currently inhibit integration will enable technical implementers to further streamline workforce data and service from the WorkSourceWA interface.

Participants also highlighted the lack of federal documentation on how WIOA reforms should be implemented as an issue and urged federal policy makers to provide additional operational procedures and documentation to help other states more easily navigate and transform the regulations into a WIOA compliant system.

Addressing these priority issues will help WorkSourceWA resolve a majority significant pain points identified by participants during the course of the study and further establish WorkSourceWA as a robust workforce system capable of meeting stakeholder needs over the long term.

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Introduction to the Workforce Data Systems Project

Project Overview

The National Association of State Workforce Agencies (NASWA) and the National Association of Workforce Boards (NAWB) have undertaken a project to study and explore how emerging data driven information technologies can help align workforce program processes within the parameters of reforms required under the Workforce Innovation and Opportunity Act (WIOA) of 2014. Undertaken with support from the United States Department of Labor's Employment and Training Administration, the project is geared towards assessing the current state of workforce data systems and processes to:

- Analyze the data innovation challenges and successes state workforce agencies and local workforce boards are experiencing while trying to meet WIOA mandates;

- Identify workforce agencies and boards sharing similar successes and challenges;

- Facilitate sharing and collaboration between NASWA and NAWB members on best innovation practices; and

- Develop a body of knowledge and resources to which state and local entities can turn if they need extra help.

During phase 1, NASWA, NAWB, and World Data Insights developed baseline assessment tools to compare the status of state and local workforce data systems across all 50 states. In Phases 2 and 3, we used the tools to collect and analyze data from participating states. The results provided an initial, broad level insight into the overarching, aggregated trends that effect the ability of state workforce agencies and local workforce boards to implement WIOA mandated reforms. (To read the initial report, visit the NASWA website here).

In Phase 4, the team visited five (5) different states across the continent to collect and analyze additional in-depth information on board capacities, data strategies and policies, workforce data system components and tools, and on the business processes underpinning them for the development of state-level case studies. The focus of the state assessment studies was to understand local experiences with technical systems, learn what has worked, and assess the biggest challenges each participant is facing. States participating in the in-depth studies reflect a mix of experiences in implementation efforts, governing and policy environments, budget and resource constraints, and in the technical systems and business processes they use to support their local workforce stakeholders.

This in-depth report reflects the experiences and perceptions of Washington State workforce staff and personnel participating in the first data assessment study. Conducted in the beginning of March 2017, the report captures a snapshot of Washington's entire workforce

data assessment process, from the technical systems underpinning workforce activities to the business processes that personnel use to provide state workforce customers with the services they need.

The insights gleaned from study participants can be a valuable resource for other implementers as they move forward with their own state-level WIOA system digitization and upgrade efforts and provide them with a glimpse of the experiences, lessons learned, and successes and challenges different states have faced in their efforts to date.

To conduct the in-depth study and gather all of the perspective and insights needed during the state level site visits, the team designed a series of surveys and tools based in systems theory. This systems approach focuses on integrating information from a broad swath of workforce system designers and users to assure that a full picture of all of the inputs and outputs into a state's system are captured and assessed. It also involved developing an assessment structure from which to contrast and compare perspectives on workforce systems across states.
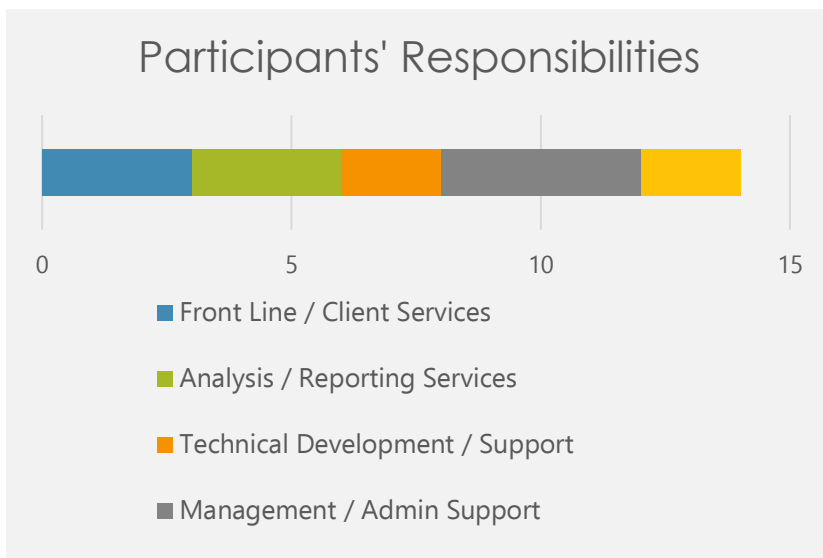
The results of the study are provided in the context of a common assessment framework that is used to report on results for each state and provide a roadmap for deeper exploration of workforce system related issues over the long term. This common assessment framework can help WIOA implementers and the federal, state, and local level to compare, contrast, and analyze key variables that may help or hinder implementation of WIOA innovations at the state level for consideration of future decision making.

Details on the Washington Site Visit

In Washington, the team met with and elicited in-depth insight from representatives of state workforce agencies and local workforce boards who are involved in different levels of data systems and processes. During the visit, the team:

- Conducted focus group surveys and in-depth interviews with workforce staff and contractors, including:
    - operational stakeholders responsible for providing direct services to and interacting with customers;
    - technical stakeholders responsible for implementing and managing systems;
    - analytical stakeholders responsible for producing output reports and metrics; and
    - managerial stakeholders responsible for budgeting, policy and decision making;
- Observed notable business processes and how clients and staff/contractors interact with system tools;
- Observed how staff collect and process data and output metrics and produce reports at select state agency and local board locations; and
- Interacted with workforce data systems, tools, and processes to understand strengths and challenges of different systems.

The team conducted on site sessions with Washington State Employment Security Department (ESD) representatives as well as representatives from different workforce boards from across the state at State offices in Olympia, WA. The team also travelled to visit operations at the Pacific Mountain Workforce Development Council in Tumwater, WA, the Camo2Commerce services center at Joint Base Lewis-McChord in Thurston County,

Where Study Participants Work

- State Workforce Agency Offices
- Career Center
- Workforce Investment Board
- Other

(values shown: 6, 4, 3, 1)

WA, and the Opportunity Center for Employment and Education (OCE&E) in North Seattle, Kings County, WA to discuss local operations and analyze the difference in perceptions of workforce systems between state and local workforce personnel.

Participants' Responsibilities

0   5   10   15

- Front Line / Client Services
- Analysis / Reporting Services
- Technical Development / Support
- Management / Admin Support
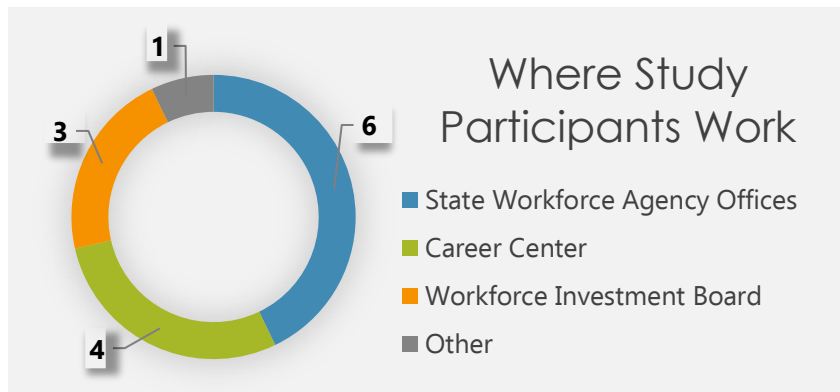
Overall, the team interviewed 25 workforce staff, 14 of whom participated in the assessment survey [i]. The majority of the participants held managerial positions at either the state agency or local operational level. Primary responsibilities for participants ran the gamut of workforce services at the state and local level and represented government, business, and other key stakeholder interests.

Two-thirds of the respondents reported they had more than six years of experience serving workforce communities in various capacities. This depth of experience provided a rich source of insight into the needs of different system user groups, including targeted workforce user communities, data analysts and report generators, and the technical implementation teams responsible for the development and maintenance of the state's workforce systems.

Participant Years of Service

17% | 16% | 17% | 50%

- Less than two (2) year
- 3-5 years
- 6-10 years
- 11-15 years
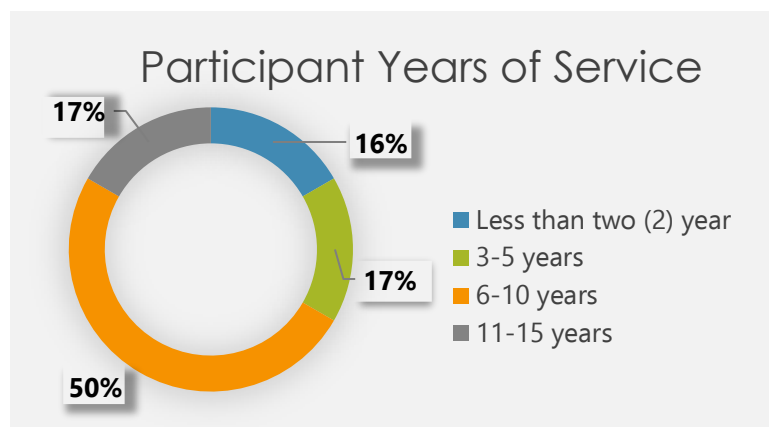
Of particular importance to the Washington site visit was the opportunity to ask targeted in-depth questions into the nuances of daily interactions. This insight allowed the team to better understand the evolution of current business and technical processes in response to WIOA mandated changes, analyze how they interact in the function of daily workforce operations, and identify common strengths and challenges across the state.

The Big Picture - The Washington WIOA Experience

Washington State Workforce Programs and Services

Like most other states, WIOA programs in Washington are administered by various state and federal agencies. State level partners in WIOA activities include ESD as well as the [Department of Social and Health Services](#), the [Workforce Training and Education Coordinating Board](#), and related non-profits, universities and business stakeholders.

Of the 18 workforce programs that fall under the WIOA rubric[ii], 11 have been integrated into the state's American Job Center system. Whether administered by ESD or other state agencies, program administrators use the portal as the single point of entry for all customers seeking workforce services within the state. All 11 programs serve as delivery hubs for One Stop programs, but only eight (8) of these programs share common registries.
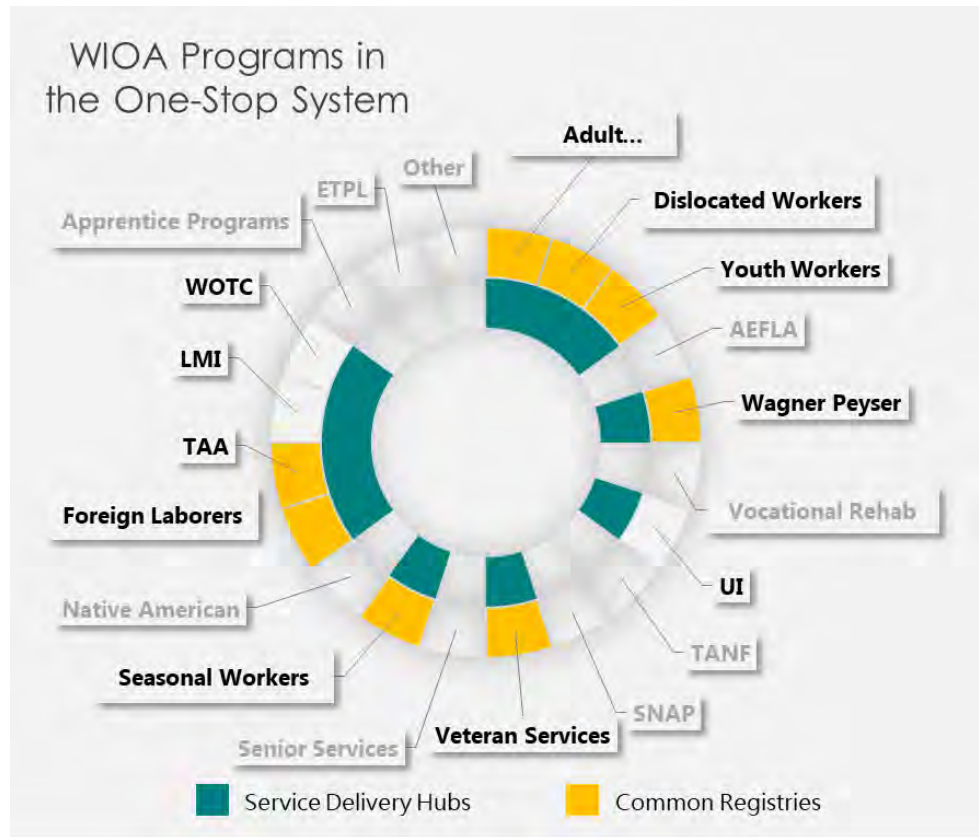
In the initial survey sent out to all 50 states, respondents in Washington State reported the existence of a data warehouse that workforce personnel used to provide services to multiple workforce stakeholders. While the state has
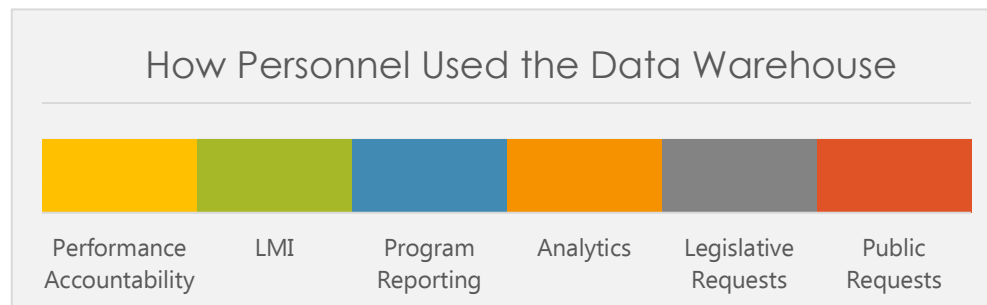
migrated the data available in the old system into the new system, the state's implementation team has not yet completed the transition to a fully functional data warehouse. Implementers report that this functionality should be available in the near future.

Developing and Implementing WorkSourceWA

Washington State is in its first year of implementation of its new workforce system, WorkSourceWA. In use for approximately 10 months as of the time of the visit, WorkSourceWA is composed of the two separate Custom-Off-The-Shelf (COTS) workforce systems that make up the backbone of Monster Government Solutions Labor Exchange and Case Management system. Monster's integrated COTS system encompasses Monster's Job Match Labor Exchange technology as well as the case management system built by Social Solutions Global, WorkSource ETO (Efforts to Outcomes). In the Washington State project, Monster is the prime contractor and Social Solutions Global acts as a sub-contractor responsible for the case management components of WorksourceWA. As a scalable and mobile enabled job matching and case management platform, the Monster solution supports collaboration between the WorksourceWA instantiation and other systems via extensible Application Programming Interface (API), integrates online, self-service tools with the one-on-one workforce services available in the state's American Job Centers, and enables workforce staff to produce timely reports to federal, state, and local stakeholders.

Where is Washington in its implementation of data architectures?

| 1. No updates initiated as of yet | 2. Collecting info on existing data resources | 3. Developing / Updating data architecture documentation | 4. Stakeholders reviewing documentation | 5. Received approval for data architecture and data flow plans |

WorkSourceWA replaces the state's 14-year old legacy system, Go2worksource.com, which was created and developed in house. The legacy system consisted of two separate, integrated systems – Go2 for job seekers and businesses and SKIES case management tool for federal reporting. As the state agency responsible for technical implementation, ESD hired Monster to upgrade their capacity to integrate core business functions, improve data integrity, streamline data flows between job matching and case management, and make it easier to provide reports at the state and federal level.

Monster started work on the contract in January 2015, before the execution and publication of final WIOA rules. ESD and Monster expected that WorkSourceWA would take approximately 30 Full Time Employees (FTE) and nine (9) months to complete configuration of the COTS system, including aligning data flows, developing a user interface (UI) and testing components before the system's state-wide launch. Instead, it took Monster's 30 FTE's 16 months to customize and prepare the system for launch.

One of the major factors that led to the doubling of the project timeline was the change in policy and regulation requirements between the prior existing Workforce Investment Act (WIA) and the emerging policies, rules, and regulations newly mandated under WIOA. Published as an approximately 1,500 page manual of mandated regulations of note during

the course of WorkSourceWA implementation, the state received little guidance or planning roadmap beyond the published rules into how WIA and WIOA differed substantively, where any priorities lay, and/or where significant changes needed to be made. The state spent significant time and resources interpreting the policy, rules, and regulations into new requirements, and reconfiguring the overall system to meet WIOA directives.

Despite these struggles, participants noted that to some extent the timing worked in the state's favor. Implementing reforms would have been extremely difficult in the legacy system. Likewise, that the state was in the middle of the system build gave them the opportunity to make changes before full implementation and served as a rallying point for assuring the attention and continued support of state level policy makers and other WIOA stakeholders in the implementation process.

The newly configured WorkSourceWA officially launched across the state in May 2016. ESD currently maintains a core technical staff of 4-5 employees to backstop the system and respond to emerging technical issues. Monster continues to provide (3) FTE of project specific personnel to help with system maintenance and troubleshooting – one located at Monster headquarters in McLean, VA and the other two co-located with the ESD staff at their offices in Olympia, WA.

How far along is Washington in implementing WIOA mandated reforms?

Average Respondent Score

2.8

1. Way Behind   2. Behind   3. On Track   4. Ahead   5. Way Ahead
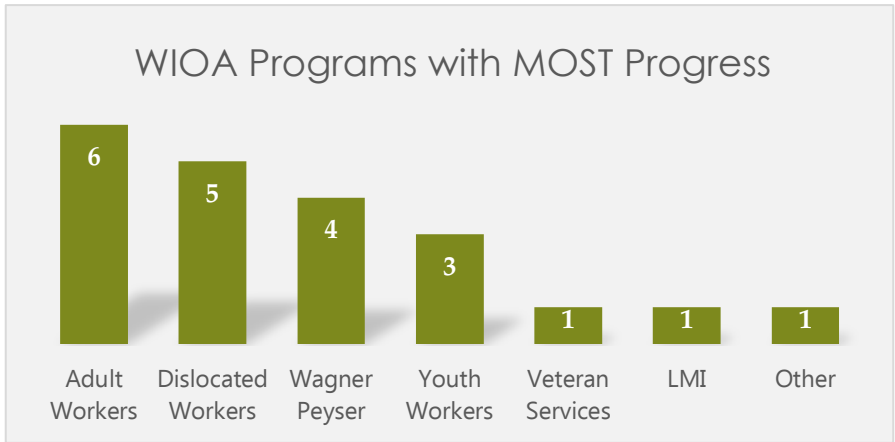
WorkSourceWA is fueled by a government version of data from its job board as well as information collected from users at sign-in. All online and One Stop users are required to register as users in the system and are led through a series of cascading self-help guides to make sure they answer questions correctly. Users can request guidance from an online representative who is trained as a case manager and can help users make sure they are applying for all of the services for which they qualify. Case managers can also takeover and fill in the user's information with the user's guidance if need be. Labor market information is also available through hyperlinks but had not been not integrated into the WorkSourceWA services at the time of writing.

Status of WIOA Mandated Reforms – A Work in Progress

As a newly implemented workforce information technology system encompassing WIOA mandated reforms, WorkSourceWA is fully experiencing the growing pains of being the new technology replacing a familiar, enduring legacy system. Facing federal and state budget limitations, significant technology transition issues, and extensive new, vague federal WIOA

reporting requirements, Washington policy makers have used WIOA mandated reforms as a catalyst to assure the effective implementation of its new system over time.

Participants view Washington WIOA implementation efforts as being on track. Early implementation has focused on building the system's primary capacity to collect workforce customer data and rapidly and easily generate federally mandated WIOA reports. In its early configuration, implementers say that the system is collecting and maintaining data on over 200,000

WIOA Programs with MOST Progress

Program	Value
Adult Workers	6
Dislocated Workers	5
Wagner Peyser	4
Youth Workers	3
Veteran Services	1
LMI	1
Other	1

reportable individuals across 450 data elements and using that data to enable the rapid production of 47 federal, state, and operational reports mandated by workforce stakeholders. Broad user adoption of WorkSourceWA and its capacity to generate canned federal reports at the touch of a button has vastly improved the state's ability to rapidly produce standardized federal reports against WIOA metrics. For instance, even with only a part of its overall reporting functions up and running, managers were already crediting WorkSourceWA's capacity as a benefit to workforce operations. Specifically, stakeholders with reporting responsibilities noted that what canned reports existed had already led to a decrease in the time staff have to devote to creating reports and a corresponding increase in time available to focus on customer interactions and provide quality reporting services to multiple stakeholders. Likewise, case managers lauded their new ability to ghost user accounts and help customers navigate through the complexity of available WIOA programs as particularly empowering to them and to the users they help.

According to respondents, WorkSourceWA has provided the most utility in support of the WIOA Title I and III programs, the programs that fall directly under the policy and administrative rubric of the ESD. Those where minimal progress has been made tend to be WIOA programs administered by other at the federal or state agencies, each of which has its
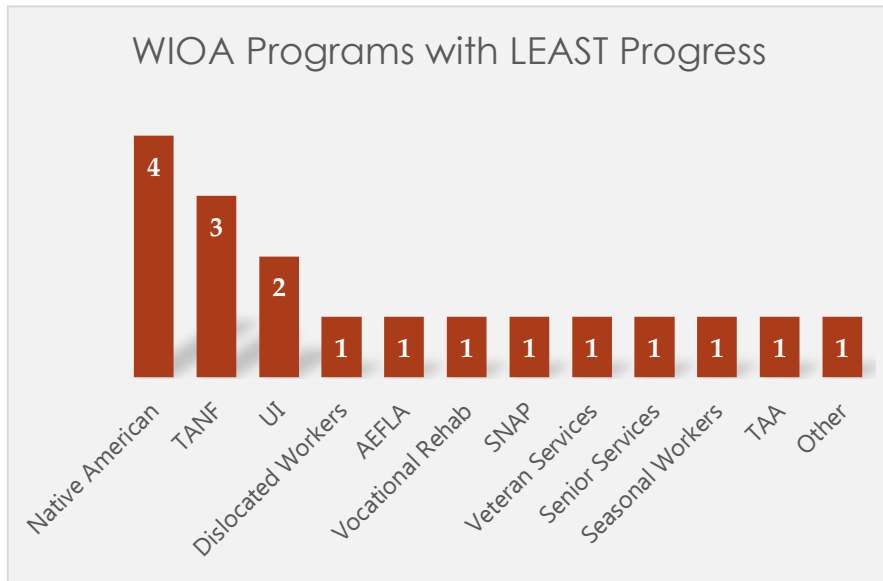
own administrative and IT policies, customer databases and system configurations and require long-term policy and technical engagement to integrate into WorkSourceWA.

Participants are fully aware that WorkSourceWA is still in the early stages of implementation. They expressed significant support for the new system,

the efforts of the implementation team to date, and for WorkSourceWA's positive track towards full functionality. However, all participants also recognized that there were still significant configuration, development, and troubleshooting issues related to the system deployment to date, many of which are detailed in this report. Some are directly attributable to the largely minor configuration and development issues that arise in early deployment stages of any new enterprise level systems. Others are system maintenance and troubleshooting issues that arise as a part of normal, daily operations managed through the state's system technical and customer support process. Yet others can be attributed to the state's ongoing need to negotiate policies and strategies for data
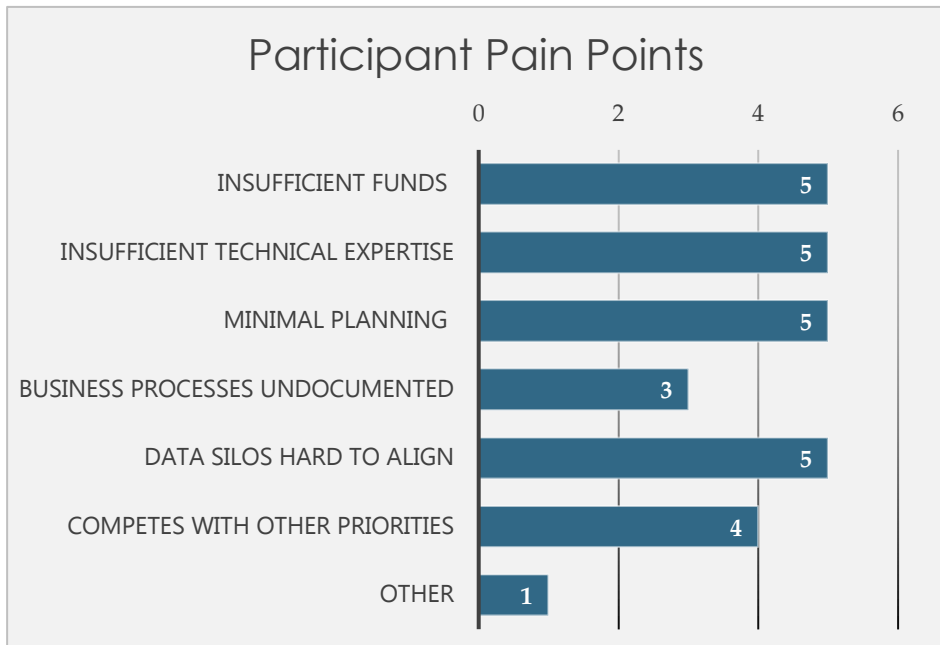
sharing, data exchange and data integration within the WorksourceWA environment.

The existence of issues early on is not surprising. In any enterprise, the number of issues encountered in early deployment of new software is common. Moreover, participants reported that the system's customer support is quick to respond to and resolve minor issues within a matter of hours or days, based on internal priorities.

As Washington moves forward with making WorkSourceWA more robust and capable of meeting multiple stakeholder needs, it will need to prioritize and plan for future phases of development. This is a long-term process that will involve budgeting for the time and resources to maintain and support current and future system builds. It will also involve considering what additional steps the state will need to achieve sufficient workforce system functionality to meet multiple user needs and expectations and how to budget and build up federal and state resources to sustain the positive track it has taken so far.

Workforce stakeholders have remained supportive of state efforts despite WorkSourceWAs current gaps in service. This is a reflection of the state's implementation efforts to date and shared a strong belief that WorkSourceWA will become more robust and functional over time. This mindset will serve the state well as it moves forward over the coming years to increase and upgrade available services.

Supporting Data Driven Systems through Strategic Policy

Setting the Tone

One of the state's biggest successes so far has been its ability to build good communication channels and keep its workforce stakeholders involved and informed throughout the implementation process. These stakeholder communication channels were established early on as a policy and strategic choice to better upgrade the state's online and digital workforce service capabilities outside of WIOA mandated reforms. They have continued through the state's implementation of WIOA mandated federal reforms. The result is a sense among all participants of a cohesive "one team" initiative, that all stakeholders are in it together to work through challenges and make WorkSourceWA a success.

As part of its implementation process, the state has developed consensus building measures and specific mechanisms among WorkSourceWA stakeholders that can help strategically guide its choices and formulate priorities. For example, the state collected requirements directly from users and invited users at key development intervals to get their feedback on service as they were rolled out. This core step assured that the Monster-based product would be as customized as possible. When WIOA became law, and with minimal guidance from

Does Washington's workforce agency process include any of the following components of a data strategy?			
Yes	No	?	
☑			Understanding among key stakeholders
☑			Feedback from key stakeholders
☑			Knowledge of data
		☑	User Guide
☑			WIOA - aligned metrics
		☑	High level outline of business processes
☑			High level data architecture
☑			WIOA Compliance standards
	☑		WIOA Master Plan
☑			Understanding of Policy Mechanisms Needed

federal lawmakers, state implementers and their vendor partners further translated the 1,500 pages of regulatory text into a functional WIOA compliant schema it could implement into its architecture. Additionally, to supplement customer and technical service contact links

available from its online service, the state foster's stakeholder understanding by holding standard, recurring meetings to provide status updates and receive feedback.

Building a Framework for Long-Term Sustainability

As Washington policy makers plan for further implementation and adoption of WorkSourceWA in the enterprise, they may want to address some of the challenges and pain points identified by participants. For

How does Washington include key stakeholders in their processes?			
	As Key Implementation Staff	In Internally Focused meetings / updates	In Public Facing meetings / updates
Customers			☑
Employers	☑	☑	☑
State Workforce Agencies	☑	☑	
Other Workforce Related Agencies	☑	☑	
State or Federally Funded Partners	☑		☑
State Executors	☑	☑	
Federal Agencies	☑	☑	

example, there were some differences in how implementers and user participants perceived the importance of different strategic functions as core to their operations. One such case is in the importance of a data warehouse that core stakeholders could continue to use to access and download data in order to fulfill their workforce missions. Many participants reported that the lack of access to more granular data to complete state and locally mandated reports significantly was a critical issue. In the legacy system, stakeholders with reporting responsibilities could query and access multiple layers of data through a data warehouse developed specifically for more intensive data needs. The lack of access to this data has affected the ability of staff to find data on and produce reports to support business and more complex walk-in services provided at American Job Centers. That the data is not yet available within WorkSourceWA was a strategic choice based on having to set priorities in the face of limited time and resources and the gargantuan task of mapping legacy data to functions within the new system. WorkSourceWA implementers may not have understood the importance of these functions to stakeholders and may have assumed that the data collected through WorkSourceWA and the canned reports that it provided would be sufficient in the during the initial phases of implementation.

Another example is in the perception stakeholders have of the availability of data within the system at the state and local levels. State implementers know that there is a lot that users can do with WorkSourceWA that is already built in. But many users were not aware that much of the data they needed may already be in the system. A third, related issue was the uneven usage of the WorkSourceWA system by local staff. While all online and walk-in customer information was collected at user entry into WorkSourceWA, many of the staff were still using outside vendor tools licensed to specific locales, or using tools developed themselves in Microsoft Excel, MySQL, or other platforms to track and manage operations and complete

tasks they don't yet know how to complete in WorkSourceWA. Some were also storing documents and other core information outside of the system.

These issues speak to a tool adoption issue that will need to be better assessed and addressed in the near future either through additional policy and personnel mechanisms, the implementation of additional operational features within WorkSourceWA, enhanced feature training customized to different user functions, or some combination of the above.

What kind of Data does Washington use now? What would respondents like to use in the future?*	Agency Staff		Front Line Staff	
	Actively Using	Would like to use	Actively Using	Would like to use
Official workforce data	☑		☑	
Official state / federal data from other agencies		☑		☑
Official stakeholder data	☑			☑
Survey Data		☑		☑
Passively collected data	☑			☑
Additional workforce data from non-govt / business / other partners		☑		☑
Additional workforce data from other job sites	☑			☑
Social Media Data		☑		☑

*measuring majority of responses in each category

State implementers may also need to address the context of more complex, policy level issues that may affect usage of and satisfaction with WorkSourceWA over the long term.

One issue involves staffing and the need to maintain a core understanding and knowledge base of technical procedures and developments. With less than five (5) key technical state staff responsible for WorkSourceWA in place, there is a risk that the state is losing critical systems knowledge that could affect the ability to maintain current and upgrade or implement additional, essential technical components.

A second policy level issue relates to creating the legislative or policy frameworks needed to enable data sharing between data systems controlled by different state and federal agencies. In its current configuration, WorkSourceWA captures data from workforce customers who use online services or walk-in services. It also provides access to some data, such as Labor Market Information (LMI), under its administrative control. However, participants reported that nearly a third of the data used in the course of their normal business operations is not accessible from within WorkSourceWA. As such those with job profiles that involve case management, analysis and reporting must consult multiple systems and frequently ingest data multiple times in order to do their work, doubling workloads and increasing the potential for data entry errors.

Participants further report that initiatives to take steps to address data sharing issues and explore how to bring data siloed by different state agencies, have encountered difficulties and lack of support at the policy and legislative level. In one case in King County, participants

were forced to abandon a philanthropic foundation-based grant opportunity to merge data from different state IT systems because there was no policy or legal mechanism in place for them to overcome the different data sharing and privacy rules of each agency.

The challenge here is a matter of political will. Resolving it will take the development and implementation of policy mechanisms, such as cross-agency agreements or memos of understanding, that enable databases controlled by different state and federal agencies to share data for the common purpose of providing workforce services to the public. These mechanisms will likely take time and consensus-building to enact, but would ultimately enable a more streamlined digitized process to emerge as a result.

Primary Workforce Data Sources

- 38% Clients / Walk-Ins
- 31% Existing Workforce Systems
- 8% Other State Agencies
- 23% Other Workforce Partners
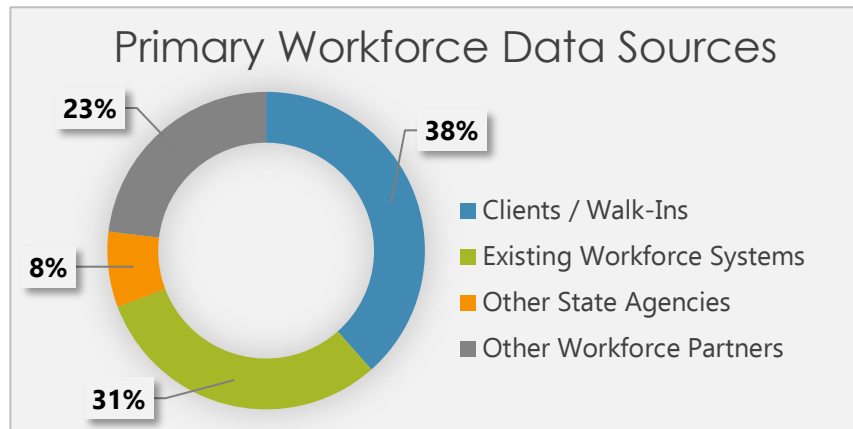
As they plan for future WorkSourceWA developments, policy makers may also want to consider developing a master plan to guide the strategic choices and phases of further growth and the resource and financial support that WorkSourceWA will need to become fully implemented through the state enterprise. A phased approach to planning may help decision makers prioritize the timing and schedule for additional development and implementation, and help them navigate through the financial, resource and legal challenges that limit what policy makers can do with current funding. This planning could in turn become a working document to use with federal funding agencies to help identify state-level implementation challenges and where additional resources will be needed to move forward.

Creating Systems to Provide Quality Customer Service

One of Washington workforce stakeholder's great successes has been the development and support of WIOA compliant American Job Center solutions that focus on delivering customer service to walk-in customers. One example is the Opportunity Center for Employment and Education (OCE&E) North Seattle, Kings County, WA opened in May 2011. Designed as an all-in-one integrated one stop center, it combines the services of three disparate state agencies under one roof on the North Seattle Community College campus. The agencies share human, capital, and IT resources and garnered legislative and policy leader support to provide shared social, education, and employment services under one roof to 40,000 individual visitors a year.

A second example is the integrated American Job Center at Joint Base Lewis McChord geared towards providing veterans with military to civilian employment transition services.

Known as Camo2Commerce, the program is managed by two workforce investment boards, the Pacific Mountain Workforce Development Council and Workforce Central, and combines services and resources from disparate state and federal agencies to assure veterans acquire the employment skills and job opportunities to make transition as smooth as possible.

These customer oriented services highlight the use of good business processes as the foundation of good service. They also show the importance of balancing the services provided online and in person and the need to assure that system services support both uses. The centers thrive beyond any current limitations of WorkSourceWA. Personnel at both sites express overall support for WorkSourceWA but still depend heavily on data collection and tracking tools developed in Excel, Microsoft 365, customer relation management (CRM) systems, and on other software platforms to conduct daily business. Much of this is because these are tools with which they were familiar before the implementation of the new system and because WorkSourceWA does not yet integrate these functions as part of its suite of services. Washington policy makers may want to determine which services could be integrated as part of future state-wide applications of WorkSourceWA, and how they could be developed, as they prioritize future system builds.

Measuring Performance at the Federal, State, and Local Level

Since the start of system development, Washington State implementers have spent considerable time and effort translating WIOA mandated performance measures from the

Consistent Metrics?

17%   16%

67%

- Yes
- Mostly
- No

U.S. Department of Labor (DOL) Employment and Training Administration (ETA) into standardized reporting functions that users can produce at the push of a button. This functionality has reduced the time needed to prepare reports and freed up staff to focus on other required reports that have not yet been implemented in the system. Participants recognize the transformation of metrics into automated processes as a fundamentally positive attribute within WorkSourceWA. However, participants left little doubt that the inconsistent implementation of performance metrics within the system – particularly at the state, and local level – were a significant system constraint in the short term.

In the coming year, implementers will need to prioritize developing the capacity of WorkSourceWA to capture and enable data collection and reporting on the myriad of performance metrics across multiple workforce services. Participants said they were aware of multiple basic metrics in use that were still being produced largely by hand, particularly at the state and local level. Under the prior system, analysts had full access to the state's data
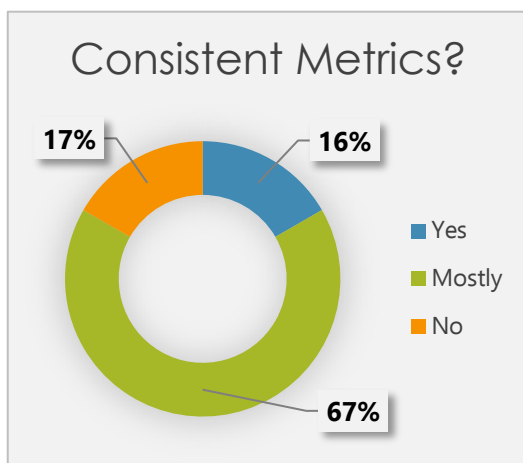
warehouse and were empowered to find the data they needed in the warehouse and input it into their database or data analysis tool of choice – most frequently Microsoft Excel or SQL – to produce the results they needed. With no data warehouse and limited understanding of what data is in the system or how to access it, analysts are currently producing results manually or not at all.

Respondents Aware of Basic Metrics

- Public Facing Performance Metrics
- Client Management Metrics
- Other
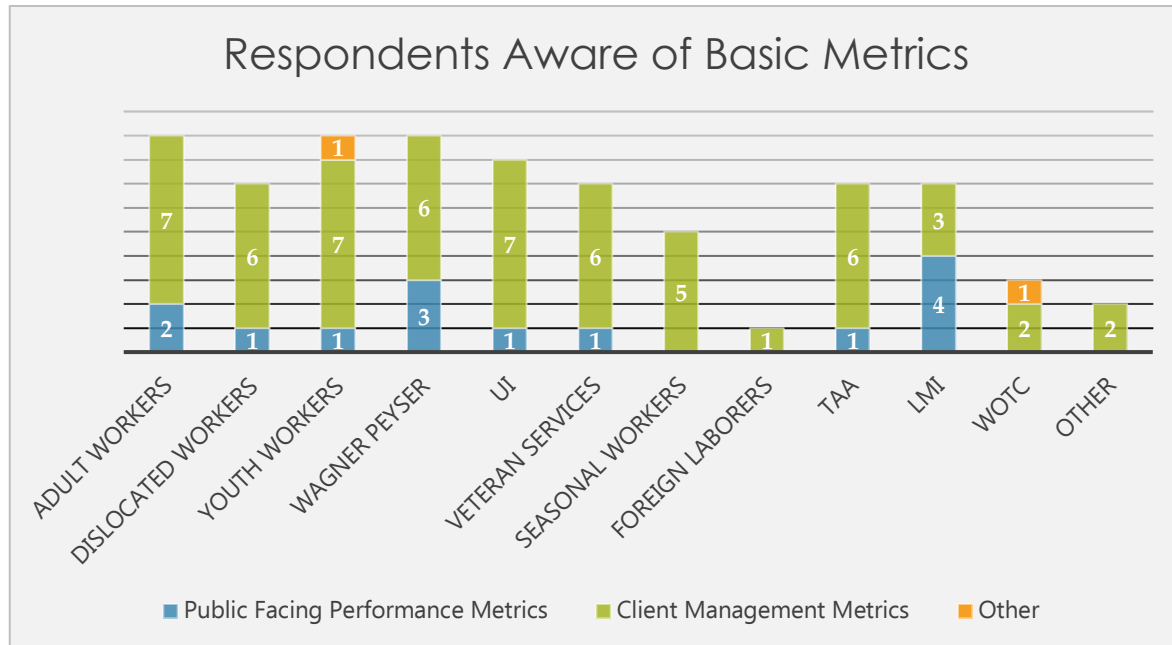
Participant's strong knowledge base in available basic metrics is a great resource that can help technical staff in the design and development of metrics that take full advantage of available data. Insight from participants at all levels of the state enterprise may also help technical staff determine policies for the maintaining, warehousing, and archiving essential data, and for deleting unused data taking up space within the WorkSourceWA ecosystem.

Equally encouraging is the level of participant knowledge in additional performance metrics that provide a fuller picture of workforce activities. As it stands, participants are concerned that federally mandated metrics alone do not provide a full picture of the level of workforce services performed by staff of import, particularly in key metrics related to training, business services, counseling, and education activities. And while many of the state mandated metrics provide that picture, WorkSourceWA does not currently support them.

Technical implementers are aware of the system's limitation in usable metrics and have signaled that they will be implementing additional metrics to enable automated data collection and report generation in the near future. Implementers are already in the process of developing additional canned reports based on accessible data to provide added on-demand services across the enterprise but will need help from other state-based workforce stakeholders to ensure that future metrics meet state needs.

Respondents Aware of Additional Metrics

Legend:
- # Participants in Workforce events
- Real costs for events
- Outcomes by course study
- Outcomes by learning provider
- In the works
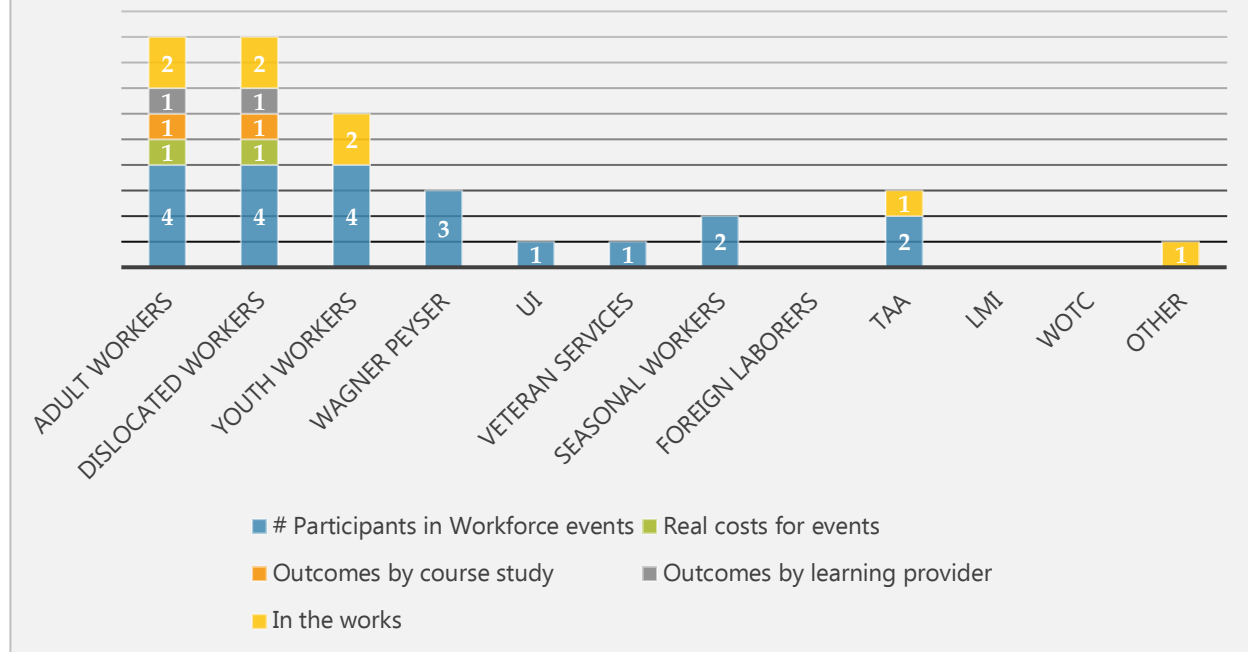
To that end, implementers should consider the following recommendations:

- Develop a standing mechanism to enable additional feedback, inputs, and exchange between operational staff and managers and WorkSourceWA technical team members on metrics that matter across the enterprise;
- Provide a data mapping, data warehousing, or similar feature for analysts and report generators with appropriate training and access rights to create metrics, find and collect results from available system data, and generate reports as needed to fulfill their own performance reporting obligations;
- Facilitate a metrics development process through which workforce stakeholders can funnel ideas for new and useful metrics to decision makers and technical implementers for potential implementation as a WorkSourceWA automated service;
- Develop system and user metrics that appropriately measure the impact of online services to front-facing workforce activities; and
- Develop additional back-end and system specific technical performance metrics that provide concrete feedback to decision makers on the impact of technical operations and help to justify any needs for additional financial or human resources.

To promote innovation, Washington State may also want to consider developing a series of workforce datasets highlighting particularly challenging technical issues that are accessible to outside, select researchers who have signed appropriate legal, IP and other data privacy releases. Such research initiatives could help the State and other workforce stakeholders discover methods of measuring workforce events and activities to the benefit of the greater public.

Implementing the System Technology

The Foundation for WorkSourceWA

Washington State has successfully navigated the first steps of implementation and launched a viable, working COTS-based system to meet their needs. The process started as an initiative to address a greater need for better digitized workforce services overall and evolved into a system prioritized to implement WIOA mandated reform. Now that WorkSourceWA is well on its path towards WIOA compliance and is being actively used throughout the state enterprise, implementers will need to turn to building management and technical process that support the broader swath of current and future system operations over the long term.

From the beginning, implementers developed a series of foundational processes that helped them manage the development phases of WorkSourceWA. These processes assured that implementers did not overlook critical steps and features relevant to digitizing core

1 — Data Flows and System Architectures	Documented Process	Undocumented Process	None
Common definitions of different data types, categories, libraries, taxonomies, etc.			☑
Data architectures, system architectures, system designs clarifying inputs and outputs		☑	
Clarity on all manual, semi-automated, and automated data ingest mechanisms		☑	
Clear Extract, Transform, and Load (ETL) protocols	☑		
VV&A procedures for assuring quality of ingested data		☑	
VV&A de-duping, alignment, integration protocols for ingested data		☑	
Data fusion schema identifying how data aligned and displayed to different users			☑

processes. State implementers in Washington focused its efforts on building data flows and system architectures that supported the same data that was available in the legacy system, specifically data that fell under the administrative purview of the ESD.

ESD stakeholders decided early on that it wanted to build a system that was modern and sophisticated. Recognizing that it did not have the appropriate level of in house staffing on hand to produce a modern digital product, the state decided it would be more effective to pursue a COTS vendor to build its workforce system. By choosing a COTS solution, the state knew it would be restricted in its ability to create a fully customized system and had to adjust expectations on what could and could not be done based on the vendor's platform, data and usage restrictions, and other negotiated terms. In hindsight, however, implementers believe they did not fully understand what they needed this new system to achieve, from the perspective of user functions and from the system and data management perspective, affecting their vendor search criteria and initial system requirements process.

With Monster as the prime contractor working under the state's direction, the state started clarifying its requirements and developing the tools and processes it needed to manage the system build over time. While overall the process ran smoothly, another significant stumbling block became the lack of documentation on and access to implementers of the legacy system. As state implementers made their search for new COTS system implementers known to workforce stakeholders, state IT staff responsible for upkeep and upgrades of the prior legacy system started leaving the agency. By the time Monster was ready to start developing

2 Data Management Processes	Documented Process	Undocumented Process	None
Anomaly / fraud detection protocols		☑	
Ongoing mgmt. / monitoring of network flows - interruptions in data pipelines			☑
Ongoing user account management to ensure system access based on roles		☑	
Data mitigation plans in cases of network outages, cyber attacks, etc.			☑
Clear security and privacy protocols to manage and protect data, including PII	☑		
Data provenance procedures, including time, and source stamps of forensic value		☑	
Data storage, warehousing, and archiving procedures for raw and processed data		☑	
Contact information for key data providers, WIOA system admin	☑		

the new system, most of the state staff direct knowledge of and experience in the data flows and system processes used to develop the legacy system were no longer available for consultation. This created a significant knowledge gap between what data and systems existed already and what had to be implemented from scratch within the Monster product.

Facing time and resource pressures and lacking any mapping of the legacy system, implementers decided to focus more on building the system than on documenting any processes being used to get there.

3 User Interface Processes	Documented Process	Undocumented Process	None
Single Sign-on for users to access different workforce program services	☑		
User interface that enables workforce services across cloud and mobile platforms	☑		
User specific / need based system access levels (e.g, customer vs. staff vs. admin)		☑	
Online user communication and collaboration mechanisms (chats, message boards, wikis, etc.)	☑		
User-oriented analytics dashboards (customer, workforce staff, etc.)		☑	
Standard Operating Procedures, training manuals, offsite or onsite training, etc.		☑	

This somewhat ad hoc approach to managing implementation and changes in the system was good enough in the short term. However, as state decision makers consider adding new features and processes to WorkSourceWA, they will likely need a more formal and documented configuration management process that considers how legacy data and processes can be mapped into the new state system as well as how to incorporate data and feedback from affected user groups and state priorities before choosing a course of action.

Good configuration management became more important once the state was tasked with implementing WIOA within WorkSourceWA. The WIOA policy directives were insufficient and did not include any guidance or technical details that technical implementers could use to translate broad language into executable code. State implementers were first forced to translate the broad directives into business process and then to build code to execute those process directives within the environment, with no clear understanding on whether their interpretation of federal mandates would meet federal intent. Despite this, the team muddled through developing the foundational system as well as they could, making changes to the system as new directives and clarifications of federal intent were issues, and slowing down the overall timeline for implementation in the process.

4 Data Output Processes	Documented Process	Undocumented Process	None
Data selection and output to different analytic tools / processes		☑	
On demand data analysis, interactive displays, dashboards		☑	
Mechanisms (MOUs, etc.) for sharing data between different stakeholder systems		☑	

While recognizing that the system was still in development at the time of writing, participants shared several concerns that could affect future implementations if not addressed during the system build. One of the biggest concerns was that implementers start migrating WIOA relevant data from the legacy system into WorkSourceWA as soon as possible. Stakeholders recognized that few if any members of the technical or other stakeholder implementation teams know enough about what is currently in the legacy workforce system data stores, how data is structured, how any of that data might be used to fuel additional collection and report generation efforts, and indeed whether or not the level of detailed user registration data that stakeholders were required to collect in the legacy system are essential to collect as the state streamlines its workforce business processes. As a result, other than what is being directly used in WIOA reports, the rest of the data is a veritable black box of information.

A second major concern is the lack of documentation of processes to date. The state has only documented 25% of technical processes listed on the assessment questionnaire. With only 4-5 core technical staff assigned to the implementation team, there is a real risk that any further attrition or loss in personnel could result in critical single points of failure in the system and limited resources to rebuild. This issue is compounded by the contraction of and staff attrition within the technical team. Participants report the loss of key technical personnel with the knowledge and experience to maintain the system and troubleshoot when needed. That loss of core knowledge is irreplaceable. Finding staff with similar technical skills could be extremely costly. Employers on the open market are already paying high premiums for technical staff capable of managing enterprise systems. Preparing less experienced but perhaps less pricey technical staff to take their place would take months, if not years and result in additional technical training costs to assure their skills are commensurate with the level of system need.

Additional concerns with technical implementation lie in the incorporation of feedback and inputs from power users with knowledge and understanding of line operations, reporting requirements and policy needs into system requirements. Having user groups involved in the early stages of defining system requirements and having them test and provide feedback on alpha, beta, and operational versions of a system is very useful. But for WorkSourceWA and other workforce systems where user interaction with and use of the system is key to providing quality service to multiple workforce stakeholders, integration of business processes and user viewpoints throughout development and implementation is key.

Also of concern is the lack of adoption by WorkSourceWA users despite limited training. This is likely a temporary result of the limited rollout of system services to date. Undoubtedly, as the technical team implements more features in future system updates, users will increasingly adopt WorkSourceWA and abandon other duplicative tools. However, without additional training, management incentives to promote the use of the system, or system and user metrics to track usage metrics, it may be difficult to track user behavior or illicit additional user feedback to determine whether other courses of action might be needed.

From First Steps to Robust System

As the ESD technical team prepares for and prioritizes implementation tasks for the next states of development, decision makers may want to consider the following recommendations. These recommendations stem directly from participant comments on the technical capabilities they either need to have or would like to have in a fully implemented system and can serve as a base from which to gather more information and requirements and plan for future builds. Specifically, decision makers should consider:

- Transforming participant identified metrics, data collection, and report generation processes used at the state and local level into additional WorkSourceWA features;
- Working with policy makers to develop data sharing agreements that enable the exchange or integration of state-wide workforce data into WorkSourceWA processes;
- Creating a self-service feature that allows select, vetted workforce stakeholders to rapidly access and download data that can be merged with data from other sources, developed into performance metrics and used to report on activities of note;
- Developing a master plan for future system implementation that highlights processes in place for supporting and maintaining the existing system; eliciting feedback from users on potential system upgrades; decision making, prioritizing, and scheduling phasing for system upgrades;
- Hiring former technical staff to consult with current staff on the underlying business process and technical implementation measures taken within the legacy system to identify additional processes for incorporation in WorkSourceWA;
- Hiring a new or tasking an existing staff member to document the processes that are currently being developed as part of WorkSourceWA implementation;

- Hiring new or tasking existing staff members as use case specific trainers that develop tools and materials and provide training to help workforce staff become more proficient in core functions related to their professional responsibilities;
- Hiring a new or tasking an existing staff member to identify and map data currently being collected in the system, determine the utility and usability of active data stores and data archives, and develop data schema and related dictionaries that allow users to rapidly understand the quality, quantity, and utility of data to different workforce business processes and performance reporting needs; and
- Designate existing staff members with experience in different core workforce business functions as dedicated members of the technical team working directly with technical staff to provide daily inputs on technical builds and liaise with operational staff to assure that builds meet user expectations on system performance.

Supporting the Workforce – Operational Readiness

User Interactions with WorkSourceWA

There are five basic users that interact with WorkSourceWA. They are workforce customers using employment services, case managers that help job seekers navigate the workforce system and find what they need, business service managers that work with job providers to assure they have the information and tools they need to find the right candidates, analysts who generate reports on workforce services and job conditions for customers, state and federal agencies, and managers who assure workforce business and technical systems have the resources, personnel, and budgets needed to perform workforce activities. In its current iteration, WorkSourceWA's services are predominately focused on the job matching and case management services for which it was designed. System integrators will be adding additional report generation capabilities and looking into how to enable the system to provide additional services in the near future.

Collecting User Data

Users seeking employment services provide the majority of the data fueling WorkSourceWA's other services during the system registration process. When registering, users are led through a series of cascading questions that help determine the kinds of workforce services and programs for which they qualify. The collected data is then used to automatically populate fields in the case management and job seeking services and is immediately accessible to users with appropriate access rights.

In the current instantiation of WorkSourceWA, 90% of the system's users now interact with online services only and only 10% visit American Job Center Sites. The increase in demand for online services has triggered the state to focus its current resources administering the online system to assure that users can access the services they need. If needed, users may request additional services from a workforce representative, at which point a case manager can interact with a user online.

Hours Per Day Collecting Data

- 25% — Less than one (1) hour
- 75% — 1-2 hours

Users who visit American Job Centers in person are likewise directed to complete the registration process through the system interface from kiosks available at most American Job Centers. As with online services, case managers only interact with those users if the user has requested additional services. Case managers who are contacted by users frequently help users clean up and complete their registration forms and identify additional programs they
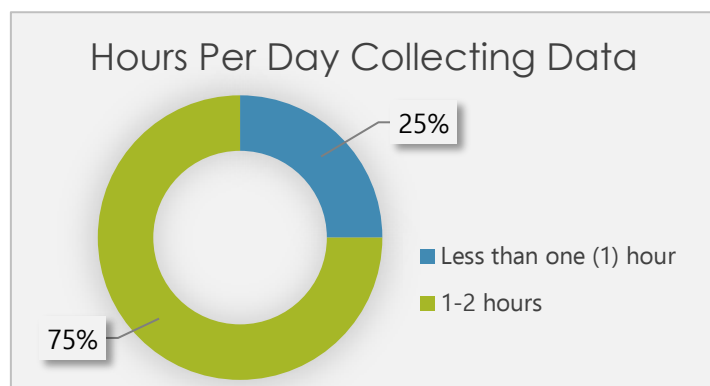
qualify for, services that might interest them, and help direct the user to other programs administered by other state agencies. In support of these core functions, case managers highlighted their appreciation of the new system's ability to ghost user screens and walk users through the registration and intake forms to find the services they needed.

While WorkSourceWA is already enabled to collect and capture data on core job seeker and other data used across the enterprise, implementers had not yet enabled the system to measure attributes related to the full gamut of state and local reports, including collecting data on workforce events and activities held at local centers. As such, implementers were still unclear whether they were already collecting that data, whether they would need to modify the system workflow to provide additional state and local capability, or whether they would need
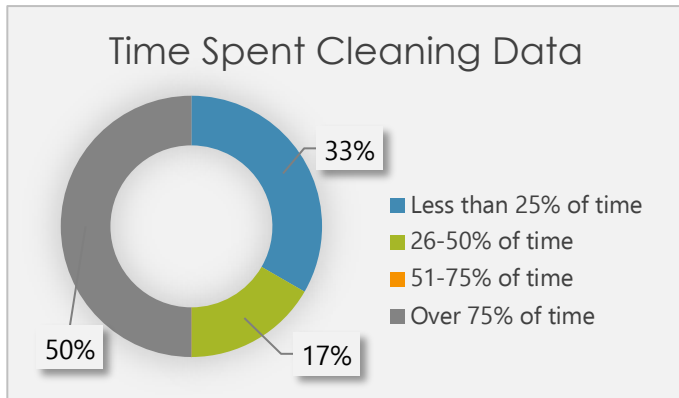
Time Spent Cleaning Data

33%
50%
17%

- Less than 25% of time
- 26-50% of time
- 51-75% of time
- Over 75% of time

to provide users with local and state reporting requirements alternate processes to collect workforce data needed for their reports. Implementers and particip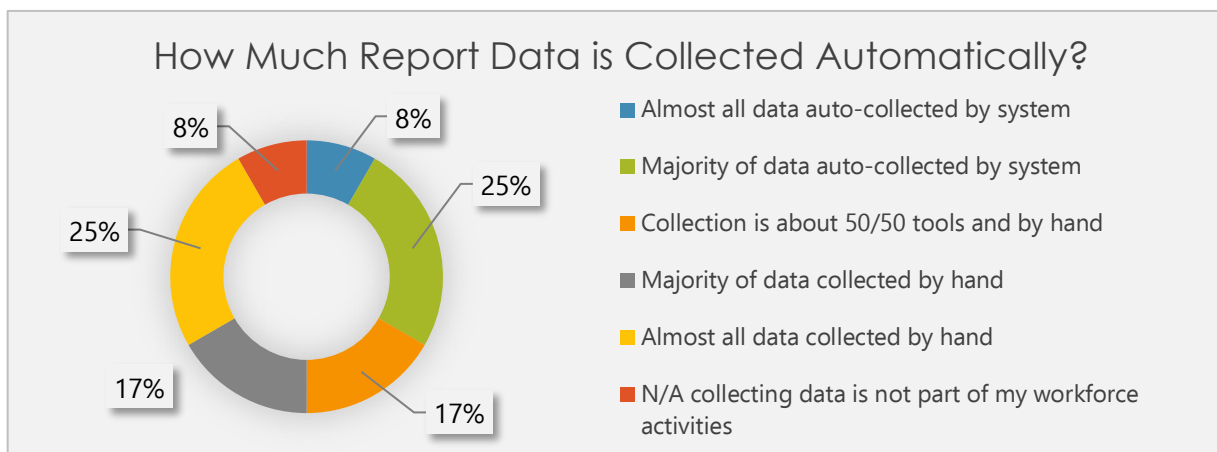ants believed, however, that this was a short term challenge related to the stage of the system build and that over time they would be able to use the system to track events and activities that are not currently recorded in WorkSourceWA.

Overall, participants expressed satisfaction with the WorkSourceWA data collection capacity to date. With WorkSourceWA launched, on average they spent less than two hours a day collecting data to complete assigned tasks. Much of this work was devoted to helping users clean up their profiles. However, some time was also devoted to interacting with

How Much Report Data is Collected Automatically?

8%
8%
25%
25%
17%
17%

- Almost all data auto-collected by system
- Majority of data auto-collected by system
- Collection is about 50/50 tools and by hand
- Majority of data collected by hand
- Almost all data collected by hand
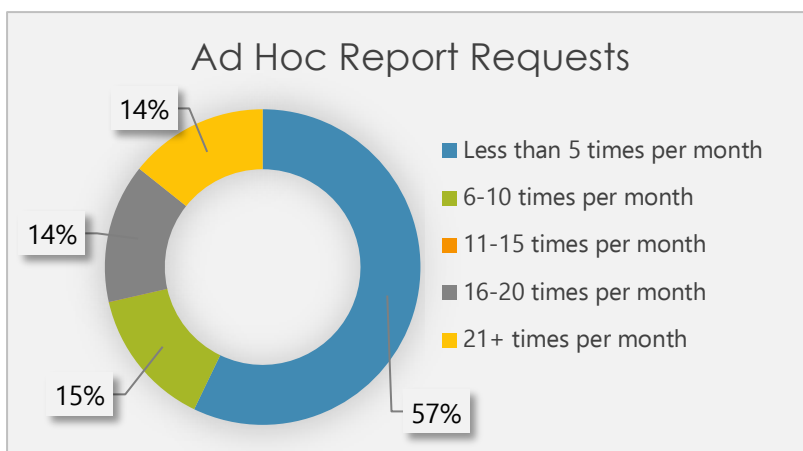- N/A collecting data is not part of my workforce activities

workforce personnel from other state agencies to collect additional information on users from other state systems. As a result, case managers are frequently being tasked with manually supplementing data in WorkSourceWA with information from outside systems.

While data collection on users interacting with the system worked well, the case management component of the system was still not functioning well. System implementers were aware of issues and were troubleshooting to resolve them at the time of writing. However, in the interim, participants expressed considerable reservations in the capacity of the system to collect any other data of relevance to tracking workforce activities and services provided, such as job fairs, workshops and seminars.
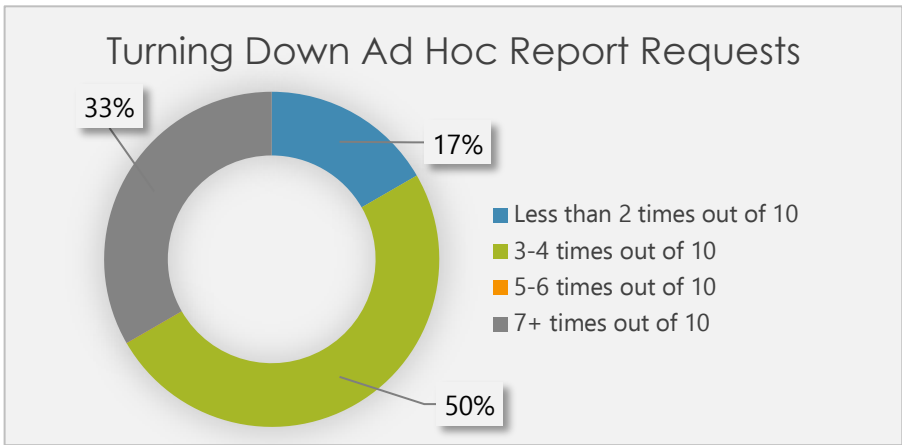
Participants tasked with generating reports as a job requirement spend a significant amount of time collecting and cleaning data. These participants, mostly analysts and business service providers, spend over 75% of their workday collecting and preparing data for reports to meet job requirements. As a result, these participants have little time to focus on actual analysis and find their ability to produce additional insight severely limited. This is a significant pain point they hope will be addressed in the near future.

Generating Reports

The limited capacity to generate reports is by far one of the most significant weakness of WorkSourceWA implementation to date. While the canned reports available on the system meet basic federal needs, they do not fulfill any state or local reporting, or business service or performance management requirements. Nor do they provide a means for analysts to provide services to the state's legislature, business, non-profit, or other stakeholder communities with specific, custom information requests. These services used to be provided by analysts who accessed the state's data warehouse. But without data to fuel this task, analysts are forced to collect and clean their data manually.

Ad Hoc Report Requests

- 14%
- 14%
- 15%
- 57%

- ■ Less than 5 times per month
- ■ 6-10 times per month
- ■ 11-15 times per month
- ■ 16-20 times per month
- ■ 21+ times per month

67% of participants report they spend less than five hours a month creating and responding to ad hoc reports. This may be because many participants did not produce ad hoc reports as part of their overall workforce functions. It may also be a result of self-selection. Analysts may only be able to respond to requests that are dependent on data they know is in the system, such as LMI data, or on data they can get from other systems. But if the requested report requires significant research to find and collate the data and takes up too much time and effort to complete, participants may be forced to deny the request.

Turning Down Ad Hoc Report Requests

33%

17%

- Less than 2 times out of 10
- 3-4 times out of 10
- 5-6 times out of 10
- 7+ times out of 10

50%

Regardless, the result is that analysts specifically tasked with responding to ad hoc requests are forced to turn them down consistently. The third of participants who respond to request reported they must turn down 70% of the requests they receive.

Implementers are aware that the system's capacity to generate reports and respond to ad hoc requests is severely curtailed and are working to create templates for canned reports of relevance to state and local reporting as rapidly as possible. The current problem-solving focuses on identifying as many state and local metrics as possible to enable the technical implementation team to produce more specific canned reports that answer multiple needs.

This process would benefit from a feedback loop that allows participants to funnel different report formats and related metrics through to state implementers for consideration as canned reports. However, it will not replace the analyst's need to generate custom reports as needed by different workforce stakeholders, particularly from local communities. To fulfill that need, analysts will need to have access rights and training in querying a replacement data warehouse or its equivalent. In turn, building a useful query database will require considerable time and effort mapping data and creating schema to make data accessible to a broad audience.

The lack of system capability related to workforce event and activities management also resulted in many participants using other tools to track reportable data. Indeed, participants reported that among their staff, using additional tools was still a rule rather than an exception. Most participants were using tools they developed in Microsoft Excel. Participants with report generation duties also said they maintained their own SQL or Access query databases. Other tools participants mentioned using included WIT, VESAS, eJAS, and UTAB.
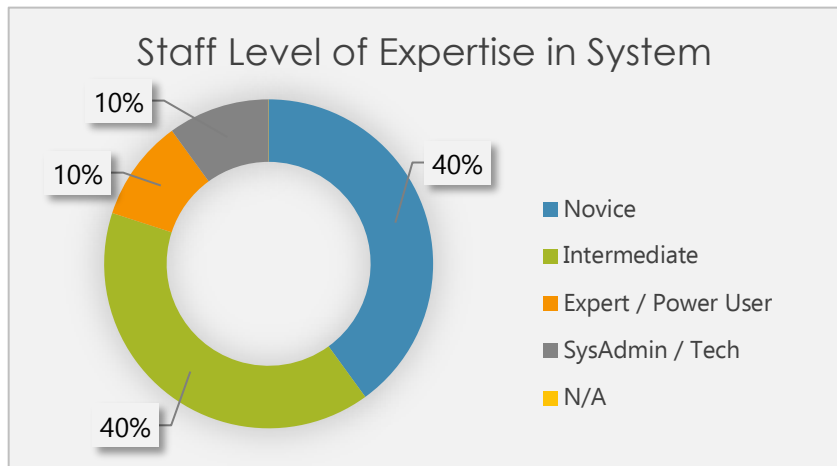
Despite these limitations, participants were confident that the state system will eventually be able to provide them with tools they could use and look forward to future capability.
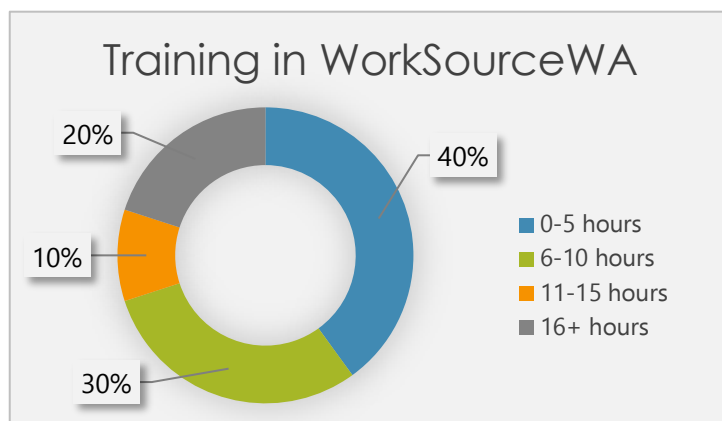
Rating WorkSourceWA

Participant Level of Experience in WorkSourceWA

As the system is still new and not yet incorporating full workforce functionality, participants did not yet feel they had significant experience in the system or knew how to use it to its best advantage. During exchanges on emerging participant views, state implementers expressed that much of the functionality participants wanted were already implemented within the system. However, participants were largely unaware of any additional functionality that could help them do their jobs. At the time of the study, the majority of participants had received less than five hours of training in the basic functionality of WorkSourceWA and how to navigate the system. It is unclear how many participants had received specialized training that helped users learn functions that were specific to their responsibilities.

Staff Level of Expertise in System

10%
10%
40%
40%

- Novice
- Intermediate
- Expert / Power User
- SysAdmin / Tech
- N/A

Training in WorkSourceWA

20%
40%
10%
30%

- 0-5 hours
- 6-10 hours
- 11-15 hours
- 16+ hours

System implementers do not currently have the resources to provide additional training in tool functionality. With limited resources at hand, the state focused more on building the system, and keeping training costs, and options, minimal. While the newness of the system certainly plays a key factor in tool adoption throughout the enterprise, the lack of training capacity is likely contributing to participant resistance. Once there is more core functionality in the system that addresses user needs, the state should provide more training resources to assure that users more fully understand system capabilities and functionality that address their needs.

Rating Current WorkSourceWA Features

Overall, most participants rated core system features as being ok to good all while recognizing the implementation process was ongoing and reserving judgment for the final

product. Many expressed the firm belief in the implementation process and reiterated that no matter their misgivings, the capability of WorkSourceWA even in its current limited implementation was significantly better than the functionality of the state's legacy system.
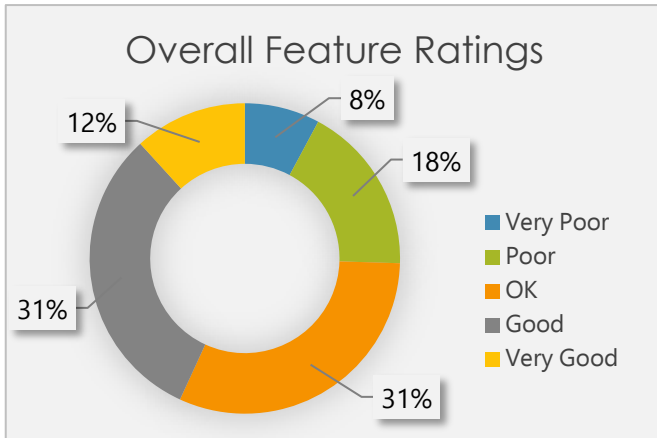
When rating different tool features, participants thought the system worked particularly well in terms of ease of use, data collection capacity, and level of available support. This speaks highly of the functionality that implementers have completed within the system to date. It also reflects participant views that the system implementers have been responsive to user requests for service and general system needs. The low scores for system maintenance likely reflect the reality of configuration management and other troubleshooting changes that are inherent early in the adoption timeline of any new IT system. It takes time to work out kinks in a new system.
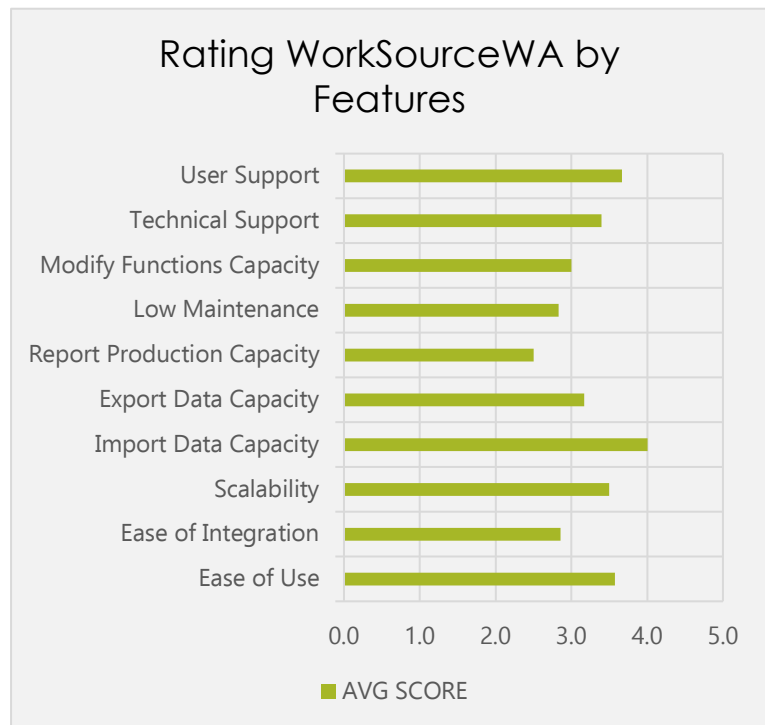
Likewise, it is not surprising that the system does not currently score well in terms of its ability to provide data export or report functionality. State implementers have been working on meeting WIOA mandated reforms and are now turning their attention to addressing state and local requirements. Participants fully expect that their overall satisfaction with the tool will improve over time, particularly as the state develops additional reporting services.

Recommending WorkSourceWA?

While participants expressed support for the overall implementation process, the majority remain neutral about recommending the underlying system to others in its current form. This reflects an over-riding sense that participants want to wait and see how the system performs over the long-term. However, more participants responded very positively to developments to date, with 18% saying they would very likely recommend the COTS system to others.

Overall Likely to Recommend?

- Not Very Likely — 5%
- Not Likely — 13%
- Neutral — 51%
- Likely — 13%
- Very Likely — 18%

Recommendations by WIOA Program

Program	AVG SCORE
WOTC	~2.5
LMI	~2.5
TAA	~3.6
Foreign Laborers	~3.0
Seasonal Workers	~3.6
Veteran Services	~3.7
UI	~2.3
Wagner Peyser	~3.7
Youth Workers	~3.0
Dislocated Workers	~3.4
Adult Workers	~3.4
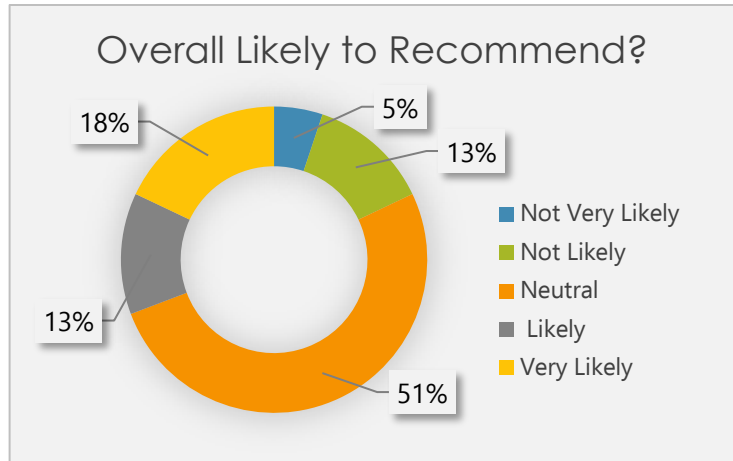
Major WIOA mandated programs and veteran services received better ratings than other programs, most likely because the current system is best configured to collect information and report on programs of greater interest to federal workforce authorities. WorkSourceWA was not well recommended for use with programs that are administered by other state or federal agencies. If state implementers resolve outstanding data sharing issues between state agencies and develop additional means to integrate this additional data into the WorkSourceWA interface, the recommendations for using WorkSourceWA in conjunction with these programs would likely increase.

The Takeaways – Best Practices and Lessons Learned

Overall, ESD implementers have effectively developed and launched a 1.0 version of WorkSourceWA that is fully enabled to meet WIOA requirements for performance measurement, data collection and federal reporting as related in the PIRL. However, with less than a year in operation, Washington is still in the early stages of developing and upgrading its digital workforce system. Having assured that the system provides core federally-mandated services, state implementers can now move into building the mechanisms to maintain current services and build additional functionality to meet the additional needs of workforce service customers and staff over the long term.

Washington State's efforts to date have direct relevance to other states as they consider their own paths forward towards overhauling or replacing their workforce digital systems. Participants believed that state implementers did a lot of things right from the start, fostering an environment that will help over the long run. The following sections outline the insights and reflections gathered from study participants believe Washington implementers did well, and the challenges it will need to overcome as they move forward.

Road to Success

Participants identified several steps that Washington State implementers took from the beginning to help ensure their capacity to build WorkSourceWA into a successful system. That these exist help to keep all stakeholders in the state engaged in and supportive of the implementation process, despite any reservations over WorkSourceWA functions. The enabling practices the state put in place include the following.

- Leading from the Top – Participants consistently highlighted the effectiveness of Washington's workforce policy and decision makers. State leadership showed an ongoing willingness to champion the development process, and to roll up their sleeves and take responsibility for pushing the project forward. Participants also lauded the state's willingness to adapt its overall problem solving approach, particularly when implementers were faced with retooling requirements to make sure they complied with WIOA mandates.
- Assuring stakeholder buy-in and co-ownership – At the beginning and at key intervals through development, implementers made sure to understand what stakeholders needed from the system and to get their feedback as they developed core components. This resulted in greater team collaboration across all parties and helped to foster a cohesive supportive and enabling development environment.
- Communicating with stakeholders – Implementers established ongoing communication and feedback processes early on to make sure that stakeholders were kept updated and informed over the course of implementation. In addition to monthly update meetings, implementers actively promoted development efforts throughout

the state and made sure to involve key stakeholders in initial and ongoing discussions as system needs evolved, fostering significant support for the process throughout the state.

- Learning through doing – With no clear WIOA roadmap to follow, state implementers were left to their own to figure out how to put WIOA into action. The willingness of multiple stakeholders to work through the challenge, take responsibility for and learn from mistakes without finger pointing, and pivot when needed speaks highly to the team's ongoing collaborative and problem solving capability.

- Automating core business functions – State implementers recognize that they provide self-service functions that meet the needs of different types of users, the more they free up their staff to focus on workforce customers and provide a higher level of service. Implementers have adopted an approach to identifying ongoing user needs and automating as many collection and reporting functions as makes sense. Over time, this will likely lead to a WorkSourceWA system that provides customers with the self-service tools they want and need and workforce personnel with system support that helps them rapidly complete data collection and reporting requirements, enables them to spend the majority of their workday focusing on customers with greater service needs.

Facing Challenges

Participants offered an honest assessment of what they had learned through the development and implementation of WorkSourceWA. Specifically, participants felt that other states looking to learn from their experiences should consider the importance of

- Understanding operational needs for data, measuring performance, and reporting – Participants noted that fully understanding the daily processes of different system user types, including how they work with different federal and state data sources and systems early on in development, is key to full implementation. More than collecting user requirements, this means mapping out the operational processes and structures that enable the state to provide services, designing an architecture that fits those needs, and prioritizing those needs for development over time.

- Choosing system tools and vendors – Implementers did not feel like they had enough information about the functionality they needed out of their workforce system before they chose a vendor. While it worked out well for Washington implementers, they cautioned that other states should make sure that the vendors or system tools they choose will provide the best combination of core package service functions and customization to fit multiple stakeholder needs.

- Integrating operational stakeholders into the core technical team – Workforce systems are by their nature user service oriented. As such, state implementers benefit from fully integrating users representing different core workforce functions throughout future development processes, not just involved in monthly meetings. This day-in, day-out

involvement helps assure that technical builds meet multiple needs from the get go, and may cut down on the need for mid-stream pivots in response to user feedback on version builds.

- <u>Making data and services from multiple systems accessible in one interface</u> – In most states, disparate federal and state entities have responsibility for and control workforce data essential to providing stakeholder services. In a fully integrated workforce system, stakeholders need access to all of that data, whether that data is fully fused with core workforce system functions or simply made available to users from the user interface via API, VPN, or other appropriate data pipelines negotiated with outside system or data owners.

- <u>Providing self-service access to data</u> – While on demand report services are essential, there is always a need for accessible data that stakeholders can use to analyze and gain insight into workforce related activities, generate ad hoc reports, and respond to community service requests. To that end, the more that implementers can make useful and usable data accessible and easy to find through data warehousing and data cataloging services, the better.

- <u>Managing ongoing system development and changing configuration priorities</u> – State implementers will need to make decisions about, assign resources to, and track development progress in short- and long-term development priorities as they move forward. These priorities will shift, as will the needs of users as more services are implemented in the system. A good configuration management and agile development process helps implementers collect and make decisions about new requirements, and keep track of and explain decision making to stakeholders.

- <u>Helping users fully adopt new system</u> – In any new system, users will be unfamiliar with built-in functionality and capability of a system, particularly those functions that can help them do their job better. While all users should receive basic training, providing additional training in specific job related functionality will help users overcome any resistance and adopt a new system more fully.

- <u>Avoiding single points of failure</u> – In the face of limited technical resources, staff attrition, and an increasing risk of cyber incursions, implementers must make sure to build in redundancies that help maintain the system through any crisis. In addition to data management protocols, implementers need to make sure that there is ample back up and documentation of all of the workforce system processes.

Recommendations

To Washington State

Washington State has made significant first strides in implementing WorkSourceWA. Now that it is able to produce WIOA mandated federal reports, state implementers will need to prioritize between multiple needs. While deciding on which actions to complete over the short- and long-term, state implementers may want to consider prioritizing the following needs emerging from the study.

- Addressing state and local level reporting needs – Whether through the development of additional on-demand report services for state and local officials or making additional data resources available to stakeholders with reporting responsibilities, this core need emerged as participant's prime concern.

- Developing a new data warehouse – Stakeholders with reporting needs depended on the former data warehouse to respond to reporting requests by the public and legislators. Providing the means for stakeholder to query and output data from workforce databases will help stakeholders provide these critical services.

- Identifying and mapping data available within WorkSourceWA – With no available data dictionaries or schema, state implementers do not currently fully understand what data is available in their stores, how it can be used to provide additional performance metrics, or whether it needs to be collected at all. State implementers should begin defining and mapping what is in their data stores as quickly as possible as this will likely help them discover ways to use existing data to meet existing needs, and identify unnecessary duplication. Using a data cataloging or library system to help make that data available to other users would also be of benefit, particularly in the absence of a data warehouse.

- Negotiating data sharing agreements with owners of data from other state and federal systems – online users and local service providers need access to data from other state and federal systems in order to help workforce stakeholders receive all of the services for which they qualify. Negotiating agreements that enable implementers to give users access to data from other systems within WorkSourceWA, or providing users with a means of accessing additional data from the system's interface, would help multiple stakeholders access the full stable of data used to provide workforce services across the state.

- Documenting WorkSourceWA and WIOA implementation processes – Only 25% of the processes that state implementers have developed are currently documented. Making sure that there is enough record to recover from any failure is critical to the functioning of the system as a whole.

- Maintaining current and potentially increasing staff dedicated to development and maintenance of WorkSourceWA – Participants reported a loss of technical staff that may be affecting the state's capacity to maintain existing and grow new system

services. State implementers may want to revisit current technical staffing to determine whether it is sufficient to ongoing support and growth of services.

- Increasing stakeholder adoption of and use of WorkSourceWA services – The study revealed that some service providers were not using WorkSourceWA to its full advantage. This may be because WorkSourceWA does not yet provide the services these stakeholders need. It may also be because stakeholders are not aware that the system already provides mechanisms to perform functions important to these stakeholders. State implementers may want to investigate further and determine whether additional training, updates to WorkSourceWA, or performance based incentives will help to ensure that WorkSourceWA is more fully adopted and used by all key stakeholders.

- Backstopping on services not available in new system – some will be disappointed that the new system cannot provide all of the functionality that they want – to keep these at minimum, state may want to maintain a list of workforce related links, services, and tools that users may use to fulfill additional functionality not available in the current tool. The state may also want to consider how these services might be integrated into the state's user interface over time.

To Federal Policy Makers

Participants also highlighted several areas where US federal agency support would be beneficial and support WIOA implementation efforts in Washington State and elsewhere. Specifically, participants recommended that federal agencies consider:

- Providing implementation guidance beyond current body of regulations – The WIOA regulations and other documentation published to date does not provide sufficient guidance in how WIOA mandates could be transformed into operational processes and implemented on digital platforms. In the absence of recommendations for standardized operational procedures, usage manuals, example executable software code, federally vetted data maps or schema, or other process oriented WIOA guidance, state implementers are left to transform federal mandates into executables to the best of their ability and hope that they are compliant. Additional guidance and recommendations on how to proceed would help assure a higher level of standardization across performance metrics and minimize the potential for mistakes.

- Fostering capacity for states to exchange ideas, develop approaches, and learn from each other's WIOA implementation experiences – States are currently developing bodies of knowledge, experience and software executables that provide different functionality and can be used to implement WIOA and other regulations on digital platforms. States would benefit from being able to share operational and technical workforce knowledge in a password protected online forum – for example a workforce Wiki, Quora or GitHub like collaborative, online space – where users could post and

search for useful processes, schema, metrics, algorithms, code, etc. as well problem solve with others facing similar implementation issues.

- <u>Assuring that federal performance metrics account for the provision of critical online services</u> – Participants expressed significant concern that current federal performance metrics are not sufficiently documenting or giving credit to workforce services online or at the state and local level. For example, the roughly 90% of workforce stakeholder activity that is self-service and online on WorkSourceWA does not get credited as performance touchpoint under the current WIOA guidelines. This is despite the significant level of state workforce resources essential to system development and ongoing maintenance.

- <u>Developing metrics to credit level of care needed for complex cases</u> – Current federal metrics that measure case level or business service interactions as a single touchpoint with a workforce stakeholder do not sufficiently account for the complexity of different cases, the level of knowledge and research required to address various stakeholder issues, or the quality of service provided. Federal decision makers would benefit from incorporating additional performance metrics that more accurately reflect the reality of the customer oriented online and in-person services that state and local workforce personnel support on a daily basis.

- <u>Providing additional federal resources to support WIOA implementation at the state level</u> – Implementing WIOA mandated reforms and developing and maintaining workforce digital systems is expensive. With little federal support, state agencies are undertaking implementation using their own limited resources, doing what they can to bootstrap development where possible. Without ample funding, there will continue to be delays in the roll out of federally mandates services and performance measures. Federal decision makers may want to undertake a more pointed analysis of the costs and benefits of the digital transformation of data driven workforce services to help plan for and provide sufficient resources to state agencies in the future.

Acknowledgements

About the Facilitators

National Association of State Workforce Agencies (NASWA) is the national organization representing all 50 state workforce agencies, D.C. and U.S. territories. These agencies deliver training, employment, career, and business services, in addition to administering the unemployment insurance, veteran reemployment, and labor market information programs. NASWA provides policy expertise, shares promising state practices, and promotes state innovation and leadership in workforce development. For more information on NASWA and its role in promoting workforce systems innovation across the country, please contact Charlie Terrell at cterrell@naswa.org.

National Association of Workforce Boards (NAWB) represents approximately 550 Workforce Development Boards and their 12,000+ business members that coordinate and leverage workforce strategies with education and economic development stakeholders within their local communities, to ensure that state and local workforce development and job training programs meet the needs of employers. NAWB works closely with policy makers in Washington, DC to inform national strategy as it relates to WDBs and its partners in education, economic development, labor and business. For more information on NAWB and its advocacy for local workforce systems, please contact Josh Copus at CopusJ@nawb.org.

World Data Insights is a small, woman owned data consulting group with extensive experience in all aspects of designing, implementing, and maintaining data driven technologies and processes across industry, government, and international spheres. World Data Insights personnel have worked on multiple corporate, international, and government contracts of specific relevance to identifying and assessing the state of data driven systems used in disparate workforce processes. For more information on World Data Insights data and research services, please contact Anne Russell at Anne.v.russell@gmail.com.

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[i] All of the graphics, comments and insights in this report were developed using the results of the surveys and first-person in-depth interviews of workforce stakeholders – workforce personnel and partners – conducted during the course of the Workforce Data Assessment Project. At the beginning of each study survey or interview session, participants were informed that any personally identifiable information (PII) would not be shared publicly unless the authors received the participant's prior authorization to do so before publication of this report.

[ii] For more on the WIOA, its programs and intent, please refer to the Congressional Research Service report, "The Workforce Innovation and Opportunity Act and the One-Stop Delivery System" (47p, October 2015) - https://fas.org/sgp/crs/misc/R44252.pdf

CASE STUDY #2: A LESSON IN BOOTSTRAPPING

Utah's Experiences with Upgrading State Workforce Data Systems to Meet WIOA Guidelines

Report on the Workforce Data Assessment visit to Utah in April 2017 conducted by the National Association of State Workforce Agencies (NASWA), National Association of Workforce Boards (NAWB), and World Data Insights.

NASWA
NATIONAL ASSOCIATION OF STATE WORKFORCE AGENCIES

National Association
of Workforce Boards

World Data Insights

CASE STUDY #2: A LESSON IN BOOTSTRAPPING

Utah's Experiences with Upgrading State Workforce Data Systems to Meet WIOA Guidelines

Executive Summary

In April 2017, representatives of the State of Utah's Department of Workforce Services participated in a US Department of Labor funded project to study state level experiences in developing workforce data systems to implement reforms mandated under the Workforce Innovation Opportunity Act (WIOA). Part of a larger project assessing workforce data systems nationwide, the primary goal of this study is to identify best practices and lessons learned that can help other states with their own implementation plans and to clarify potential next steps for Utah.

Utah's workforce system, known as UWORKS, is a fully functional system in operation since 2002. Developed in house by state workforce and technology services staff starting in 1997, the UWORKS platform integrates workforce data from multiple sources into a user experience geared towards providing multiple Utah workforce stakeholders with customer-oriented services. Implementers have developed the product over time and continue to make updates, using feedback from stakeholders to assure that any new workforce data services they incorporate fit an operational need. The end result is an up-to-date system that is widely touted throughout the state for its ability to consistently provide on demand services and help workforce staff focus on the quality of their interaction with customers and generate disparate federal, state, and local reports on a complete range of workforce activities.

With a robust system and change management process already in place, implementing WIOA-mandated changes have not significantly disrupted the ability of Utah implementers to provide ongoing services to its workforce stakeholders. Like in other states, Utah had to retool basic processes within the system to become WIOA compliant. Additionally, implementers in Utah had to realign the system to assure it could still meet state-based and local policy directives implemented within the system. However, once core changes were incorporated, Utah stakeholders could manage

Utah Workforce Systems At-A-Glance

- Name: UWORKS

- Robust system developed by State of Utah Department of Workforce Services starting in 2002

- Web-enabled platform built around Oracle databases

- Core services: Job Matching, Case Management, Business Services, Performance Measurement, On Demand Reporting

- Implementing Agency: Workforce Development Division

- For more information contact Elizabeth Carver, Program Manager, at ecarver@utah.gov

subsequent WIOA changes as part of their existing processes for conducting maintenance and upgrades to UWORKS.

A significant factor in Utah's success has been the consolidation of all workforce services under one organizational structure, Utah's Department of Workforce Services (DWS). Since 1997, the year that Utah started building UWORKS, DWS has been the sole state agency responsible for all workforce related services. Utah stakeholders cited the recognition that workforce customers would best be served under a consolidated structure as a major factor in their decision making and then devoted considerable effort over 20 years creating and consolidating a culture of open collaboration and stakeholder feedback mechanisms to support decision making and system modernization efforts as they moved forward.

Another significant factor has been the state's modular systems design and engineering approach, and ongoing focus on prioritizing stakeholders (users) in every aspect of system development, maintenance, and updates. Implementers have taken into consideration the constant of change in policy environments and directives, the flow of workforce business processes, and changing customer needs as the prime motivation for design. And the result is a highly customized, robust, adaptable system that continues to serve the needs of customers and the workforce stakeholders who serve them.

Summary Recommendations

The state's efforts to date have resulted in a robust up-to-date system that stakeholders love. But what the state has done has come at a cost. While the state's singular system is highly customized, any and all system changes, maintenance, and upgrades are the responsibility of the state's development team. This factor puts a significant burden on their time, and with a relatively small team in place there is a risk of key implementer burn out. Given the state's culture of bootstrapping system development and maintenance, and the lack of redundancy in personnel able to manage UWORKS, there is also a critical risk that any loss of key personnel could lead to considerable disruptions to the system's capacity to provide ongoing services. To resolve this outstanding issue, we recommend Utah workforce stakeholders consider the following:

- Developing and maintaining robust documentation of existing architectures, services and utilities, user profiles, business/process rules, data libraries, data schema, and other information related to the core UWORKS system, on all ancillary systems and processes with which it is integrated that an implementer can refer to in case core members of the current implementation team are not available;
- Creating document store for policy directives, Memos Of Understanding, compliance literature, and contact information for experts in different aspects of workforce processes, and other policy and business processes that stakeholders can refer to in case core members of the current management team are not available;

- <u>Increasing staff dedicated to development and maintenance of UWORKS</u> to help ensure that key personnel have the back up and support they need to maintain existing and develop new system services; and
- <u>Training additional personnel </u>to be able to provide stopgap measures should any of the core technical implementation staff become unavailable.

Utah stakeholders may also consider sharing what they have done and how they have done it with workforce agencies and boards in other states. Given their successes to date, they could provide others struggling with how to revamp, upgrade, or otherwise implement reforms within their existing system to become more user oriented and stay WIOA compliant.

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Introduction to the Workforce Data Systems Project

Project Overview

The National Association of State Workforce Agencies (NASWA) and the National Association of Workforce Boards (NAWB) have undertaken a project to study and explore how emerging data driven information technologies can help align workforce program processes within the parameters of reforms required under the Workforce Innovation and Opportunity Act (WIOA) of 2014. Undertaken with support from the United States Department of Labor's Employment and Training Administration, the project is geared towards assessing the current state of workforce data systems and processes to:

- Analyze the data innovation challenges and successes state workforce agencies and local workforce boards are experiencing while trying to meet WIOA mandates;

- Identify workforce agencies and boards sharing similar successes and challenges;

- Facilitate sharing and collaboration between NASWA and NAWB members on best innovation practices; and

- Develop a body of knowledge and resources to which state and local entities can turn if they need extra help.

During phase 1, NASWA, NAWB, and World Data Insights, developed baseline assessment tools to compare the status of state and local workforce data systems across all 50 states. In Phases 2 and 3, we used the tools to collect and analyze data from participating states. The results provided an initial, broad level insight into the overarching, aggregated trends that effect the ability of state workforce agencies and local workforce boards to implement WIOA -mandated reforms. (To read the initial report, visit the NASWA website here).

In Phase 4, the team visited five (5) different states across the continent to collect and analyze additional in-depth information on board capacities, data strategies and policies, workforce data system components and tools, and on the business processes underpinning them for the development of state-level case studies. The focus of the state assessment studies was to understand local experiences with technical systems, learn what has worked, and assess the biggest challenges each participant is facing. States participating in the in-depth studies reflect a mix of experiences in implementation efforts, governing and policy environments, budget and resource constraints, and in the technical systems and business processes they use to support their local workforce stakeholders.

This in-depth report reflects the experiences and perceptions of Utah workforce staff and personnel participating in the second data assessment study. Conducted in April of 2017, the report captures a snapshot of Utah's entire workforce data assessment process, from the

technical systems underpinning workforce activities to the business processes that personnel use to provide state workforce customers with the services they need.

The insights gleaned from study participants can be a valuable resource for other implementers as they move forward with their own state-level WIOA system digitization and upgrade efforts and provide them with a glimpse of the experiences, lessons learned, and successes and challenges different states have faced in their efforts to date.

To conduct the in-depth study and gather all of the perspective and insights needed during the state level site visits, the team designed a series of surveys and tools based in systems theory. This systems approach focuses on integrating information from a broad swath of workforce system designers and users to assure that a full picture of all of the inputs and outputs into a state's system are captured and assessed. It also involved developing an assessment structure from which to contrast and compare perspectives on workforce systems across states.

The results of the study are provided in the context of a common assessment framework that is used to report on results for each state and provide a roadmap for deeper exploration of workforce system related issues over the long term. This common assessment framework enables WIOA implementers and the federal, state, and local level to compare, contrast, and analyze key variables that may help or hinder implementation of WIOA innovations at the state level for consideration of future decision making.

Details on the Utah Visit

In Utah, the team met with and elicited in-depth insight from representatives of state workforce agencies and American Job Centers (AJCs) involved in different levels of data systems and processes. During the visit, the team:

- Conducted focus group surveys and in-depth interviews with workforce staff and contractors, including:
    - operational stakeholders responsible for providing direct services to and interacting with customers;
    - technical stakeholders responsible for implementing and managing systems;
    - analytical stakeholders responsible for producing output reports and metrics; and
    - managerial stakeholders responsible for budgeting, policy and decision making;
- Observed notable business processes and how disparate workforce stakeholders interact with system tools;
- Observed how staff and contractors collect and process data and output metrics and produce reports at select state agency and AJC locales; and
- Interacted with workforce data systems, tools and processes to understand strengths and challenges of different systems.

The team conducted on site sessions with representatives from the State of Utah's Department of Workforce Services (DWS) in Salt Lake City. They also visited American Job Centers in Wasatch Front South, which represents 45% of the state's population and Ogden, UT which represents Utah's diverse economic interests. The team also discussed the activities of the State's Workforce Development Board and how it operates within the context of Utah's unique workforce agency structure as a single state with a single statewide workforce investment area.
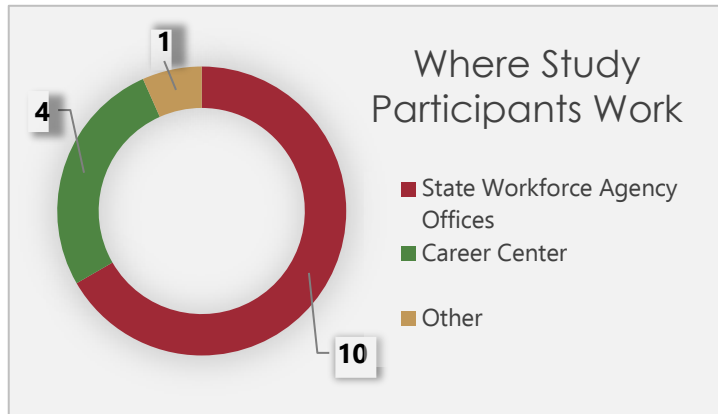
Overall, the team interviewed 15 workforce staff, all of whom participated in the assessment survey[i]. The majority of the participants held managerial positions at either the state agency or local operational level. Primary responsibilities for participants ran the gamut of workforce services at the state and local level and represented government, business and other key stakeholder interests.
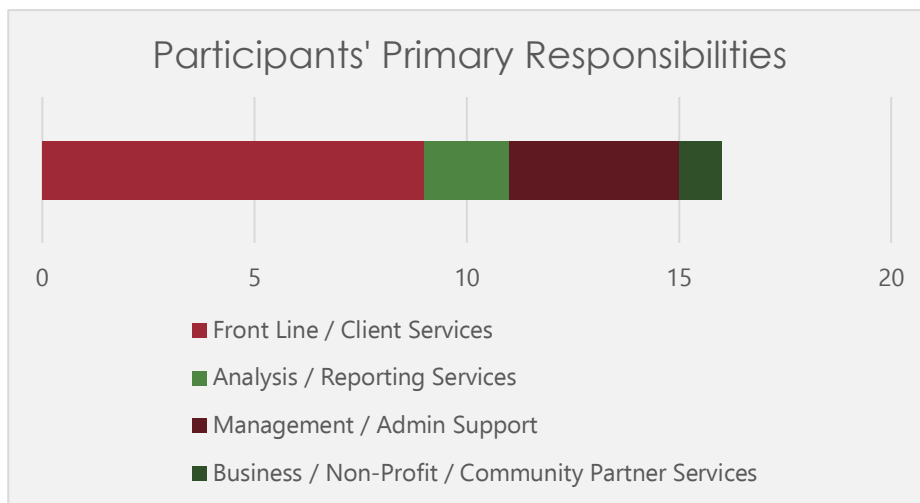
While the number of participants was relatively low, half of the respondents reported they had more than six years of experience serving workforce communities in various capacities. This depth of experience provided a rich source of insight into the needs of different system user groups, including targeted workforce user communities, data analysts and report generators, as well as the technical implementation teams responsible for the development and maintenance of the state's workforce systems.

Of particular importance to the Utah site visit was the opportunity to ask targeted in-depth questions to understand some of the nuances of daily interactions. This insight allowed the team to better understand the evolution of current business and technical processes in response to WIOA-mandated changes, analyze how they interact in the function of daily workforce operations, and identify common strengths and challenges across the state.

The Big Picture – Utah's WIOA Experience

State of Utah Workforce Programs and Services

All of Utah's workforce programs except for Adult Education fall under DWS's administrative rubric. The State Workforce Development Board operates as the sole board entity representing statewide economic interests. The state maintains 32 local offices around the state. The majority of the state's workforce activities are centralized around Salt Lake City and neighboring regions, but state services also includes one person offices that cater to some of Utah's largely rural and sparsely populated regions where unemployment is higher than the state's average unemployment rate of 3.1%.

WIOA Programs in the One-Stop System

Adult... | Dislocated Workers | Youth Workers | AEFLA | Wagner Peyser | Vocational Rehab | UI | TANF | SNAP | Veteran Services | Senior Services | Seasonal Workers | Native American | Foreign Laborers | TAA | LMI | WOTC | Apprentice Programs | ETPL | Other

Service Delivery Hubs | Common Registries

All 18 WIOA programs [ii] except for Adult Education have been fully integrated into UWORKS which serves as the one stop point of entry for all state workforce services. From the system's service delivery hub, users seeking Adult Education service are referred to an external system, Utopia, administered by the Utah State Board of Education.
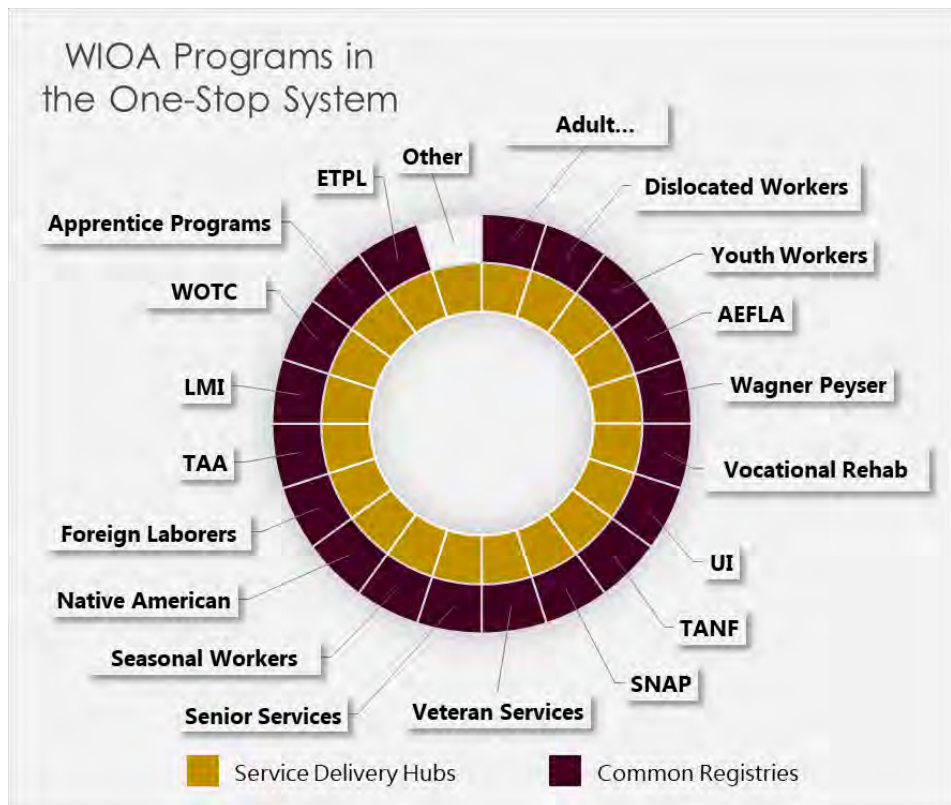
How Staff Use the "Data Bus"

Performance Accountability | LMI | Data Sharing | Data Analytics
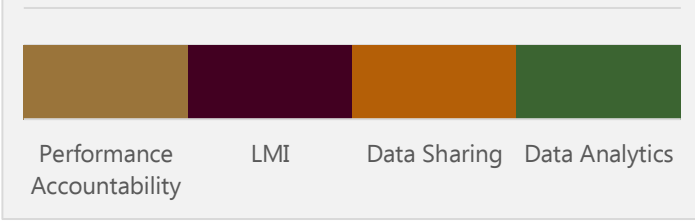
Utah has also developed a robust Data Warehousing feature known as the "Data Bus" that allows credentialed staff to access a secure server with partitioned data. While only limited staff can access the Data Bus directly, those with access rights use it to share data and generate reports in existing

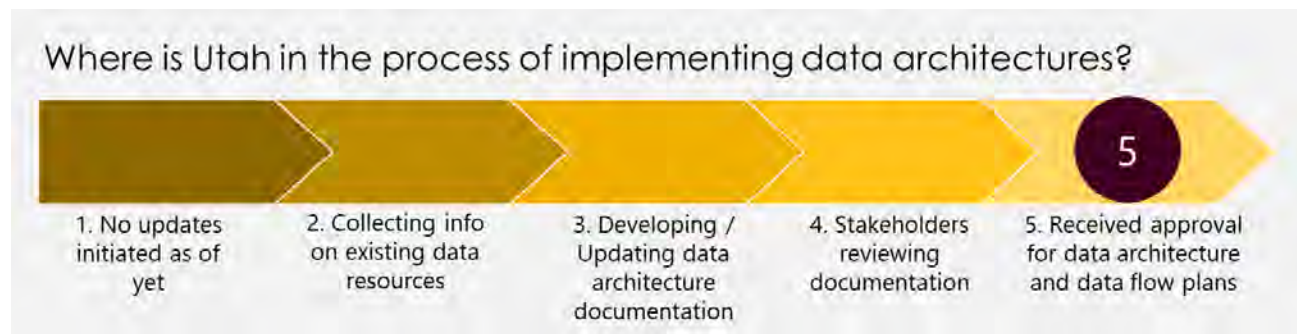applications. The Data Bus allows staff to track how they are doing locally, provide customers with additional services, and generate reports as needed to meet localized needs.

Developing and Implementing UWORKS

The State of Utah has been focused on digitizing workforce operational processes for the last 15 years. Development started in 2002 after state implementers found that the out-of-the-box Oracle system the state had invested in didn't provide the services they needed to meet state policy-mandated reforms. The state first looked at other available Custom Off-The-Shelf (COTS) system but found them to be priced beyond their small state budget.

Where is Utah in the process of implementing data architectures?

1. No updates initiated as of yet
2. Collecting info on existing data resources
3. Developing / Updating data architecture documentation
4. Stakeholders reviewing documentation
5. Received approval for data architecture and data flow plans

As a small state facing ongoing budget limitations and pressure to meet expectations for system reform, the state decided it would be more cost efficient to hire its own developers. State implementers also believed it would be a more effective use of their limited budget to build a new web-enabled system in Java and apply an agile and modular bootstrapping process to develop services based on state priorities as existing funds allowed. To that end, the state created a core staff of 3.5 developers, three business analysts and one information analyst – many of whom had prior experience in workforce business operations – to take over implementation and development of UWORKS.

Implementers started the development process by collecting requirements and developing a systems based engineering approach and architecture that considered how data flows and workforce business processes operated together. Once they understood the operational basics and what services they wanted to provide for each component as part of a whole system, they started building different services. The first component they rewrote was their labor exchange system. Then they worked on developing UWORKS performance tracking and case management capacity, using the architecture and understanding of how the different services needed to fit together and meet user requirements.

As the technical team proceeded to build different components of the core system, managers started engaging with federal and state policy makers to assure that they had the appropriate regulatory environment that would enable them to integrate workforce data from multiple state and federal sources – including UI, SNAP, TANF, VR, and other data – into the UWORKS ecosystem. Managers recognized early on that building stakeholder confidence in and support for the revamp of the system would require the development of a culture of

ongoing stakeholder engagement support over the long term to assure its success. It maintained that process throughout the UWORKS build. The result is a fully functional data system that provides Utah's disparate user base with a full stable of on demand, customized workforce services as needed to support workforce operations across the state, and ongoing and wholehearted support from across the workforce stakeholder spectrum.

To assure that they could build the different system services they would need over time, state implementers also had to develop multiple core program management processes. The first processes included an overarching framework for decision making across multiple stakeholder needs as well as a methodology for collecting requirements and feedback directly from users. This allowed implementers to prioritize what was important to workforce operations at the state and local level and identify where and how their data systems could best help staff do their jobs. To enhance their ability to implement services, state implementers had to promote and defend proposed builds to policy makers as fitting an operational need within an existing use case or new user requirements and learn where and how they could apply for and leverage different federal and state revenue streams and grant opportunities to build key services over time.

In turn, technical implementers had to develop a bootstrapping culture of learning and research, keep abreast of new technological developments, and assess the relative implementation cost and benefit of proposed builds to Utah workforce stakeholders. To help with implementation of any service, technical staff have also developed and maintained an informal network of workforce implementers in other states, including Montana, with whom they can share code, discuss common technical issues, and otherwise consult and collaborate with to solve similar technical challenges. These managerial and technical implementation processes help to assure that each successive UWORKS service build can be done in step with Utah priorities within a defined budget, and that the end result will be relevant to workforce business needed.

In its current iteration, UWORKS manages approximately 40k-130k active users at any point in time. Roughly 80-85% of UWORKS visitors take advantage of the online services and never

What Participants Think About UWORKS:

"Technology does not drive our policy. Policy drives our system."

– Participant, DWS Deep Dive

"Customer service is our philosophy."

– Member, DWS Technical Team

"We worked hard to set the tone and to make sure that everyone was brought into the process."

– Member, DWS Technical Team

"We use UWORKS as a resource all of the time"

– Case Manager, American Job Center

"Businesses want to work with workforce services"

– Business Services Consultant, American Job Center

"We have never run into a situation where we can't get a report or a metric put together when we need it"
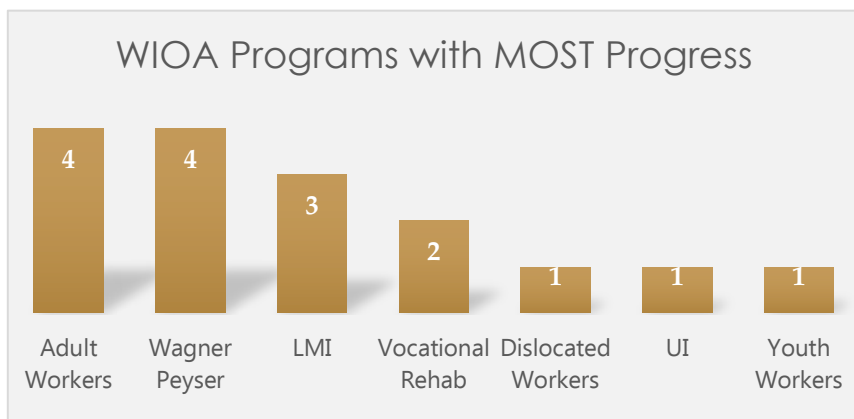
– Member, DWS Technical Team

walk into a center. Job seekers search within the 20k-40k open jobs available in Utah on a rotating basis. Employers and other stakeholders take advantage of the system's robust job posting, information, and on demand reporting services as needed. Economic service area directors at local offices use UWORKS as a foundation to reach out to local businesses and job seeker communities and assure that services in each office address specific localized needs.

How far along is Utah in implementing WIOA mandated reforms?

Average Respondent Score

3.8

1. Way Behind   2. Behind   3. On Track   4. Ahead   5. Way Ahead

Status of WIOA-Mandated Reforms – Moving Beyond Integration

Utah's watershed moment for technical innovation of workforce systems was state-led and occurred well before WIOA. System implementers started building their system in response to state policy priorities starting in 1997 and incorporated federal

WIOA Programs with MOST Progress

Adult Workers: 4
Wagner Peyser: 4
LMI: 3
Vocational Rehab: 2
Dislocated Workers: 1
UI: 1
Youth Workers: 1

processes or policies from system inception. Early in the innovation process the state was already working to integrate JTPA, TANF, and Wagner Peyser and other local workforce services into a single state agency. From its inception as an idea, managers recognized the need for a unified policy and technical environment for implementers to improve customer services and develop an integrated data assessment system. As a result, by the time WIOA became law, UWORKS was already fully implemented and providing a lot of the services the legislation intended.

WIOA Programs with LEAST Progress
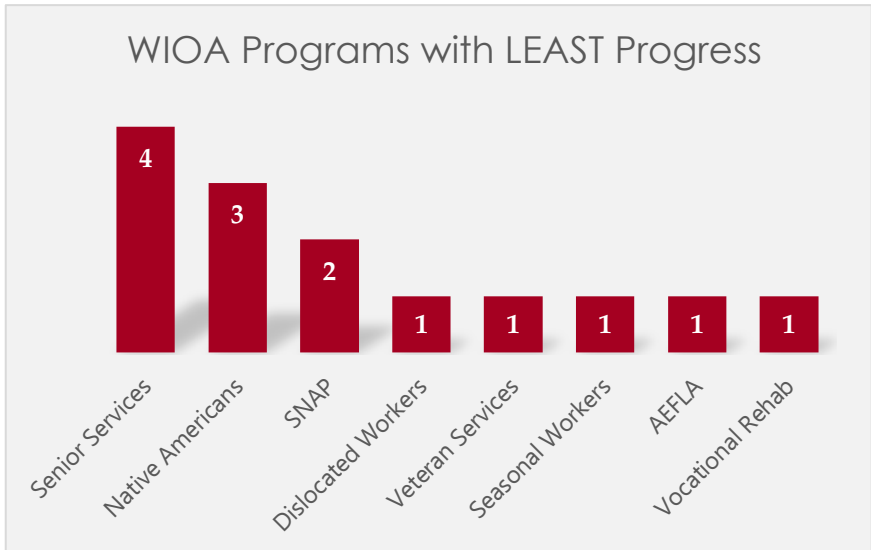
For Utah implementers, making UWORKS WIOA compliant has consisted largely of retooling and tweaking services already available in the system. The state decided to follow the unified plan and forego making significant alterations to what they had already achieved with TANF integration. Federal requirements for an individual plan created a process that duplicated what was already in place to meet state workforce planning policy directives.

Participants reported being ahead in the overall WIOA implementation process and attributed that largely to the robustness of UWORKS and its ability to already do much of what was mandated in WIOA. However, despite its sophistication, participants found the process of making UWORKS WIOA compliant cumbersome citing particular challenges with minimal Federal guidance in how to translate policy into code and a highly prescriptive top-down process that provided little leeway for states to justify what they had already achieved within their system as being compliant with WIOA intent. For example, DWS was already providing the career pathways and workforce preparedness services before

Management Pain Points

they were mandated under WIOA. The state had also already developed training programs and other services to meet state policy requirements. But in order to become WIOA compliant, implementers had to spend time and resources needed elsewhere to make significant changes to both despite those processes being in place.
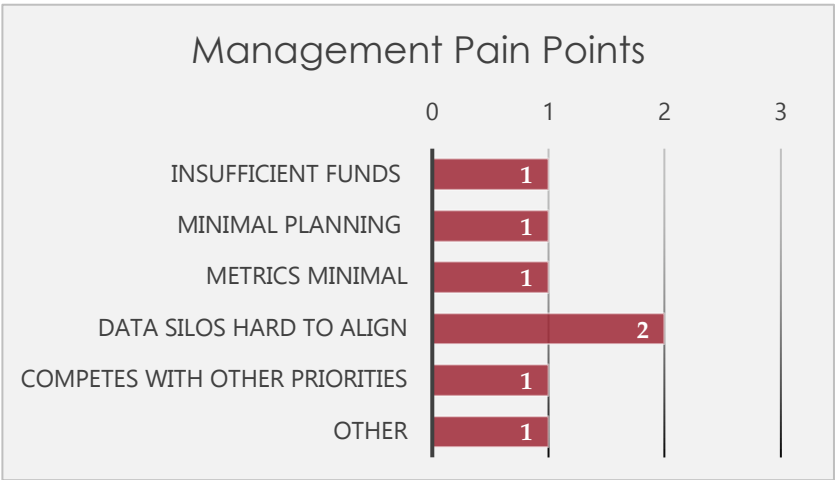
The process also disrupted key aspects of UWORKS that were specifically set up to meet state stakeholder needs. The lack of guidance and explanation at the federal level resulted in state implementers spending a significant amount of time trying to determine how to retool state processes and UWORKS to fit WIOA mandates, a process many stakeholders found redundant and unnecessary. The need to reconcile WIOA guidelines with existing state workforce policies to assure they do not run afoul of local requirements created an additional

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layer of complexity and became a source of frustration with some stakeholders. Additionally, getting the state board to act as a local board to provide reviews and insights in consideration of both state and federal guidelines has been challenging and a process some participants described as trying to fit a square peg into a round hole.

However, despite the disruption, participants believe that overall the WIOA process has helped formalize how they conduct and measure workforce services. Now that the brunt of the WIOA compliance work is done, implementers have developed a process through which any new WIOA compliance directives can be managed and implemented as part of normal daily operations within UWORKS. Participants now view the plan as a living document that will never be fully completed because they assume changes in state and federal requirements will be a constant. Once they complete the WIOA implementation process, they are confident they will have a better idea of the processes needed to implement future changes and the amount of resources and time constraints it will take to implement them.

Supporting Data Driven Systems through Strategic Policy

Building a Culture to Support Long-Term Sustainability

Where is Utah in the process of developing its data strategy?

Average Respondent Score: 3.4

1. No WIOA Compliance Strategy
2. Collecting Requirements to Update Strategy
3. Developing / Updating Data Strategy
4. Reviewing Stakeholder Feedback
5. Data Strategy Complete and Approved

Utah has made significant strides in creating a policy and strategic environment that supports the State's transition to digital workforce systems, and by extension to WIOA-mandated reforms. In implementing change, the DWS team has benefitted significantly from early decisions taken at the policy level, the attention implementers took from the beginning to create a culture that puts customers first, and from the passage of time.

Does Utah's workforce agency process include any of the following components of a data strategy?			
Yes	No	?	
☑			Understanding among key stakeholders
☑			Feedback from key stakeholders
☑			Knowledge of data
☑			User Guide
☑			WIOA - aligned metrics
☑			High level outline of business processes
☑			High level data architecture
☑			WIOA Compliance standards
☑			WIOA Master Plan
☑			Understanding of Policy Mechanisms Needed

Utah policy leaders started making organizational changes as early as 1997 to build a workforce system and supporting processes to streamline the way that customers receive workforce services. One of the first steps the state took was to consolidate all state workforce related workforce activities under DWS management. Creating a single, integrated state process helped to minimize the competitive environment that can exist between disparate state agencies with workforce mandates and between state and local workforce boards in other states.

Decision makers have also consistently emphasized that policy comes first and that technology choices should be a result of an expressed customer need and strategic priority. This prioritization has helped to develop a culture of cooperation and to assure a clear set of workforce operational process rules to guide the development of the state's overarching system and data architectures, and the development of workforce data systems over time.

To establish those priorities and ensure that they keep up with shifting customer and policy requirements, Utah created robust mechanisms for collaboration, communication, engaging with, and capturing feedback from multiple workforce stakeholders. These mechanisms include regular, rotating visits to American Job Center sites where implementers spend up to a day with local staff identifying and working through different business process and technical issues. Implementers also reach out to stakeholders using multiple channels – including use of one-on-one conversations, focus groups, surveys,

How does Utah include key stakeholders in their processes?			
	As Key Implementation Staff	In Internally Focused meetings / updates	In Public Facing meetings / updates
Customers	☑	☑	☑
Employers	☑	☑	☑
State Workforce Agencies	☑	☑	☑
Other Workforce Related Agencies	☑	☑	☑
State or Federally Funded Partners	☑	☑	☑
State Executors	☑	☑	☑
Federal Agencies	☑	☑	☑

and regular meetings – to listen to issues and make sure that stakeholders know of new services and how they can be used as they are launched. The state also makes sure that there are staff at local centers who can help users identify different services available in UWORKS that will help them cater to customers, and troubleshoot for staff should any technical issues arise with UWORKS. Implementers and participants agree that this extensive effort to reach out to users, listen to issues they are having, resolve them based on state priorities, and communicate with them throughout has been a major reason that stakeholders – including many who were not invested in the digital approach – have bought into the state's workforce processes and into UWORKS as its prime implementation tool.

This overarching policy tone has established the necessary foundation for implementation and allows different stakeholders to intervene and collaborate to assure the state can move forward with its strategic plans. For example, creating a sense of ownership among multiple stakeholders has made it easier for Utah implementers to work across state and federal agencies to identify appropriate funding vehicles for different UWORKS system builds. Rather than compete for limited funding, stakeholders have a foundation from which to focus on the bigger message of helping workforce customers navigate the system.

The collaborative environment has also helped policy makers negotiate with federal and state stakeholders to assure that data from multiple workforce sources are accessible from or integrated into the UWORKS system. To make the data accessible, DWS policy makers had to initiate and manage an 18-24 month long process to negotiate Memos of Understanding (MOUs) between data owners that outline the regulatory terms under which data could be used and shared within the UWORKS environment, who would have access to different

What kind of Data does Utah use now? What would respondents like to use in the future?*	Agency Staff		Front Line Staff	
	Actively Using	Would like to use	Actively Using	Would like to use
Official workforce data	✓		✓	
Official state / federal data from other agencies		✓	✓	
Official stakeholder data	✓		✓	
Survey Data	✓		✓	
Passively collected data	✓		✓	
Additional workforce data from non-govt / business / other partners	✓		✓	
Additional workforce data from other job sites	✓		✓	
Social Media Data	✓		✓	

*measuring majority of responses in each category

portions of the data, and how data would be stored and secured on local servers, among other issues. While reconciling the regulatory and legal hurdles of different agencies to enable data sharing is still a challenging and lengthy process in Utah, the sense of partnership between stakeholders and culture of collaboration keeps the process as smooth as possible.

One of the more challenging issues implementers have faced is assuring that the state workforce board continues to be vested in the collaborative policy process. The state board has 39 members representing interests from the state legislature, local businesses, educators, non-profits, and multiple federal agencies each with competing workforce interests. Having 39 board members makes it challenging to keep them engaged around their roles and responsibilities and to make sure their disparate views are heard and incorporated into workforce processes. Implementers noted that early efforts in engagement were challenging, but that open communication and engagement with disparate board members over time has helped to develop a workforce board culture that works collaboratively with state implementers to enact policy and consider service proposals that remain in line with state priorities.

Primary Workforce Data Sources

- 28% Online / Walk-In Customers
- 44% Existing Workforce Systems
- 11% Other State Agencies
- 17% Other Workforce Partners

Implementing technology is rarely as difficult as creating the political and managerial environment that facilitates technological change. By having created and invested in their policy culture of open collaboration and inclusion over the last twenty years, the state is now confident that is has an environment that facilitates technological innovation in support of workforce initiatives that will last well
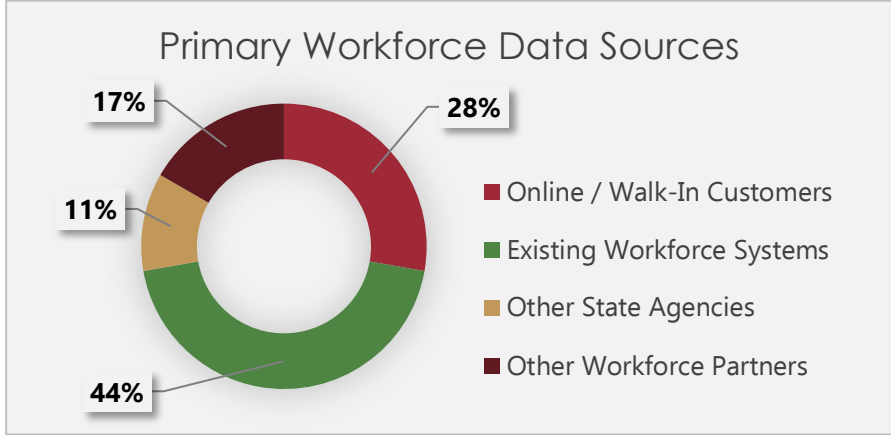
beyond any new regulatory environments, administrations, or disruptions in workforce innovation.

Customer Service as an Operational Philosophy

One of the most productive aspects of Utah's ingrained workforce culture is the focus on customer service. In the very early stages of its workforce systems digitization and innovation process, state policy makers decided to start with the customer experience, develop policy around it and work backwards to the technology. To understand the customer experience, DWS started collecting information directly from workforce stakeholders on how the whole system worked, including how technical and business processes operated to provide customer service, where data and human inputs came from, and what different stakeholders needed the system to produce. With a solid understanding of how workforce data, system, and business process flows worked together to affect user experience, state implementers moved to design a system architecture that captured data and process flows that would best enable a positive user experience with workforce services.

UWORKS blends the virtual environment with customer service. It provides the backbone for services and enables customers to get the information they need with as little or as much human intervention as they want. And where human intervention by workforce staff is required, the system enables the humans-in-the-loop – whether case managers, business service providers, or analysts – to focus on the customer instead of the UWORKS user interface. Customer service teams provide online chat services and respond to online issues during the work week.

DWS has also developed an "operational program" team that trains and coaches customer facing workforce staff on how to engage with customers going through intake and with business partners looking for services. 80-85% of Utah's workforce customer base use the online UWORKS systems to interact with workforce services. The remaining 15-20% tend to be customers with more complicated workforce needs. On average, local workforce staff who are members of DWS "Connection" Teams service between 8,000 and 12,000 walk-in customers a week. The State's customer service triage processes make sure that the customer gets the individualized, humanized support they need, and become aware of the full gamut of workforce services available to them from a single point of contact, and that veterans get priority when they seek services.

Additionally, case managers and business analysts drive the development of new technical or program-based services to assure that workforce processes remain customer oriented. When they see an issue, they alert managers. Issues that can be fixed with existing resources are resolved. And issues that need more resources to implement or resolve are submitted as project requests that managers in collaboration with the state workforce board and other policy makers can consider for implementation in the context of other priorities.

This three-tier process enables local workforce groups to identify and develop ideas, test and track localized pilot programs, incorporate ideas that work into larger workforce processes accessible across the state and track localized pilot programs with data driven metrics to see how effectively they address customer issues.

In one example, Utah used UWORKS and other applications to develop its intergenerational poverty initiatives program. Geared towards understanding how poverty moves from generation to generation within the state, program implementers use information from the data bus to provide data on and analyze macro-level issues, and to identify target opportunities to pilot poverty alleviation initiatives. Program implementers then work with other agencies to provide additional context and bring in research perspectives from across the state to better assure that staff working directly with customers can help identify the intergenerational issues and work with DWS to come up with different ways to address immediate family challenges. Two recent ideas – providing family screening based triage and family focused case management that allow staff to take the time with families –are currently being piloted in several locales. The capacity to identify local issues, and test and measure solutions using data driven analytics also allows Utah to proactively develop future oriented workforce plans that can better help the state understand, identify funding sources for, and respond to endemic long-term challenges.

Measuring Performance at the Federal, State, and Local Level

Utah has developed a robust and accessible series of consistent performance metrics that capture and measure events of relevance to federal, state, and localized activities. Participants reported that all of the relevant workforce data is captured within the system and used to measure against variables of import to different users. Performance against quantitative metrics helps the state measure outcomes and provide incentives to improve on performance over time.
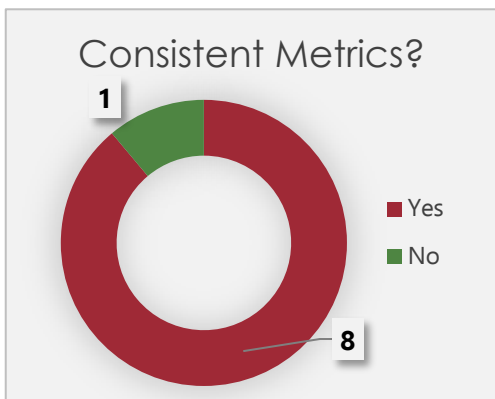
Consistent Metrics?

1

8

Yes

No

Participants indicated they are fully aware that a full menu of performance metrics across all of its workforce programs is available in UWORKS and eReports, DWS's dashboard reporting system. Participants use these metrics to produce report products for customers and to track the activities of customers online as needed. UWORKS and eReports users have access to dashboards where they can track performance over time on a month-to-month trajectory and rapidly produce reports of relevance to different stakeholders as needed. Participants report that the ability to generate reports based on new metrics as needed allowed them to make detailed, highly localized measures available to multiple users from their website.

In addition to WIOA-mandated performance metrics and system performance metrics that provide insight into how the UWORKS engines are running, UWORKS has implemented additional metrics that measure local activities and personnel performance metrics that help staff keep track of how they are doing. Staff can access the metrics relevant to their job title from the system and measure performance on the fly. If a staff member cannot find the

Respondents Aware of Basic Metrics

Legend: ■ Public Facing Performance Metrics ■ Client Management Metrics ■ Other
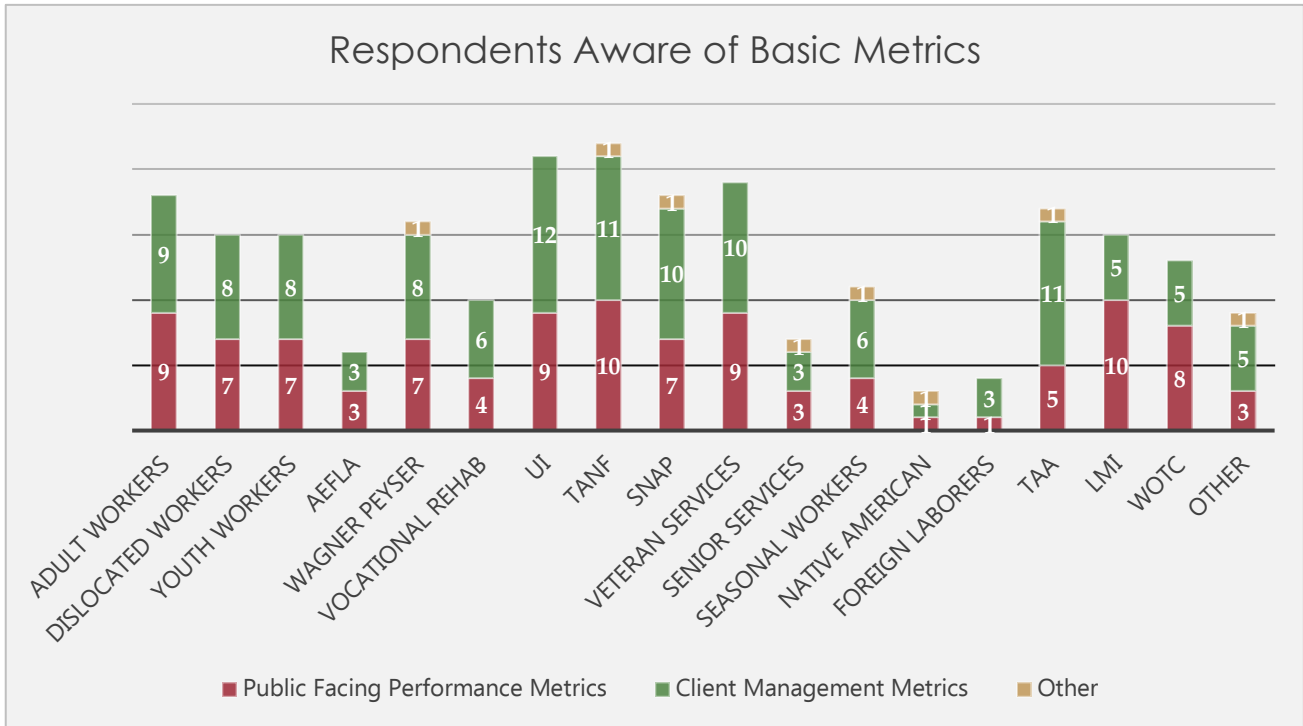
relevant metrics and data to measure a given activity, DWS staff can either help them find what they need or use the measure to develop an automated process that can be made accessible from the system user's desktop dashboard. DWS staff have also developed metrics, including some that transform data recorded through UWORKS passively into measures of human-to-human interaction across WIOA programs. These additional metrics provide implementers and staff with the capacity to assess how staff and programs are functioning and make changes as needed to meet emerging needs.

Utah has also developed a series of management tools that allow policy makers to align metrics to outcomes and assure they are meeting state and federal standards. These mechanisms include a standing Operational Excellence Committee that periodically revisits metrics to determine whether they serve workforce needs as well as monthly one-on-one meetings with local staff to discuss state, local, and individual performance. These mechanisms allow workforce managers to shape and structure compliance metrics as required.

Challenges to WIOA Performance Metrics on UWORKS

Participants noted that they encountered several issues while implementing WIOA-defined metrics in UWORKS. First of all, because many of Utah's existing metrics did not

meet the literal, prescriptive language as defined in the DOL metrics, WIOA metrics had to be implemented in parallel to existing state level metrics that measure the same factors, albeit by different means. The lack of mechanisms to take the intent of an existing metric into consideration led to duplicative and somewhat arbitrary implementation efforts, particularly
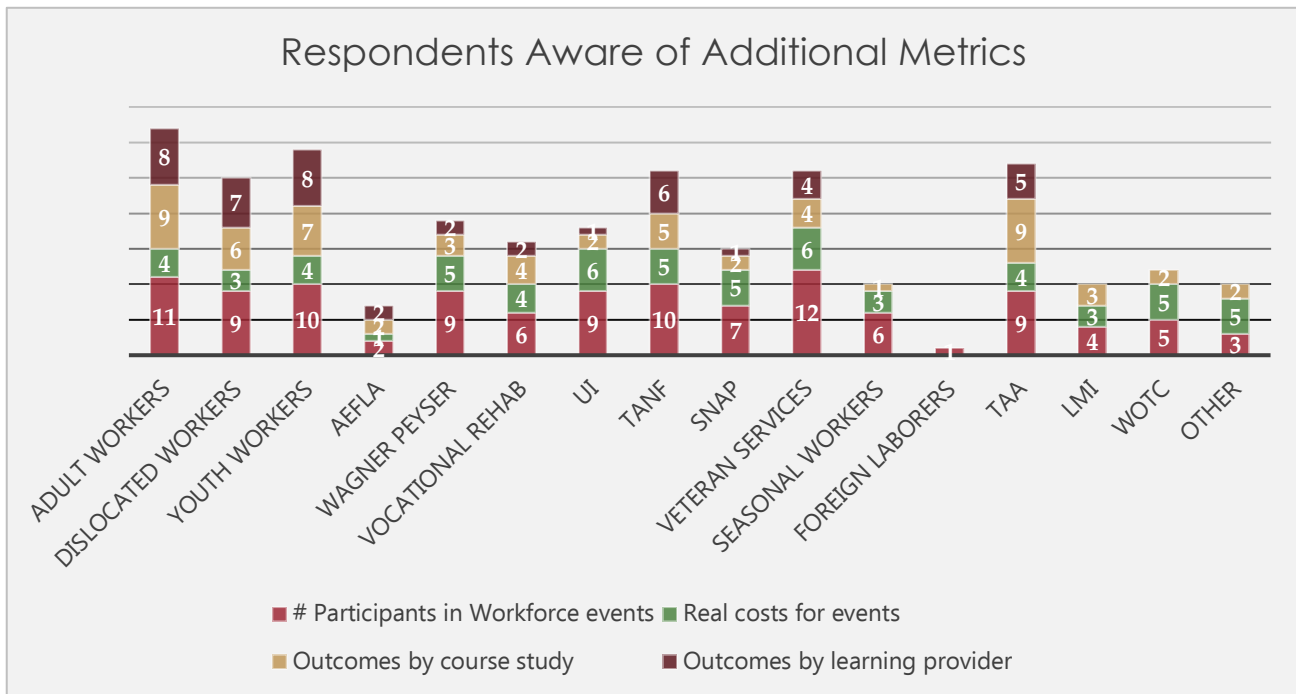
given the state's higher performance standards.

Secondly, participants expressed frustration that federally mandated metrics did not account for the time and effort needed to support and maintain self-service features available from their online services. The lack of metrics for self-service activities means that the federal government is missing the measurement of 80-85% of workforce activities, all of which require time and resources to perform effectively.

Furthermore, participants noted a discrepancy between quantitative metrics that measure touchpoints on human interactions with customers as occur / did not occur binaries and more qualitative metrics that measure the complexity and quality of human-to-human interaction. Participants explained that while 80% of customers had all of their needs met online, the remaining 20% that asked for additional help from workforce staff represented significantly more complex cases needing nuanced customer care and significantly more time to resolve effectively. State and local stakeholders have developed their own metrics to measure these nuances and capture that data with qualitatively oriented surveys and customer feedback loops and are frustrated that there are no vehicles for providing these metrics, and getting credit for their successes at the Federal level.

Despite challenges with metrics at the Federal level, participants expressed overwhelming support for the number and types of metrics available in UWORKS and eReports to provide Federal, state, and local, data driven results. Participants felt there were ample choices to work with and that they were easy to identify and use with data available on the system. When

they cannot find metrics that measure what they need, they report that the DWS implementation team is responsive and helpful. As a result, the participants believe they have sufficient metrics to measure workforce activities across the board.

Implementing the System Technology

Developing UWORKS to Support State Goals

Utah originally decided to develop its own system because they had a relatively small amount of funding and couldn't afford any of the Custom-Off-The-Shelf (COTS) systems that were available at the time. While it has taken time to bootstrap the system, Utah's decision to build UWORKS in house in 2002 has resulted in a highly customized and robust system fully capable of implementing the state's workforce requirements. With a robust system already in place, retooling UWORKS to meet WIOA mandates was cumbersome, but ultimately resulted in a more streamlined process that implementers can use to manage the implementation of Federal and state policy changes to the system over time. As a result, Utah had already implemented most of the WIOA mandate changes at study time. Those that were left to roll out were delayed largely to changes in guidance (TEGLs) received from DOL during development.

From its inception, Utah implementers knew that they wanted to build a system that was as digital as possible and as user oriented as possible. The goal is to be responsive to customer needs, state policy requirements, and to the user's experience. The two major use cases are users who want self-service and staff members who want a responsive system that doesn't demand a lot of data entry and screen time and allows them to focus on the customers who visit them.

1. Data Flows and System Architectures

	Documented Process	Undocumented Process	None
Common definitions of different data types, categories, libraries, taxonomies, etc.		☑	
Data architectures, system architectures, system designs clarifying inputs and outputs	☑		
Clarity on all manual, semi-automated, and automated data ingest mechanisms	☑	☑	
Clear Extract, Transform, and Load (ETL) protocols	☑	☑	
VV&A procedures for assuring quality of ingested data		☑	
VV&A de-duping, alignment, integration protocols for ingested data	☑		
Data fusion schema identifying how data aligned and displayed to different users	☑	☑	

The state put a lot of work into the backend to structure the system to make sure it can integrate data and provide key services within the user experience and user interface (UX/UI). The same system development team of 7.5 staff has been working on the integrated system for over 10 years. The staff's institutional memory and their willingness to research the implications and costs and recommend options for new implementation initiatives has helped to assure that the choices for new system additions has remained budget conscious and consistent with state policy requirements.

From its inception the system's architecture was geared towards enacting the state's customer service philosophy, enabling users to either find the information they need on their own or to help customers navigate through the system to get all of the services for which they qualify. Implementers recognized early on that a driving force behind UWORKS development was assuring that all of the workforce data used in workforce business processes was available within the system whether through full indexing and integration (SNAP, TANF, VR) or by connecting to other systems (UI) from within the system environment. DWS clarified that the most difficult component of integration was negotiating the legal agreements and establishing Memos of Understanding (MOUs) on how the data collected by partners located outside of the department would be used within the UWORKS environment. For example, negotiations with one particular data owner took between 18-24 months to conclude successfully. With the MOUs in place, however, the technical implementation has been relatively straightforward.

Building to Support Workforce Services across the State

The UWORKS environment itself started as a rewrite of the labor exchange built on an Oracle platform. Using Workforce Innovation Funds the team focused on building the performance system to state specifications. From there implementers moved to integrate data sources, build their own report services (eReports) based on IBM's Cognos system, and create a user environment that served job seekers, employers, and other stakeholders with the services they identified as essential during early requirements collection stages of the process. As it stands now, users do not need to leave the system to get more information. Input data frames all of the system's processes and provides the foundation for everything else. The state is very, very data rich.

Having devoted considerable resources to developing data schema and mapping data within their system flow, users can find the data they need when they need it. The system pulls in all of the information a user needs and ties it together based on their user access rights. Before providing users with any new services, they are tested on the systems Alpha and Beta sites before going to production. The state also uses a training site with dummy data that is used to train employees in UWORKS functions and processes.

2 — Data Management Processes

	Documented Process	Undocumented Process	None
Anomaly / fraud detection protocols	☑		
Ongoing mgmt. / monitoring of network flows - interruptions in data pipelines		☑	
Ongoing user account management to ensure system access based on roles	☑		
Data mitigation plans in cases of network outages, cyber attacks, etc.	☑		
Clear security and privacy protocols to manage and protect data, including PII	☑		
Data provenance procedures, including time, and source stamps of forensic value	☑	☑	
Data storage, warehousing, and archiving procedures for raw and processed data	☑	☑	
Contact information for key data providers, WIOA system admin	☑		

Most user services can be accessed from the system's single sign-on. Users authenticate one time with their name, date of birth, and Social Security Number and then use their single sign on. The one exception is the state's UI system, "My Unemployment", which requires a separate PIN and email authentication. Workforce staff accessibility to different levels of the system is determined based on their job title and description. The DWS team has 350-400 access keys and 20-25 job titles each of which provides different levels of mapping between job functions and system access. This mapping provides flexibility and helps to assure that each

3 User Interface Processes	Documented Process	Undocumented Process	None
Single Sign-on for users to access different workforce program services	☑		
User interface that enables workforce services across cloud and mobile platforms		☑	
User specific / need based system access levels (e.g, customer vs. staff vs. admin)	☑	☑	
Online user communication and collaboration mechanisms (chats, message boards, wikis, etc.)	☑		
User-oriented analytics dashboards (customer, workforce staff, etc.)		☑	
Standard Operating Procedures, training manuals, offsite or onsite training, etc.	☑		

workforce user has the functionality they need. DWS also provides VPNs and token systems to help workforce staff access different secured functions remotely. The offsite services can be challenging to support, but the benefit is that DWS can provide technical services to staff working throughout the state, including in rural areas.

To determine eligibility for WIOA Title I and TANF training programs, UWORKS uses its own system built in house. SNAP, Medicaid, and TANF assistant programs as well as others use a separate system called eREP that was originally built by Curam but has since been significantly customized to state needs. Case managers upload any supporting paper based documentation into the system as an image via IBM imaging software. Once files are uploaded, paper copies are returned to customers or shredded. Supporting documentation for any case file is available directly from the user interface to users with appropriate credentials.

After an initial intake form that customizes itself to their responses, the job seeker receives summaries of different services available to them, including geo-located job listings, recommendations for basic readiness workshops available online, and other job related information of import. In contrast, employers receive customized, adjusted information based on their specific needs, including report services, and referrals. Implementers are in constant communication with job seekers and employees getting feedback from them via live chat, from their service choices and from the questionnaires they complete. Users can also access their profiles from the UWORKS mobile app, which provides additional geo-located data that DWS can use to inform the workforce processes.

The system's extensive data infrastructure also enables it to collect data on human interactions with the system from different locations allowing it to produce highly targeted,

4 Data Output Processes	Documented Process	Undocumented Process	None
Data selection and output to different analytic tools / processes	☑		
On demand data analysis, interactive displays, dashboards	☑		
Mechanisms (MOUs, etc.) for sharing data between different stakeholder systems	☑	☑	

highly geographically localized analytical reports on how customers are interacting with different workforce services. The state uses these services to track programs, test out new workforce intervention strategies, and help make analytically informed decisions on how to effectively deploy workforce resources across the state. DWS also makes data available to credentialed users on the state's "data bus" to run reports as needed to keep customers informed on workforce activities, identify and analyze local trends, and develop new strategies to answer unmet customer needs.

DWS has also incorporated multiple strict security protocols to assure system and data integrity. The system enables two factor authentication and token systems that regulate user access, as well as enhanced system security measures to mitigate against network incursions. The state also requires that workforce staff receive physical environment and awareness training to help avoid malware, Trojan, phishing, and other attempts at cyberattacks through system users. In addition to regularly monitoring network activity, DWS runs quarterly exception reports and keeps extensive journal tables and data logs that enable it to conduct system forensics as needed.

As it stands now, UWORKS is a fully customized and robust system that meets local and state workforce needs and can produce the system and performance-based reports they need to meet state level and WIOA-mandated requirements. Built over the course of 15 years, the state's processes are well documented and provide a good reference point for implementers as they develop new processes. The core staff who designed and developed the system have been part of the implementation team since its inception providing an even more important point of reference for future developments, including plans to develop a new, more modern front end that meets current UX/UI trends and user preferences.

As DWS prepares for and prioritizes implementation tasks for the next stages of development, decision makers may want to consider taking additional steps to assure that the system remains robust over the long term. This may mean hiring and training additional staff to provide additional support and assure a level of knowledge redundancy should any of the core staff not be available in the future. DWS might also want to think about how they can develop mechanisms to more rapidly implement the inevitable state or federal policy changes that are likely to occur in the future.

Supporting the Workforce – Operational Readiness

Interacting with UWORKS

There are four basic users that interact with UWORKS. They are workforce customers using employment services, case managers helping customers navigate workforce system to find the services they need, analysts who generate reports or data services for customers, state and federal agencies, and managers who assure workforce staff have the support they need to do their job. In its current iteration, UWORKS's integrated data, system, and services can accommodate the needs of all users, including job seekers, business interests, non-profit and education support providers, legislators, workforce researchers and other Utah stakeholders.

Collecting User Data

From its inception, implementers wanted to make sure that the level of data entry that any user had to do within UWORKS was minimal. And they have succeeded. UWORKS in its current implementation enables users to focus more on face time with customers and less on data entry requirements for reports.

Users seeking employment services provide the initial data inputs fueling UWORKS during the system registration process. Once a user uploads their data, the system uses a unique identifier to automatically match records across all of the workforce-related data systems integrated into UWORKS. When registering, users are led through a series of cascading questions that help determine the kinds of workforce

Hours Per Day Collecting Data

17%

83%

■ Less than one (1) hour ■ 1-2 hours

services and programs for which they qualify. Employers likewise log in to input data on new employment opportunities, view candidate profiles, interact with online reports, or request additional business services. Data is also collected on unregistered users who interact with the website's publicly available reports and information. All that information – including the number of visitors, how many times users log in, what users interact with the in UWORKS interface, and which links they follow – is stored in UWORKS servers and provides the foundation for generating reports based on state and WIOA-mandated metrics.
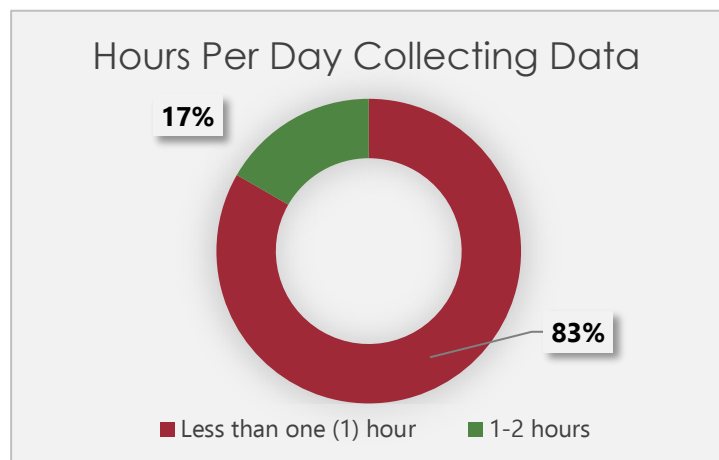
80% of the system's users interact with online services only. Likewise many of the state's current resources go into administering the online system to assure that users can access the services they need. Because all of the state's services are integrated into the UWORKS platform, the state can monitor how the network and UWORKS services are being used and adjust their resources in response to changes in demand.

Automated vs. Manual Collect

- **Almost all data auto-collected by system** — 72%
- **Majority of data auto-collected by system** — 14%
- **Collection is about 50/50 tools and by hand** — 14%

Case managers interact with users online via live chat and in American Job Centers once customers have requested additional services. Once engaged, case managers can help users fill out their registration more completely, help them identify additional programs they qualify for, identify services that might be of interest to the user, and help direct the user to other programs administered by other state agencies. Case managers access additional data on users from within the system, minimizing the amount of data they need to collect by hand to determine a user's eligibility for different workforce programs. Managers can also access performance and financial tracking data within UWORKS. Furthermore, the system also enables local centers to collect data on workforce events and activities that are not currently mandated by WIOA. All participants with responsibilities for transferring data reported it was a simple process within the system.
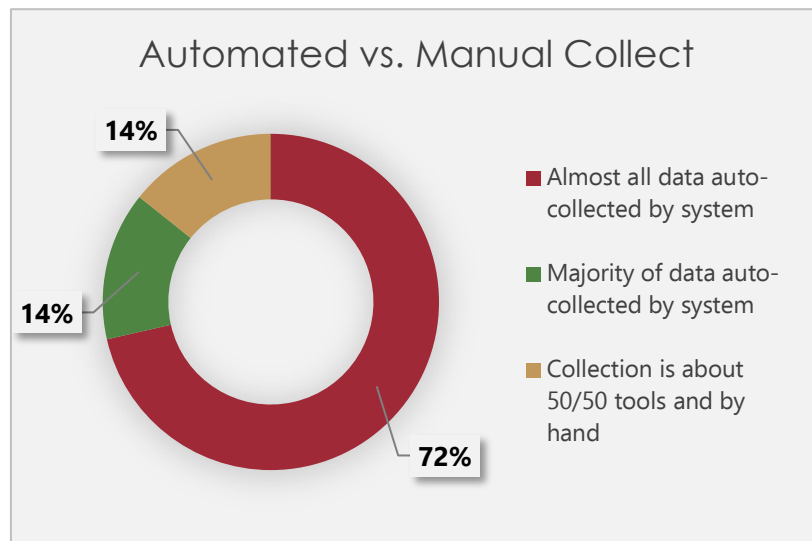
The accessibility and transferability of data within the system maximizes case managers' capacity to focus on the customer and their needs.

Overall, users were very satisfied with UWORKS data collection capacity. Regardless of job function, participants indicated there was very little they needed to collect outside of the system. The majority of data that participants collected outside of the system was related to information on community resources. DWS

How Easy to Transfer Data

- **Very Easy** — 43%
- **Relatively Easy** — 21%
- **Somewhat Difficult**
- **Very Difficult**
- **N/A** — 36%

determined that the United Way maintained external database on community resources, known locally as 211, sufficiently provides these services and decided not to duplicate these efforts. Instead, workforce staff are trained where to go for this and any other additional data not available within the system should the need arise.

Time Spent Cleaning Data

- Less than 25% of time
- 26-50% of time
- 51-75% of time
- Over 75% of time
- N/A

22%
50%
21%
7%
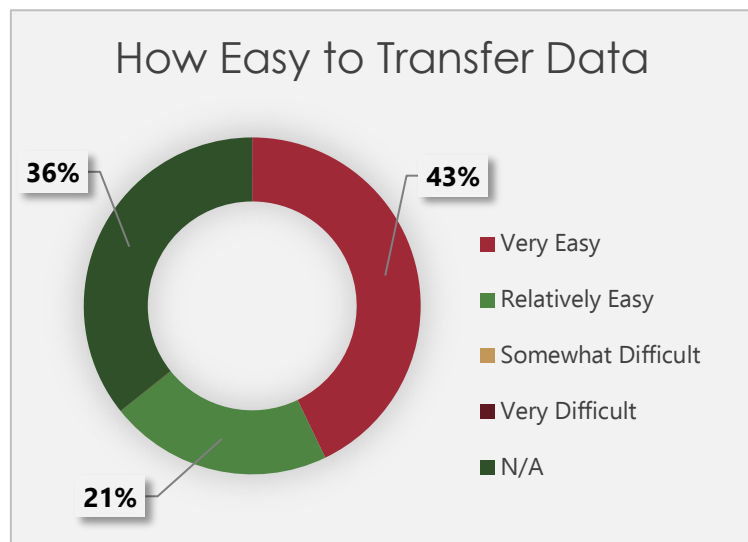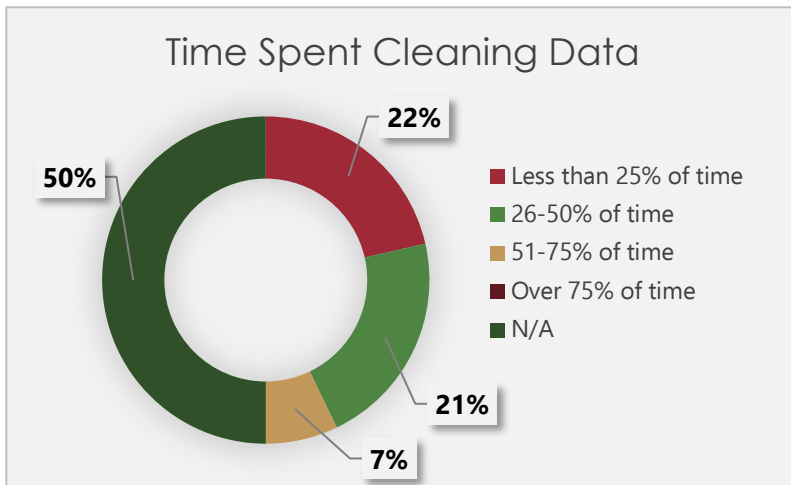
Participants with analysis and report generation responsibilities also indicated that they did not need to spend a significant amount of time collecting and cleaning data they needed for analysis. Almost all of the data they need is cleaned and de-duped within the system framework and available on demand. When they cannot find data on their own, participants can reach out to DWS staff for help either to find data to help them within the system or with a request for service for new data to be collected.

Generating Reports

Utah's customer service culture is geared towards providing users and workforce staff with the capacity to produce as many reports automatically as needed. State implementers firmly believe that auto-generating reports based on what the state, its customers, and WIOA requires helps to improve quality of service and serves as a central example of its customer driven focus. Indeed, after 15 years in service, UWORKS has incorporated multiple auto-generated report functions that allow users to produce reports on demand based on

Ad Hoc Report Requests

- Less than 5 times per month
- 6-10 times per month
- 11-15 times per month
- 16-20 times per month
- 21+ times per month
- 6 = N/A

29%
7%
64%
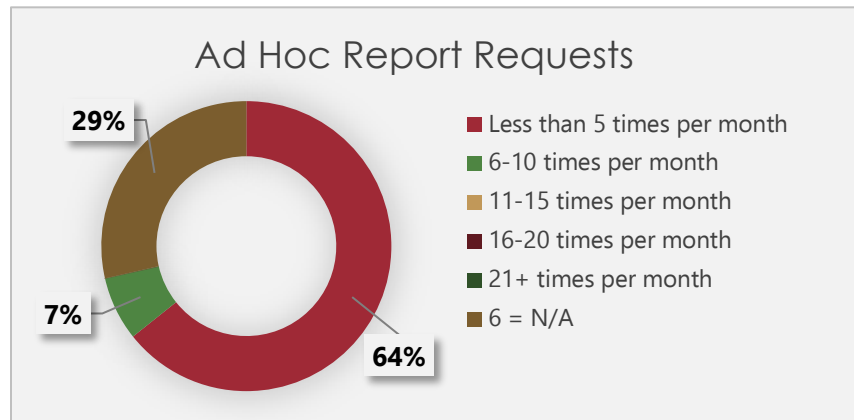
current workforce data across all workforce programs and multiple levels of geographic and temporal granularity. They also include additional reports of import to employment counselors, to supervisory managers who need to manage day-to-day workforce resources, data and system management reports for IT staff, and policy and board level reports that allow state and federal decision makers to understand the macro level operational environment. When reports are produced across different variables by different users, the results remain consistent, leading the reports to be seen as reliable and credible over time.

Utah also maintains a separate group of business and technical analysts who can generate reports as needed directly from the data warehouse. This team can query directly against the databases and run scripts that allow them to produce custom, ad hoc reports. If community stakeholders need more information, workforce staff can work with them to identify data

sources, generate appropriate metrics and build a system based process that guides them in how to produce reports on a regular basis. The result is that the state rarely has to turn down requests for reports from any stakeholder.

Time Spent on Ad Hoc Reports

33%
45%
22%

- Less than 5 hours per month
- 6-10 hours per month
- 11-15 hours per month
- 16-20 hours per month
- 21+ hours per month
- N/A

UWORKS and eReports robust auto-generated report functions allows decision makers the flexibility to implement and track projects that they believe could be of benefit to workforce customers on a regular basis.   For example, the state's Intergenerational Poverty (IGP) program is able to measure, collect, and report on variables related to different potential solutions and to use that data to inform whether and how programs address the issues with real data. In turn, state implementers can use that data to promote successful efforts and go after funding with data to support their position. State implementers did this with a multi-generational empowerment project they ran originally as a pilot. The state used the generation's worth of geo-specific longitudinal data available within the system and matched it to LMI data on industries and employers to identify workforce readiness trends. This nimble approach allows them to further target funding to locales where they knew federal and state funds would maximize returns to the program.
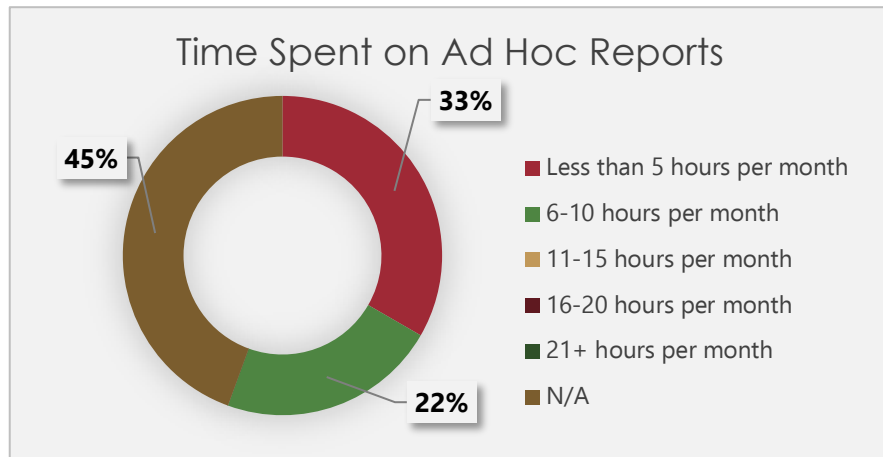
DWS further uses the Labor Market website to publish a broad spectrum of reports via dashboards. These provide the public with localized, up-to-date detail on economic and workforce activities throughout the state based on data from multiple workforce sources. Additional reports are available to users via their personalized interfaces based on their system access rights.

Rating UWORKS

Participant Level of Experience in UWORKS

Given its 15 years in operation, it is unsurprising that participants expressed a high level of comfort in using UWORKS to conduct workforce business. In addition to the on-the-job experience participants have had the time to accumulate, DWS has made considerable, proactive effort to make sure that workforce staff receive the training and mentorship they need to use the array of system tools available to them.

During UWORKS deployment phases, DWS provided training to make sure staff understood how to work with a new feature. Newly hired staff are given foundational training in UWORKS during their first weeks of employment and are provided with mentorship should they have issues during their first months. Some staff at local centers also act as liaisons to help train or mentor local workforce personnel in how to use UWORKS as needed. As a result, all participants reported having received extensive amounts of training in UWORKS and being comfortable navigating through the system to get what they need.

DWS has found that some older staff who were familiar with the old system have been slower to adapt to UWORKS and have been using other, older systems to back up their work. DWS notes that much of the concern lies in distrust and fear of technology in general, and in a lack of understanding in how the system processes and keeps information safe. Implementation staff have also noted a similar discomfort in older generations of customers as well as in those less familiar with technology. DWS deals with these issues proactively, providing online training modules and "Did You Know?" newsletters that highlight features and how to use them. DWS also maintains a training staff that conducts onsite visits to see what employees are experiencing and adjust training programs to fit user needs.
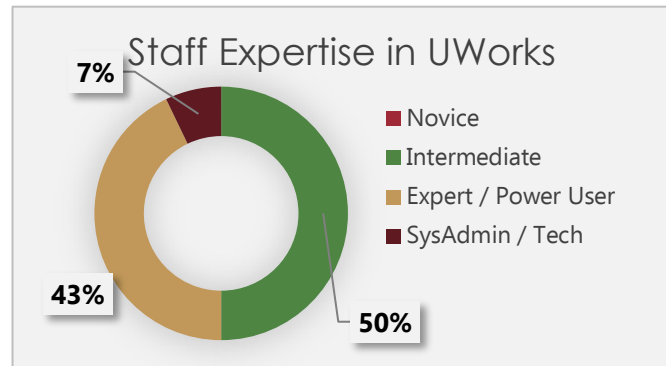
Rating UWORKS Features

Overall, more than 80% of participants rated core system features for UWORKS and eReports tool as being very good or good. Many expressed the firm belief that UWORKS was self-explanatory, made their jobs easier and helped them to focus on customers. Participants appreciated the self-service capacity and said they used the website as a resource all the time.

Overall Rating UWorks

2%
17%
42%
39%

- Very Low
- Low
- OK
- High
- Very High
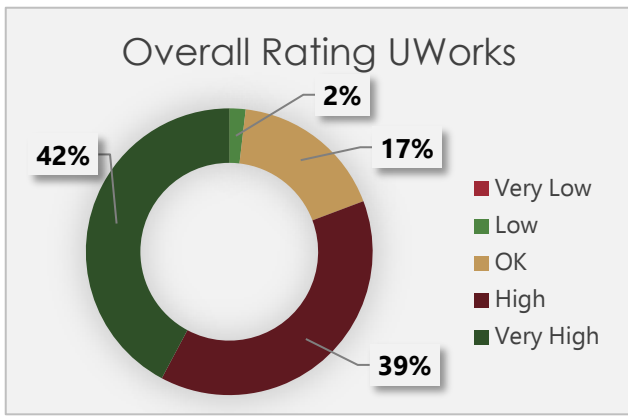
Participant survey responses by specific features shows that the system scored particularly well in terms of ease of use, user support, and technical support. It also reflects participant views that the system implementers have been responsive to user request for service and general system needs. UWORKS received the lowest average scores for system maintenance and the ability to modify functions, both of which likely reflect the reality of the need for configuration management. Some participants also suggested that the system's data export capacity was not as robust as other features, an issue that state implementers may want to explore more in future system upgrades.

However, no system feature received a lower than average score of OK to good. And seven (7) out of ten (10) features receive higher than good marks across the board. This speaks highly to the focus of DWS staff on making the system as functional and accessible to users no matter what their level of technical savvy. These high

Rating UWorks by Features

User Support
Technical Support
Modify Functions Capacity
Low Maintenance
Report Production Capacity
Export Data Capacity
Import Data Capacity
Scalability
Ease of Integration
Ease of Use

0 2 4 6 8 10 12 14

- Very Poor
- Poor
- OK
- Good
- Very Good

ratings reflect the considerable effort that the DWS staff have taken to making the system as functional and accessible to multiple users with multiple job requirements no matter what their level of technical savvy.
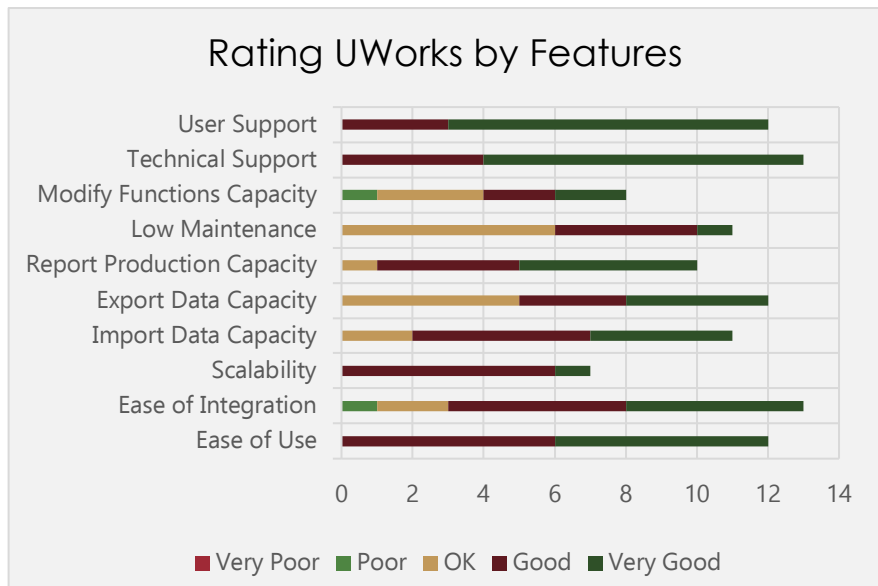
Recommending UWORKS?

Participants overwhelmingly recommended UWORKS and its related tools for use across all WIOA programs, and recommended it very highly for 15 out of 17 programs. Participants repeatedly state their satisfaction with the tool and the efforts of the DWS team and believed that other states' implementation efforts or portions of code could be useful to states seeking to implement their own system. The high recommendations across programs speak volumes

to the system's robustness and maturity, and to its ability to meet and exceed state policy and WIOA-mandated needs.

UWorks Recommendations by Program
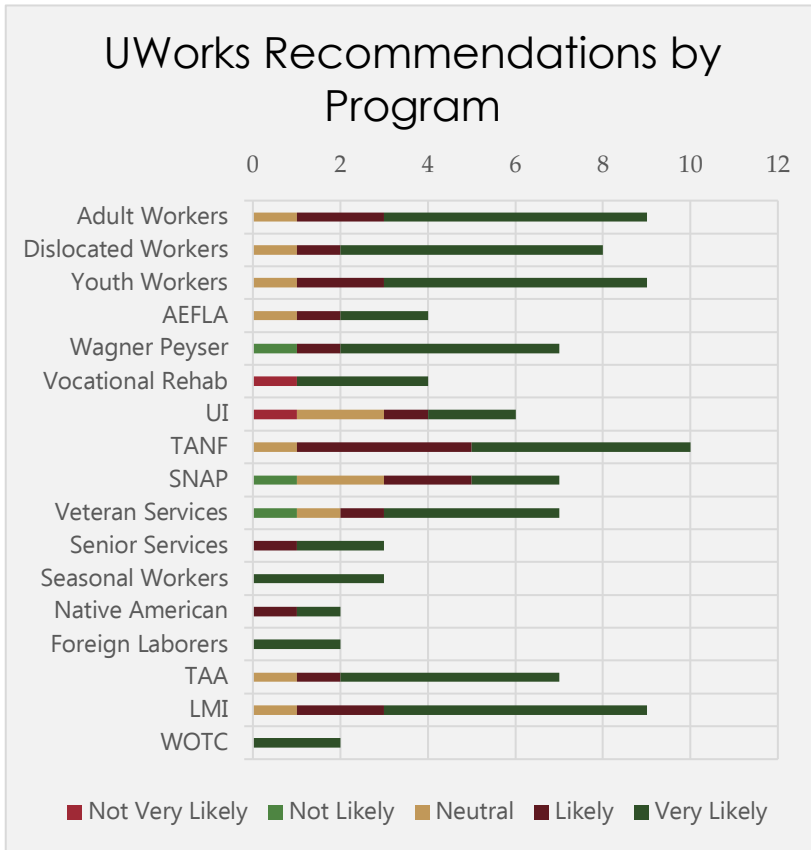
Less common WIOA-mandated programs received as many high ratings as other programs, an indicator of UWORKS broad applicability. The two programs where UWORKS was not as highly recommended for use were SNAP and UI. It is unclear whether the relatively lower satisfaction for using UWORKS in conjunction with these programs was due to the nature of the originating data or to the integration of this data within the UWORKS system.

The Takeaways – Best Practices and Lessons Learned

DWS staff are proud of what they have achieved with UWORKS, and recognized that implementing the tool could have been much more difficult if their WIOA programs were administered by multiple state agencies. Additionally, while the system can now implement WIOA metrics, in its optimized form, it is a tool that was built to implement state level policy, not federal mandates. In line with state policy, UWORKS goes above and beyond what is required by WIOA, which indeed made implementing WIOA-mandated reforms seem like backtracking to some. That Utah is a small state with strong relationships likely made it easier to manage the implementation process over time.

However, because Utah's workforce technology system has achieved a level of maturity and robustness, there are a lot of lessons that other states can benefit from, whether they decide to use a highly customized approach like UWORKS or whether they decide to work with a custom-off-the-shelf commercial product. Indeed, implementers have already been sharing code and implementation ideas with other states, including Wyoming, Montana, Texas, and Rhode Island and are amenable to sharing ideas and code with others as other states see fit.

The following sections outline the insights and reflections gathered from study participants who believe Utah implementers have done well, as well as challenges the state will need to consider as they move forward.

Road to Success

Participants identified steps that UWORKS implementers took from the beginning to help ensure that the end result would be an agile system based on Utah workforce processes that made user needs the priority. These include the following.

- <u>Creating a policy environment that supports innovation</u> – State policy makers led the way towards innovation starting in 1997 and continue to provide implementers with the support they need to be successful. From the beginning, this included making sure that all of the appropriate agreements, policy directives, Memos of Understanding (MOUs), and other policy and legal documentation were in place at the Federal, state, and local level to enable the UWORKS environment. Implementers noted that maintaining that support is an ongoing engagement process that involves a lot of relationship building, communication, negotiation, and awareness building of successes as well as issues as they arise and have built in the mechanisms to keep policy makers informed and involved, and to address any emerging concerns as they arise.

- <u>Designing for Users</u> – Implementers didn't just collect requirements. They proactively engaged in an intensive back-and-forth process to make sure that key user stakeholders – whether they were job seekers, employers, case managers, analysts, business service providers, workforce managers, policy makers, researchers, or others – would be able to understand and use UWORKS to receive service functionality they need to complete their workforce related tasks. This helped developers design a product that responded to Federal and state requirements, as well as to the disparate needs of stakeholders across the state.

- <u>Putting the right people in place to do the job</u> – Implementers made sure to include team members with experience in Utah workforce business and systems development on its core implementation team. Users from different aspects of workforce services were also integrated into the design and development team to help test different builds and identify issues as they moved forward with implementation. This combined approach of technical knowhow, business process knowledge, and integrated user experience helped to assure that the end product would achieve the results implementers wanted for the UWORKS system.

- <u>System Engineering Approach and Design Planning</u> – Implementers used requirements to brainstorm and think through what they wanted their new system to do and what they wanted it to look like. Then they identified all of the services with which each user profile needs to interact with to achieve that goal, and then identified which components they would build and which they would integrate, and what policy or technical issues they needed to resolve to build or integrate different components. This early investment in planning and goal setting laid the groundwork for them to build core components of UWORKS with whatever core resources were available at the time.

- <u>Bootstrapping core UWORKS components over time</u> – Implementers knew they did not have the resources and budget to implement the system all at once. Instead they used their design plan to build, test, and launch core modules with whatever resources and funding was available at the time. Each module build was aligned with prior services and became the impetus that enabled managers to seek necessary financing for each subsequently planned development phase. The process took longer to complete than an all-at-once development process, but it enabled implementers to justify resources spent and use the system plan, and the success of launched components, to show results as they moved forward.

- <u>Building a culture of collaboration</u> – Implementers started building consensus and developing feedback loops early on in the process to assure that users knew what the system would be able to do and when different components would be built. Implementers also knew that getting buy in from different stakeholders and giving those stakeholders a way to provide feedback would be key to making sure they approved of the system. The collaborative and feedback-based approach took time to

build, but has now resulted in an entrenched culture that provides a means for all stakeholders to stay involved in the process, to the benefit of all parties.

- Self Service Functions – As much as possible, implementers designed and built UWORKS to provide users with the ability to get what they need on their own, without the intervention of the system development staff. Once signed in, disparate users can find most of what they need already built into the system, including dashboards of online services reports customized to Federal, state, and local needs. Additionally, the system provides users with the means to access additional services based on their access rights, and to contact staff when they need additional help. The system works in the background, freeing workforce staff to focus on providing customers with the services they need, if and when they need them.

Participants also identified steps implementers have taken to ensure that UWORKS is maintained and upgraded as needed, and that it remains responsive to changing user needs and developments in technology over time. These include the following:

- Active Engagement and Feedback Loops –Implementers continue to proactively engage with and get feedback from users on issues they have and emerging services they need. Team members reach out and conduct site visits at regular intervals to understand system successes and pain points, sitting down with different users to see how they interact with the system. They continue to use that insight to drive upgrades and make changes to the core system to help assure that it continues to remain actively relevant to changing user needs.
- Change Management Process – As part of their feedback mechanisms, implementers have a clear process and plan for how to address user issues and keep users in the loop on how and when their system issues will be resolved.
- Building for Change – Implementers knew that whether coming from new policy directive or user demands, changes to the underlying system would be a constant. As a result, they configured the system with a modular design that helps them to make changes to their system with minimal disruptions to service.
- Ongoing Training, In-Person and Online – DWS has developed a significant series of onboarding and ongoing training modules, for new users and for more experienced users looking for refreshers in the system. Training staff are proactive, seeking to respond to user needs before they become issues. In addition to online and in-person training, staff keep stakeholders updated on new or useful features via system newsletters. The implementation team also does regular site visits to identify emerging issues and work to address them early, helping to keep people informed and educated about what UWORKS can do for them.
- Ongoing Research in innovations and technical developments – the implementation team makes a concerted effort to keep learning about new systems, technologies, and advances in design as part of their ongoing process. By staying aware of what is emerging in services and systems, the team can bring up, discuss, and research innovations that keep their system current over time.

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Challenges Ahead

Participants overwhelming agreed that UWORKS has worked for them since its inception. Where concerns for challenges emerged, they were mostly tied to resource and financial allocations, and to assuring that DWS had sufficient staff to maintain UWORKS over time. Specifically, participants identified the following as potential challenges.

- While bootstrapping is an effective means for building a system, it can lead to under resourcing of the core implementation team in the long term. UWORKS is the backbone of workforce operations and should be resourced as such. Without a core operational budget, the team is forced to devote considerable time to searching for funding to maintain the system, making it hard for team members to assure that the system stays robust and able to serve user needs.

- UWORKS's core development and implementation team is very small. Most of the technical and system knowledge behind its implementation and maintenance lies in the hands of one or two DWS staffers, leading to a single point of failure. With deep system knowledge concentrated in the hands of so few, there is a risk that if anything happens to key implementation team members, there may not be sufficient back up or knowhow for Utah to resolve any issues that arise in the short term. Such limited redundancy could lead to system failure with no simple recourse to resolution without significant emergency expenditures.

- The core implementation team is very small, and by all reports, is spending significant time beyond a normal 40-hour work week focused on maintaining UWORKS. While all staff interviewed were clearly devoted to their work and their colleagues, and to continuing to work with DWS for as long as they can, the level of time commitment required is unsustainable over the long term. Maintaining a sophisticated system like UWORKS is a marathon endeavor and cannot be sustained if core staff are working over 60-80 hours every week. This is not healthy either for the staff or for UWORKS as it could lead to staff burnout and turnover, particularly given that the key implementation team is so small.

- It is unclear whether the state has put any emergency or contingency plans in place to help them prepare for any crisis should core staff no longer be available to help. Life happens, and state implementers would be doing a disservice to DWS's achievements and the effectiveness of UWORKS if they do not put a contingency plan in place and prepare others to be able to fill the gap if something happens.

Recommendations

To State of Utah

Utah has put in place an exceptional system that works for them and that can serve as a model for services and development paths that other states can consider in their implementation processes. However, as a state based system with no other development resources to fall back on in case of emergency, state workforce stakeholders should start considering how they can build up the core implementation team and give it the resources it needs to maintain itself over the long term. To that end, stakeholders should consider the following.

- Developing and maintaining robust documentation of existing architectures, services and utilities, user profiles, business/process rules, data libraries, data schema, and other information related to the core UWORKS system, on all ancillary systems and processes with which it is integrated that an implementer can refer to in case core members of the current implementation team are not available;
- Creating document store for policy directives, Memos Of Understanding, compliance literature, and contact information for experts in different aspects of workforce processes, and other policy and business processes that stakeholders can refer to in case core members of the current management team are not available;
- Increasing staff dedicated to development and maintenance of UWORKS to help ensure that key personnel have the back up and support they need to maintain existing and develop new system services;
- Training additional personnel to be able to provide stopgap measures should any of the core technical implementation staff become unavailable;
- Creating a contingency plan to help manage UWORKS in case of any emergency events in which core team members are not available; and
- Maintaining good working relationships with any implementation staff that leave DWS, including hiring them as ongoing consultants to help with any transition process that will need to be undertaken in their absence.

To Federal Policy Makers

Participants also highlighted several areas where US federal agency support would be beneficial and support WIOA implementation efforts in Utah and elsewhere. Specifically, participants recommended that federal agencies consider:

- Giving more leeway to states to determine how to design or modify their own systems – DWS had already made considerable strides in building a sophisticated system responsive to multiple users that was true to the intent of WIOA-mandated changes. With no provision for systems that had already undergone innovation upgrades, state implementers had to retool UWORKS to make sure that it met with WIOA's letter of

the law. Federal decision makers may want to add provisions in future Federal policy mandates that allow states whose systems already meet a level of standard for innovation be provided some means to apply for waivers to given policy provisions.

- <u>Assuring that federal performance metrics account for the provision of critical online services</u> – As with other states, participants expressed significant concern that current federal performance metrics are not sufficiently documenting or giving credit to workforce services online or at the state and local level. Given that almost all of the states workforce services are completed online, and that innovation within WIOA mandates self-services as part of the goal, participants found the lack of metrics giving them credit for developing self-service functions particularly unfair.

- <u>Developing metrics to credit level of care needed for complex cases</u> – Current federal metrics that measure case level or business service interactions as a single touchpoint with a workforce stakeholder do not sufficiently account for the complexity of different cases, the level of knowledge and research required to address various stakeholder issues, or the quality of service provided. Federal decision makers would benefit from incorporating additional performance metrics that more accurately reflect the reality of the customer-oriented online and in-person services that state and local workforce personnel support on a daily basis.

Acknowledgements

About the Facilitators

National Association of State Workforce Agencies (NASWA) is the national organization representing all 50 state workforce agencies, D.C. and U.S. territories. These agencies deliver training, employment, career, and business services, in addition to administering the unemployment insurance, veteran reemployment, and labor market information programs. NASWA provides policy expertise, shares promising state practices, and promotes state innovation and leadership in workforce development. For more information on NASWA and its role in promoting workforce systems innovation across the country, please contact Charlie Terrell at cterrell@naswa.org.

National Association of Workforce Boards (NAWB) represents approximately 550 Workforce Development Boards and their 12,000+ business members that coordinate and leverage workforce strategies with education and economic development stakeholders within their local communities, to ensure that state and local workforce development and job training programs meet the needs of employers. NAWB works closely with policy makers in Washington, DC to inform national strategy as it relates to WDBs and its partners in education, economic development, labor and business. For more information on NAWB and its advocacy for local workforce systems, please contact Josh Copus at CopusJ@nawb.org.

World Data Insights is a small, woman owned data consulting group with extensive experience in all aspects of designing, implementing, and maintaining data driven technologies and processes across industry, government, and international spheres. World Data Insights personnel have worked on multiple corporate, international, and government contracts of specific relevance to identifying and assessing the state of data driven systems used in disparate workforce processes. For more information on World Data Insights data and research services, please contact Anne Russell at Anne.v.russell@gmail.com.

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[i] All of the graphics, comments and insights in this report were developed using the results of the surveys and first-person in-depth interviews of workforce stakeholders – workforce personnel and partners – conducted during the course of the Workforce Data Assessment Project. At the beginning of each study survey or interview session,

participants were informed that any personally identifiable information (PII) would not be shared publicly unless the authors received the participant's prior authorization to do so before publication of this report.

[ii] For more on the WIOA, its programs and intent, please refer to the Congressional Research Service report, "The Workforce Innovation and Opportunity Act and the One-Stop Delivery System" (47p, October 2015) - https://fas.org/sgp/crs/misc/R44252.pdf

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CASE STUDY #3: WHERE LEGACY IT AND MODERN PROCESSES MEET

Colorado's Experiences with Upgrading and Maintaining a Legacy Workforce Data Systems to Meet WIOA Guidelines

Report on the Workforce Data Assessment visit to Colorado in May 2017 conducted by the National Association of State Workforce Agencies (NASWA), National Association of Workforce Boards (NAWB), and World Data Insights.

NASWA
NATIONAL ASSOCIATION OF STATE WORKFORCE AGENCIES

National Association of Workforce Boards

World Data Insights

CASE STUDY #3: WORKING WITH LEGACY AND DUCT TAPE

Colorado's Experiences with Upgrading and Maintaining a Legacy Workforce Data Systems to Meet WIOA Guidelines

Executive Summary

In May 2017, representatives of the State of Colorado's Department of Labor and Employment (CDLE) participated in a US Department of Labor funded project to study state level experiences in developing workforce data systems and implementing reforms mandated under the Workforce Innovation Opportunity Act (WIOA). Part of a larger project assessing workforce data systems nationwide, the primary goal of this study is to identify best practices and lessons learned that can help other states with their own implementation plans and to clarify potential next steps for Washington.

Colorado's primary WIOA related data system, Connecting Colorado, is a highly customized workforce system built in 2001, when there were very few COTS tools available for purchase. The system was originally developed by outside contractors who have an ongoing contract with the state to provide additional system development and maintenance services as needed. Designed to support WIOA staff, contractors and partners, it is capable of measuring WIOA related activities within the scope of CDLE's mission, and rapidly generating federal and state mandated reports as well as local reports as needed.

Built in Fortran, Connecting Colorado is a robust IT system that participants commended highly for its dependability over the span of 15+ years and capacity to do what it is supposed to do well. However, Connecting Colorado remains a separate, standalone WIOA-based IT system that has not been integrated with other statewide data systems of relevance to workforce activities. The technology is difficult for users to navigate and challenging to maintain and update to modern technology standards. There are relatively few WIOA services that users can access and complete

on their own without the intervention of Colorado's knowledgeable workforce staff to guide them through the interface. Additionally, customer facing staff spend a disproportionate part of their work day toggling between multiple IT systems, inputting data into each separately so that customers can receive the full gamut of workforce services for which they qualify. The end result is a process that forces customers and staff into a transactional relationship with data systems that increases the likelihood of human error and curtails the ability of staff to focus on and respond to user needs.

When the system was originally developed, Connecting Colorado provided Colorado workforce policy makers, managers, and staff with the impetus to develop vibrant policy- and human-led technical and process management systems to assure its new technology supported emerging workforce processes. State level and workforce board managers have worked together to build operational processes from the bottom up that take advantage of local knowledge and needs and prioritize workforce projects and changes to existing programs based on collective, established needs. Experienced workforce members know where to get the information they need to do their jobs whether it is available on Connecting Colorado or elsewhere. And many have developed their own or identified different Custom Off-The-Shelf (COTS) tools that help fill the gap in essential data services that Connecting Colorado does not yet provide.

However, while the policy and human driven process have continued to modernize and adapt, Connecting Colorado, while functional, has become outdated. In the current technology environment, it is challenged to keep up with modern IT development processes and standards and has difficulty providing the kind of back-end and front-end functionality that supports changing user expectations. And maintaining and upgrading the system is almost solely dependent on the small group of contractors who were responsible for developing the original system.

Summary Recommendations

Colorado's technical implementers know that Connecting Colorado is outdated. They are aware that the system needs to align itself to modern day user demands for self-service functionality that 1) integrates data across multiple workforce systems, and that 2) streamlines data processes to amplify the ability of workforce personnel to serve self-serve and walk-in users professionally and with empathy. As Colorado workforce stakeholders move forward with their decision making on whether to continue to maintain and upgrade the current version of Connecting Colorado or to develop or purchase a license for a new custom-off-the-shelf (COTS) that suits their needs, they may want to consider the following:

- Capitalize on Colorado's existing human-based operational processes – Colorado stakeholders have the distinct advantage of having developed a workforce stakeholder

culture that collaborates across federal, state and local entities and that understands how to use technology to enhance customer service. Stakeholders have been intimately involved with the development and maintenance of the legacy system since its inception. And they have already mapped out processes that put user needs first and meet current standards for IT development. The understanding that stakeholders bring to understanding the strengths and limitations of the current technology, and how they have adapted their own processes to work around limitations, can serve as an exceptional resource as technical implementers collect user requirements and design new components, no matter which upgrade route stakeholders decide to take.

- <u>Build in redundancies</u> – If the state decides to continue with the current system, stakeholders should build in more significant redundancies to help ensure that the Fortran-based system can be maintained over time, whether the current contractors are available or not. As it stands, the system is highly dependent on its current contractors, which creates a concerning choke point. To overcome the inherent risk, stakeholders should train additional in-house or contractor based personnel with the hands-on skills and experience they will need to provide back-up should the current contractors no longer be available.

- <u>Maintain Colorado's culture of local customization</u> – One of the state's great successes has been the integration of local operational and workforce IT processes. The level of communication and collaboration between IT staff and local operators has helped to assure that locals get as much as they can from workforce systems and find their own solutions to fill technology gaps. However, any new system build will likely result in streamlining the number of technologies and tools accessible to users at the local level, potentially limiting the usage of favored external tools. As the state moves forward with any new builds, IT implementers will need to decide how they want to reconcile local choices and preferences with the needs for data inputs into any new streamlined system. Whatever implementers choose, they should ensure that locals can find and customize the functionality they need within the system, and purchase external tools that can work with the system for any additional functionality they need.

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Introduction to the Workforce Data Systems Project

Project Overview

The National Association of State Workforce Agencies (NASWA) and the National Association of Workforce Boards (NAWB) have undertaken a project to study and explore how emerging data driven information technologies can help align workforce program processes within the parameters of reforms required under the Workforce Innovation and Opportunity Act (WIOA) of 2014. Undertaken with support from the United States Department of Labor's Employment and Training Administration, the project is geared towards assessing the current state of workforce data systems and processes to:

- Analyze the data innovation challenges and successes state workforce agencies and local workforce boards are experiencing while trying to meet WIOA mandates;

- Identify workforce agencies and boards sharing similar successes and challenges;

- Facilitate sharing and collaboration between NASWA and NAWB members on best innovation practices; and

- Develop a body of knowledge and resources to which state and local entities can turn if they need extra help.

During phase 1, NASWA, NAWB, and World Data Insights developed baseline assessment tools to compare the status of state and local workforce data systems across all 50 states. In Phases 2 and 3, we used the tools to collect and analyze data from participating states. The results provided an initial, broad level insight into the overarching, aggregated trends that affect the ability of state workforce agencies and local workforce boards to implement WIOA. (To read the initial report, visit the NASWA website here).

In Phase 4, the team visited five (5) different states across the continent to collect and analyze additional in-depth information on board capacities, data strategies and policies, workforce data system components and tools, and on the business processes underpinning them for the development of state-level case studies. The focus of the state assessment studies is to understand local experiences with technical systems, learn what has worked, and assess the biggest challenges each participant is facing. States participating in the in-depth studies reflect a mix of experiences in implementation efforts, governing and policy environments, budget and resource constraints, and in the technical systems and business processes they use to support their local workforce stakeholders.

This in-depth report reflects the experiences and perceptions of Colorado workforce staff and personnel participating in the third data assessment study in this series. Conducted in the beginning of May 2017, the report captures a snapshot of Colorado's workforce data

assessment process, from the technical systems underpinning workforce activities to the business processes that personnel use to provide state workforce customers with the services they need.

The insights gleaned from study participants can be a valuable resource for other implementers as they move forward with their own state-level WIOA system digitization and upgrade efforts and provide them with a glimpse of the experiences, lessons learned, and successes and challenges different states have faced in their efforts to date.

To conduct the in-depth study and gather all of the perspective and insights needed during the state level site visits, the team designed a series of surveys and tools based in systems theory. This systems approach focuses on integrating information from a broad swath of workforce system designers and users to assure that a full picture of all of the inputs and outputs into a state's system are captured and assessed. It also involved developing an assessment structure from which to contrast and compare perspectives on workforce systems across states.

The results of the study are provided in the context of a common assessment framework that is used to report on results for each state and provide a roadmap for deeper exploration of workforce system related issues over the long term. This common assessment framework enables WIOA implementers at the federal, state, and local level to compare, contrast, and analyze key variables that may

Where Study Participants Work

- State Workforce Agency Offices
- Jobs Center
- Workforce Investment Board

help or hinder implementation of WIOA innovations at the state level for consideration of future decision making.
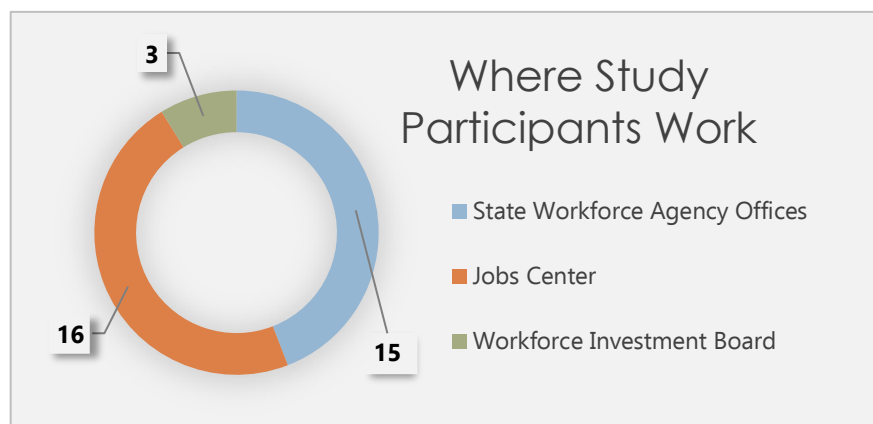
Details on the Colorado Visit

In Colorado, the team met with and elicited in-depth insight from representatives of state workforce agencies and local workforce boards who are involved in different levels of data systems and processes. During the visit, the team:

- Conducted focus group surveys and in-depth interviews with workforce staff and contractors, including:
  - operational stakeholders responsible for providing direct services to and interacting with customers;
  - technical stakeholders responsible for implementing and managing systems;

- o analytical stakeholders responsible for producing output reports and metrics; and
  - o managerial stakeholders responsible for budgeting, policy and decision making;
- Observed notable business processes and how disparate workforce stakeholders interact with system tools;
- Observed how staff collect and process data, output metrics, and produce reports at select state agency and local board locales; and
- Interacted with workforce data systems, tools and processes to understand the strengths and challenges of different systems.

In Colorado, the team conducted on site sessions with managers representing state agency and local workforce boards as well as other representatives from the Colorado Department of Labor and Employment (CDLE) in Denver. They also visited American Job Centers in Boulder County, which provides services to over 10,000 workforce customers per year, and the Arapahoe / Douglas Works! Workforce Center which caters to a diverse, highly skilled workforce across multiple regional industries.
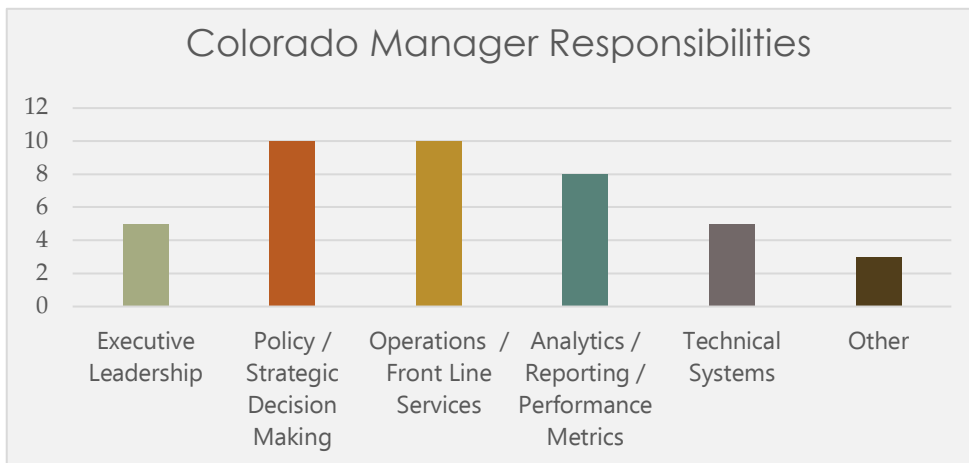
Colorado Manager Responsibilities

Values by category: Executive Leadership: 5; Policy / Strategic Decision Making: 10; Operations / Front Line Services: 10; Analytics / Reporting / Performance Metrics: 8; Technical Systems: 5; Other: 3

During the visit, the team interviewed 34 workforce personnel, all of whom participated in the assessment survey[i]. Participants represented a broad swath of responsibilities across workforce services and included personnel responsible for policy making, executive leadership, front-facing customer services, analytics and reporting, and technical system implementation and administration. At each American Job Center
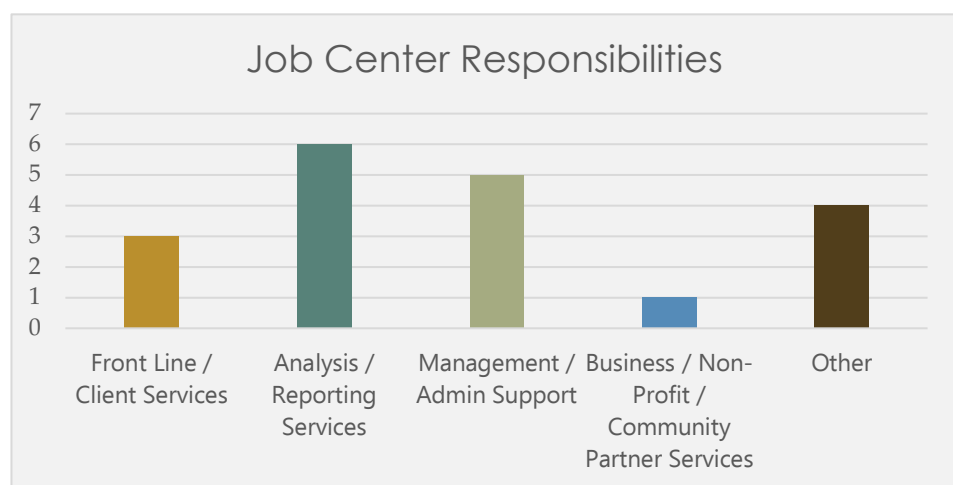
Job Center Responsibilities

Values by category: Front Line / Client Services: 3; Analysis / Reporting Services: 6; Management / Admin Support: 5; Business / Non-Profit / Community Partner Services: 1; Other: 4

site, the team met with site managers, case managers, analysts, and other local workforce personnel responsible for providing services to the Colorado workforce and business communities. 80% of respondents representing American Job Center sites reported that they provided services to over 7500 customers between July 2015 and June 2016.

Years Spent Supporting Workforce Activities

- **17%** Less than two (2) year
- **18%** 3-5 years
- **41%** 6-10 years
- **12%** 11-15 years
- **12%** More than 15 years
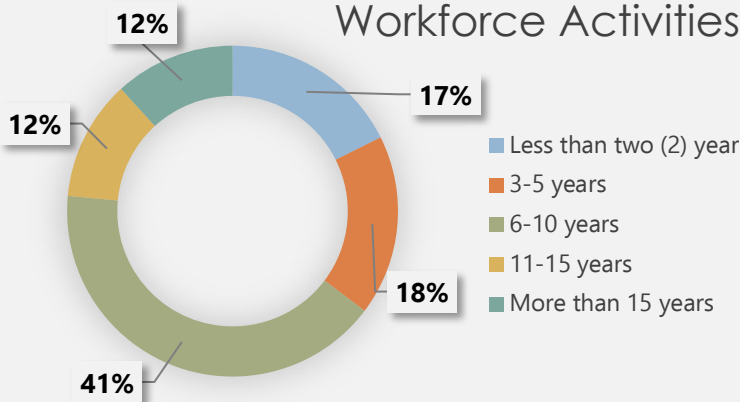
Over 50% of the respondents had more than six (6) years of experience serving workforce communities in various capacities. The majority of participants with managerial responsibilities reported they were directly responsible for 25 personnel or less. Participating staff with customer facing responsibilities reported seeing 1-5 customers a day. This depth of experience provided a rich source of insight into the needs of different system user groups, including targeted workforce user communities, data analysts and report generators, and the technical implementation teams responsible for the development and maintenance of the state's workforce systems.

Of particular importance to the Colorado site visit was the opportunity to ask targeted in-depth questions that captured the difference in perspectives between state level managers and workforce personnel with customer facing responsibilities. This insight allowed the team to better understand and compare Connecting Colorado and related data driven systems to the human driven business processes and systems and

Personnel Supervised

- **50%** 1-25 personnel
- **22%** 26-50 personnel
- **21%** 76-100 personnel
- **7%** 100+ personnel
- 51-75 personnel

understand how the two systems have collaboratively responded to WIOA-mandated changes, analyze how they interact in the function of daily workforce operations, and identify common strengths and challenges across the state.
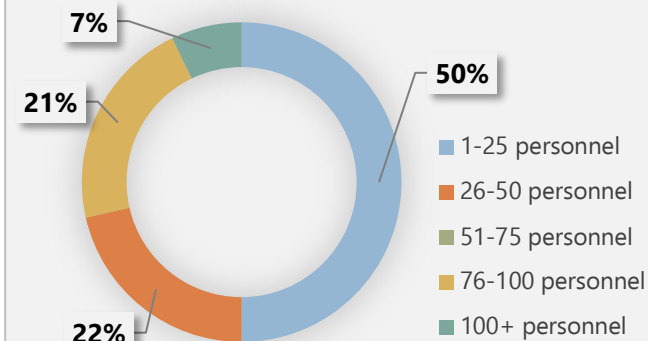
The Big Picture – Colorado's WIOA Experience

State of Colorado's Workforce Programs and Services

As in other states, responsibilities for Colorado's workforce activities are divided between multiple state, regional, local, and community level partners. Partners who share responsibility for providing services and maintaining data systems or who use workforce data systems in addition to CDLE include the Department of Human Services, the Department of Education, the Department of Health Care, Policy and Financing, the Colorado Community College System, and the Colorado Workforce Development Council as well as the 56 Workforce Centers and 46 Workforce partners spread across the state.

While workforce partners have developed a robust series of human-driven collaborative mechanisms to administer workforce programs and respond to customer demands, partners maintain separate, siloed instantiations of their technical systems. Common registries exist for CDLE programs, but there are currently no service delivery hubs, common registries, or data warehouses that allows users to access and share data between workforce-related systems from a single user interface. The result is a process that depends on users'

physically sharing, transferring, and double-entering key data across platforms, and a greater risk of data errors.
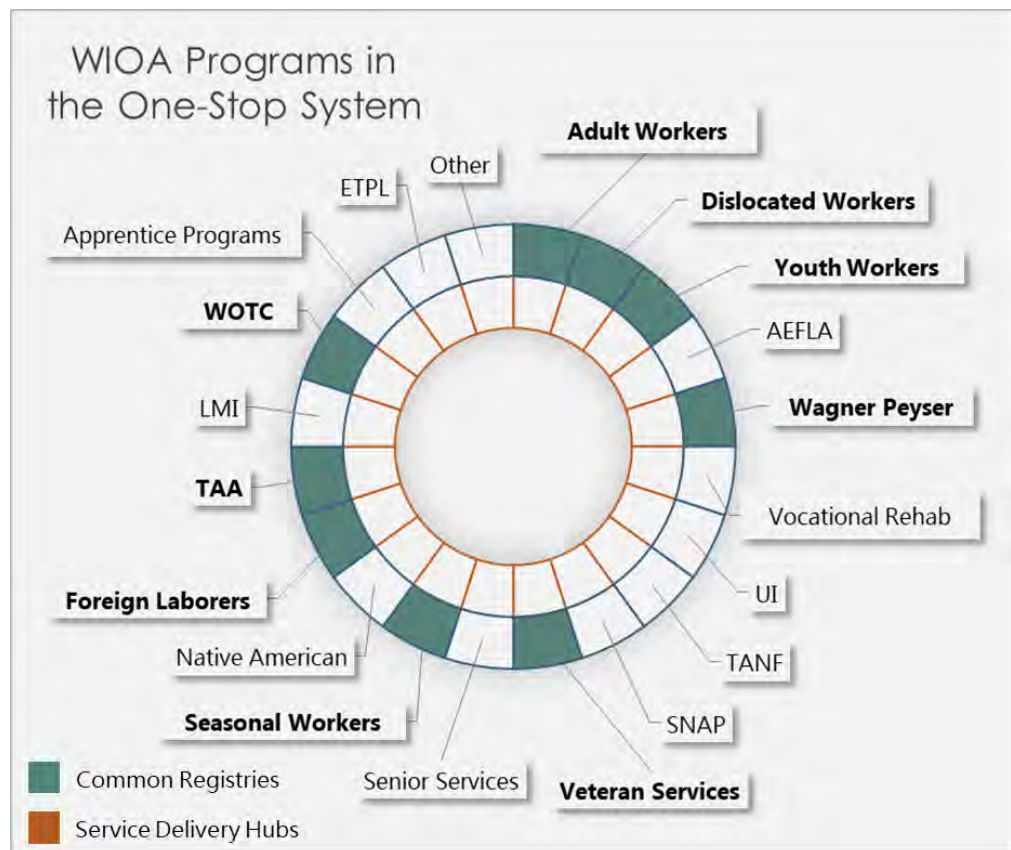
Participants believe that this process works well enough right now, when Colorado's unemployment rate remains low and federal, state, and other financial resources to invest in a new or enhanced, streamlined system are not forthcoming. However, state representatives recognize that user needs have changed and that it is time for a workforce systems upgrade.

Developing and Implementing Connecting Colorado

While the CDLE's main workforce data system, <u>Connecting Colorado</u> provides case management, performance measurement, reporting, and other workforce functions, participants reported it is primarily used to provide job matching services to WIOA partners. Built in 2001 as a custom system to replace a third party system known as Colorado Performs, the system is maintained by a technical staff of 6 Full Time Employees (FTEs) at the state level. The state has also contracted with the original system developers who have remained responsible for executing the coding changes and system upgrades mandated by the state since 2001. The contractors understand the tools processes, technical strengths and limitations, and are the only staff with significant enough experience in <u>Fortran</u>, the system's programming language of choice, to ensure that any maintenance and upgrades to the system are appropriately executed.

As a legacy system maintained and upgraded by the original developers in a stable programming language, Connecting Colorado is capable of providing core CDLE job matching services, enabling measurement of performance metrics, and outputting core federal, state, and local reports across core workforce func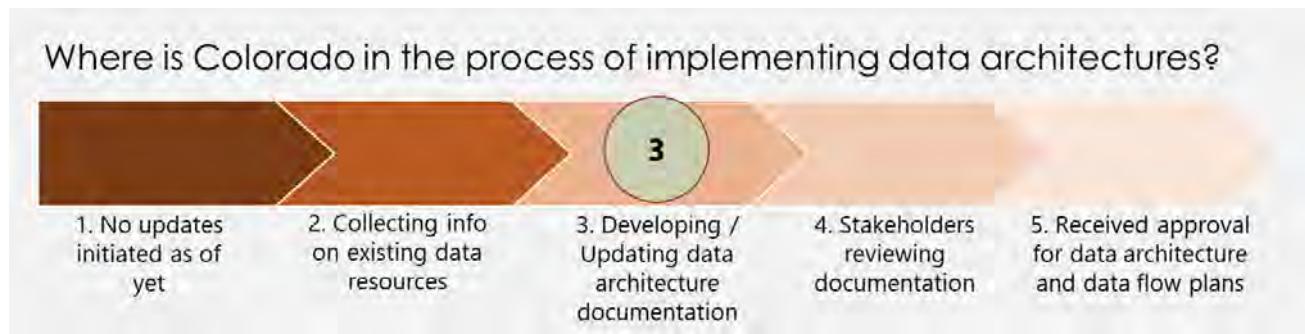tions. The system performs as it was intended to perform when it was first built. It continues to benefit from experienced technical, analytical, operational, and management stakeholders who have worked with the system since its development and are very familiar with its strengths and weaknesses. Users understand the system and know that there is a well-structured user support system to help

Where is Colorado in the process of implementing data architectures?

1. No updates initiated as of yet
2. Collecting info on existing data resources
3. Developing / Updating data architecture documentation
4. Stakeholders reviewing documentation
5. Received approval for data architecture and data flow plans

them navigate issues and a decentralized, democratic management process that helps the state manage and implement system changes when mandated.

However, over time the system has become outdated and challenging to maintain or upgrade for anyone other than the two contractors who developed the original code in Fortran. In its current instantiation, the only data sharing across systems occurs when users connect to other workforce systems via hyperlinks from the state's workforce web page and cut and paste data across systems. The system has become highly dependent on technical and operational stakeholders with significant knowledge in its inner workings. Navigation through the system remains complex, leaving users, and in particular workforce customers, dependent on system usage experts to assure that most workforce tasks can be completed

11

correctly. And analytic outputs and reports remain in the hands of skilled personnel who have mastered enough to know how to export the right data to the right external tool for its intended purpose.

Technical implementers understand that the current instantiation of Connecting Colorado is complex at best and highly dependent on experts and developers. They also believe that the system is capable of doing more. Many expressed the opinion that it could serve as a foundation for an enhanced, integrated system with a more robust front-end that provides users with a single interface to manage workforce data workflows across the state and meets the navigation expectations of today's users. Implementers believe that much of the system's missing back-end data sharing functionality could be resolved once the appropriate agreements and Memorandums of Understanding (MOU) have been signed between agencies. With those agreements in place, technical implementers would be ready to manage the development of any upgraded system, whether that system is built upon the existing Connecting Colorado platform, or whether the state opts to develop a new system on its own or to purchase and configure an existing COTS vendor product.

Participants also believe that the substantial effort developing highly effective and collaborative human networks help to assure that any essential policy or data agreements with other state agencies and partners will be negotiated in good will and result in management processes that support any new or upgrade builds. Likewise workforce personnel across the state and in workforce centers have developed ample business process to help assure that any system upgrades or development is guided by user requirements that reflect an understanding of the capabilities of different technical systems and the real needs of different workforce stakeholders.

However, while the state is procedurally and technically ready to move forward with any build that state policy makers and workforce managers approve for development, funding remains a significant impediment to execution. Unlike other state workforce related programs, such as UI, WIOA-mandated programs have received no funding to support technical infrastructure development or upgrades. Participants were frustrated at the expectation that the state should pay for the

Participants Views about Connecting Colorado:

"Colorado is well organized into a team of players with good communication between state policy, management, and local American Job Centers"

– Participant, CDLE Management Survey

"Our system is old-school and unsophisticated, but agile. It gets the job done."

– CDLE Technical Team

"We are nearing a 'wall' of what is possible to streamline given current resources"

–Director, Workforce Center

"Our technical systems are struggling to keep up with our human systems, which are much more advanced"

– Participant, Local Workforce Center

"Ultimately Colorado will need to move to a new system. We won't have a choice.

–CDLE Technical Team

federally mandated workforce system changes without offers to cover some portion of the costs, a situation that they hope will change in the near future.

Technical implementers recognize that the system will need to be updated regardless and that funding mechanisms will need to be developed to support a revamping of the technical infrastructure in relatively short order. But as it stands now, the budget only allows for implementers to approach any development with solutions that maintain the system as is.

In preparation for a new or upgraded system approach, implementers and workforce managers have started to explore different development options. One may be to build off of the existing infrastructure, develop a new interface that allows users to input data in a common intake form, and share data across systems. Another may be to build a new, highly-customized system in house with contractors using the workforce business operational rules that have developed organically across different state workforce partners. And a third may involve investing in one of the Custom-Off-The-Shelf vendor based products that are currently on the market. Regardless of which route the state decides to take, technical implementers believe that the state will need to make a choice soon, before the current contractors are no longer available to maintain the system.

Status of WIOA Reforms – Human Systems Driving Process

Colorado is largely ahead of the process of implementing WIOA-mandated reforms, a status that participants attribute to the capacity of state and local workforce partners to collaboratively problem solve. Some participants cited the development of Connecting Colorado as one of the core reasons that collaboration between state and local workforce stakeholders took hold as a cultural norm. As a result of the existing human networks that emerged, the state has been able to coordinate changes to policy and operations and assure that the personnel involved in capturing and reporting on WIOA metrics at the local level did so consistently, despite the increasing limitations of Colorado's workforce data systems over time.

How far along is Colorado in implementing WIOA mandated reforms?

Average Respondent Score

3.7

1. Way Behind   2. Behind   3. On Track   4. Ahead   5. Way Ahead

Participants also believe the state's established and robust technical change management system as key to its ability to maintain and upgrade the legacy system to date. Once state policy makers and managers were able to agree on changes to make the workforce data system compliant, technical implementers were able to follow existing procedures to have those changes implemented within Connecting Colorado by the contractors.
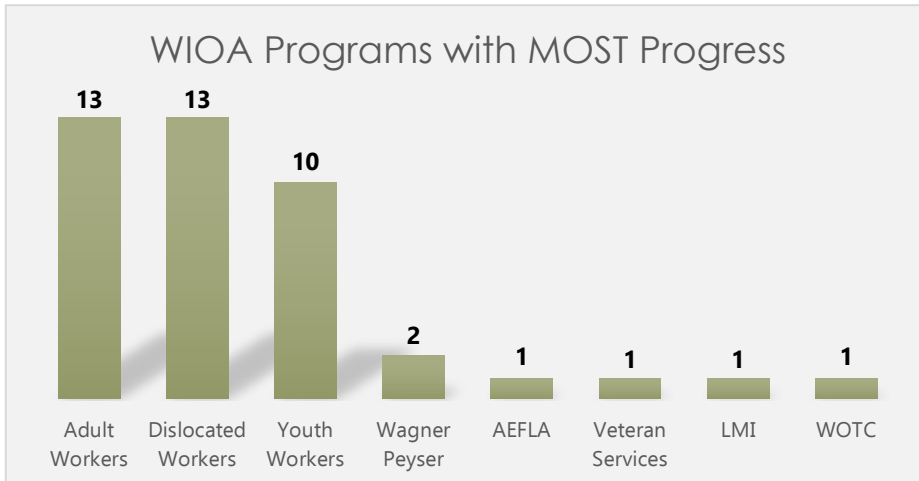
WIOA Programs with MOST Progress

Program	Count
Adult Workers	13
Dislocated Workers	13
Youth Workers	10
Wagner Peyser	2
AEFLA	1
Veteran Services	1
LMI	1
WOTC	1

In some respect, the fact that Connecting Colorado is a legacy system that is still maintained by its original developers helped to ensure that WIOA reforms could be technically implemented with relative ease. With decades of knowledge and experience in the data system's inner workings, contractors were better equipped to make changes to the system's code and to problem solve effectively when issues arose. However, those changes were largely limited in scope to Connecting

WIOA Programs with LEAST Progress

Program	Count
Vocational Rehab	4
Other	4
UI	2
SNAP	2
Senior Services	2
Seasonal Workers	2
Adult Workers	1
TANF	1
Veteran Services	1
Foreign Labor	1
TAA	1
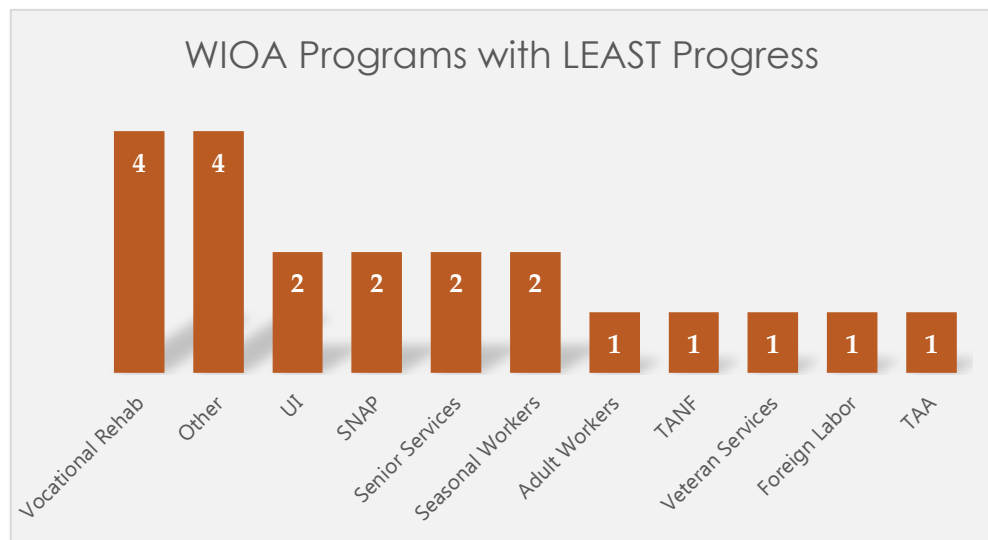
Colorado's primary function of job matching and to the Title I and Title III programs CDLE manages. They do not yet extend to features or programs beyond Connecting Colorado's capacity or the scope of its function, such as single sign-on or upgrades related to integration functions or sharing data with WIOA-related data systems managed by other state or federal programs.

Participants felt strongly that the federal government did not provide enough guidance in how to implement WIOA reforms. What little guidance there was came late, after state and local workforce personnel had started implementing changes they interpreted to respond to the spirit of the mandate for reform. Because there was no clear guidance, the reform process took longer than expected and created significant frustration at the local level. As an example, participants highlighted the ever changing federal guidance on ETPL reform,

which had gone through five (5) iterations as of the time of writing. Each iteration created a backlog and adjustment in policies and procedures and caused significant confusion in how to incorporate and translate changing rules into day to day work flows and in turn implement them in Connecting Colorado.

Participants also noted that the lack of coordination between different federal level WIOA partners resulted in conflicting guidance at the state and local level on critical implementation issues such as how to integrate services, structure cost sharing agreements, navigate data sharing agreements, or even

Management Pain Points

Category	Value
INSUFFICIENT FUNDS	4
MINIMAL PLANNING	6
BUSINESS PROCESSES UNDOCUMENTED	1
METRICS MINIMAL	4
DATA SILOS HARD TO ALIGN	9
COMPETES WITH OTHER PRIORITIES	5

structure data schema to align matching data elements. The lack of coordinated federal guidance and minimal federal funding mechanisms led several participants to question whether WIOA-mandated reforms were putting undue pressure on states to streamline using current resources.
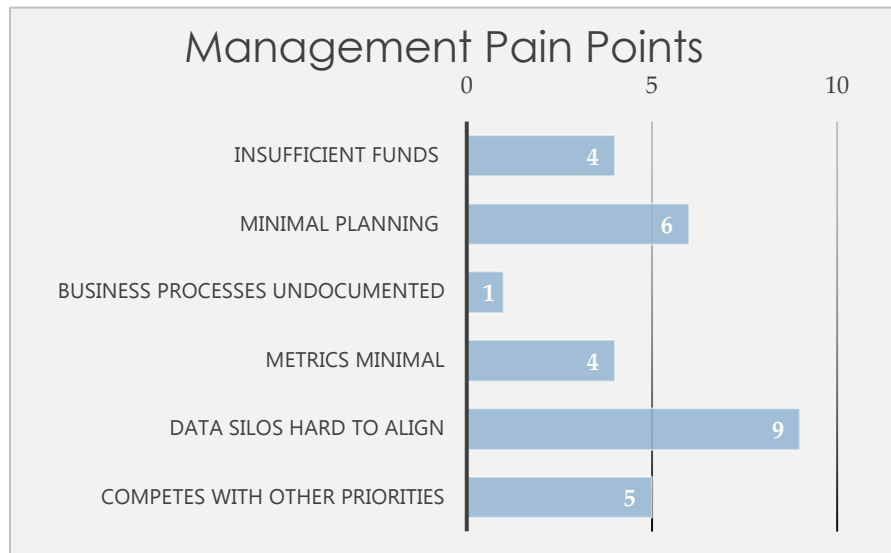
Supporting Data Driven Systems through Strategic Policy

The Foundation of a Collaborative Culture

Colorado workforce partners have a longstanding and uniquely collaborative, problem solving culture that is capable of implementing top-down federal policy directives while capturing and responding to feedback driven by local workforce needs. This hybrid top-down and bottom-up collaborative approach has consistently enabled Colorado workforce personnel to work together to resolve issues as they emerge.

Where is Colorado in the process of developing its data strategy?

Average Respondent Score: 3.2

| 1. No WIOA Compliance Strategy | 2. Collecting Requirements to Update Strategy | 3. Developing / Updating Data Strategy | 4. Reviewing Stakeholder Feedback | 5. Data Strategy Complete and Approved |

The collaboration is exemplified in the process the state has established to assure that changes to Connecting Colorado are managed efficiently and take into account both policy considerations and user needs at the local level. While there are state level technical meetings that prioritize how to implement policy changes down to the local level, the majority of decision making on which systems to use and how to use them remains at the local level. Local workforce boards are not required to use Connecting Colorado in their day to day operations but are required to enter data into Connecting Colorado for the purposes of federal reporting.

Does Colorado's workforce agency process include any of the following components of a data strategy?			
Yes	No	?	
13	1	0	Understanding among key stakeholders
9	1	3	Feedback from key stakeholders
10	1	3	Knowledge of data
4	3	7	User Guide
7	3	4	WIOA - aligned metrics
2	6	5	High level outline of business processes
4	3	6	High level data architecture
12	2	0	WIOA Compliance standards
2	3	9	WIOA Master Plan
13	0	2	Understanding of Policy Mechanisms Needed

To facilitate local decision making and usage of Connecting Colorado and other systems, Management Information Systems (MIS) representatives are designated at each of the state's major workforce centers. MIS representatives work with local workforce board personnel to identify and prioritize requests stemming from multiple user needs based on the cost and level of effort it would take to implement the request. MIS representative also work to keep local workforce personnel informed of larger state-wide policy or technical changes that may affect how they interact with the system. Requests approved at the local level are

pushed up to the state level and put on a dynamic triage list that state-level MIS staff use to develop month to month approved configuration changes to the system. Smaller changes are normally resolved within days while larger changes are planned out based on available funds and the level of effort required for completion. MIS local representatives keep local workforce personnel informed about how and why configuration changes are being made, and when requested changes will be implemented, if at all.

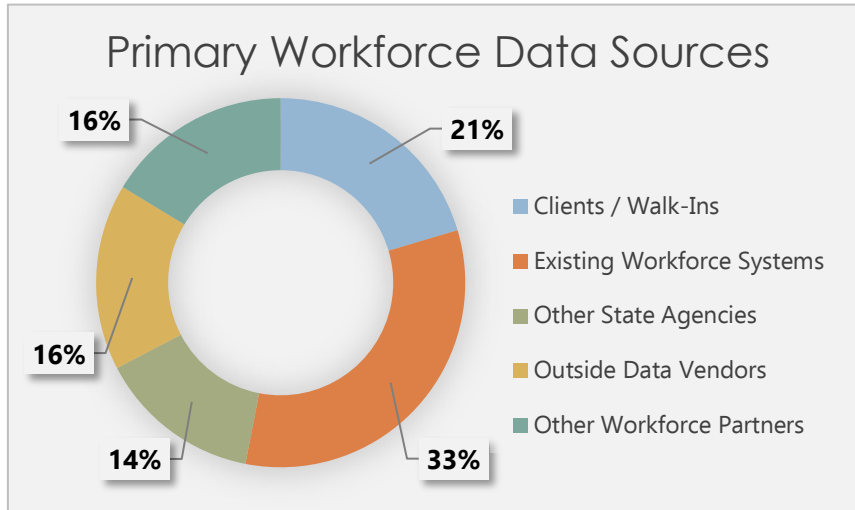| How does Colorado include key stakeholders in their processes?				
	As Key Implementation Staff	In Internally Focused meetings / updates	In Public Facing meetings / updates	N/A / Don't Know
Job Seekers	4	3	3	5
Employers	6	2	2	4
State Workforce Agency Personnel	9	7	2	0
Other Workforce Agencies Personnel	4	5	0	5
State or Federally Funded Partners	2	3	1	7
State Executives & Policy Makers	5	2	0	5
Federal Agencies	3	0	0	9

Technical implementers explain that given current funding levels for system upgrades and maintenance, they are not able to sustain any requests for significant changes to Connecting Colorado. With their current budget, they have little room to maneuver beyond basic modifications and configuration changes that assure Connecting Colorado remains compliant with federal and state regulations as they emerge and otherwise keep the current system up and running. Participants recognize this limitation and in response local workforce centers seek out and finance their own data driven processes with additional systems and tools on their own, with minimal interference from state level managers.

What kind of Data does Colorado use now? What would respondents like to use in the future?*				
	Agency Staff		Front Line Staff	
	Actively Using	Would like to use	Actively Using	Would like to use
Official workforce data	6	2	13	3
Official state / federal data from other agencies	3	3	12	4
Official stakeholder data	5	4	8	8
Survey Data	6	2	8	8
Passively collected data	3	2	9	7
Additional workforce data from non-govt / business / other partners	0	3	6	10
Additional workforce data from other job sites	1	4	5	10
Social Media Data	0	4	7	7

The result has been an uneven and inconsistent adoption of data driven technologies at the local level and a significant increase in the number of systems users need to access on a

daily basis. For example, participants identified 18 different federal, state, and locally purchased workforce data systems and tools they currently use in the course of their operations. Some of these provided core functions that are mandated by federal or state policy. Many are tools or systems that facilitate workforce operations and services at the local level but are unavailable in federal or state systems.

Primary Workforce Data Sources

16%
21%
16%
14%
33%

- Clients / Walk-Ins
- Existing Workforce Systems
- Other State Agencies
- Outside Data Vendors
- Other Workforce Partners

With so many systems in use, the potential for redundant processes increases, potentially increasing system costs to the state. Participants cited one example where users were manually loading data into an access database even though they could complete the same function they needed in Connecting Colorado. While not every user is using every system, participants reported that on average they were accessing three to five systems as part of their daily activities. Furthermore, because these systems do not share information with each other, every new system leads to a duplicative data entry process which in turn affects the ability of users to focus on providing customers with service that attends to their needs.

Local workforce leaders recognize the impact of multiple workforce systems on customers and have taken pains to streamline the customer service process within their facilities to compensate. For example, while there are few data sharing agreements that enable state workforce IT systems to talk to each other, some workforce boards have developed cross-agency data sharing relationships to help assure that they can access the information they need to complete a task.

However, the sheer number of systems at play could also be making it difficult for unfamiliar users to navigate through workforce processes to get the information they need to complete even simple tasks. This creates a dependency on more highly skilled, highly experienced users for insight and help, creating an undue burden on their time and taking them away from other workforce priorities.

Measuring Performance at the Federal, State, and Local Level

As part of their human driven processes, Colorado workforce personnel have effectively implemented federal and state measures and in some cases developed robust local measures that capture a broad swath of workforce activities. Participants reported that the state workforce system was particularly good for capturing and reporting on federal WIOA metrics

and credit the technical team's change manage process for implementing WIOA changes in short order. To implement those changes, MIS local personnel used existing state workforce systems to manually input the data needed to measure federally-mandated WIOA performance metrics. In turn, the state has implemented automated reporting features that allow personnel with reporting functions to rapidly produce federal reports as needed.
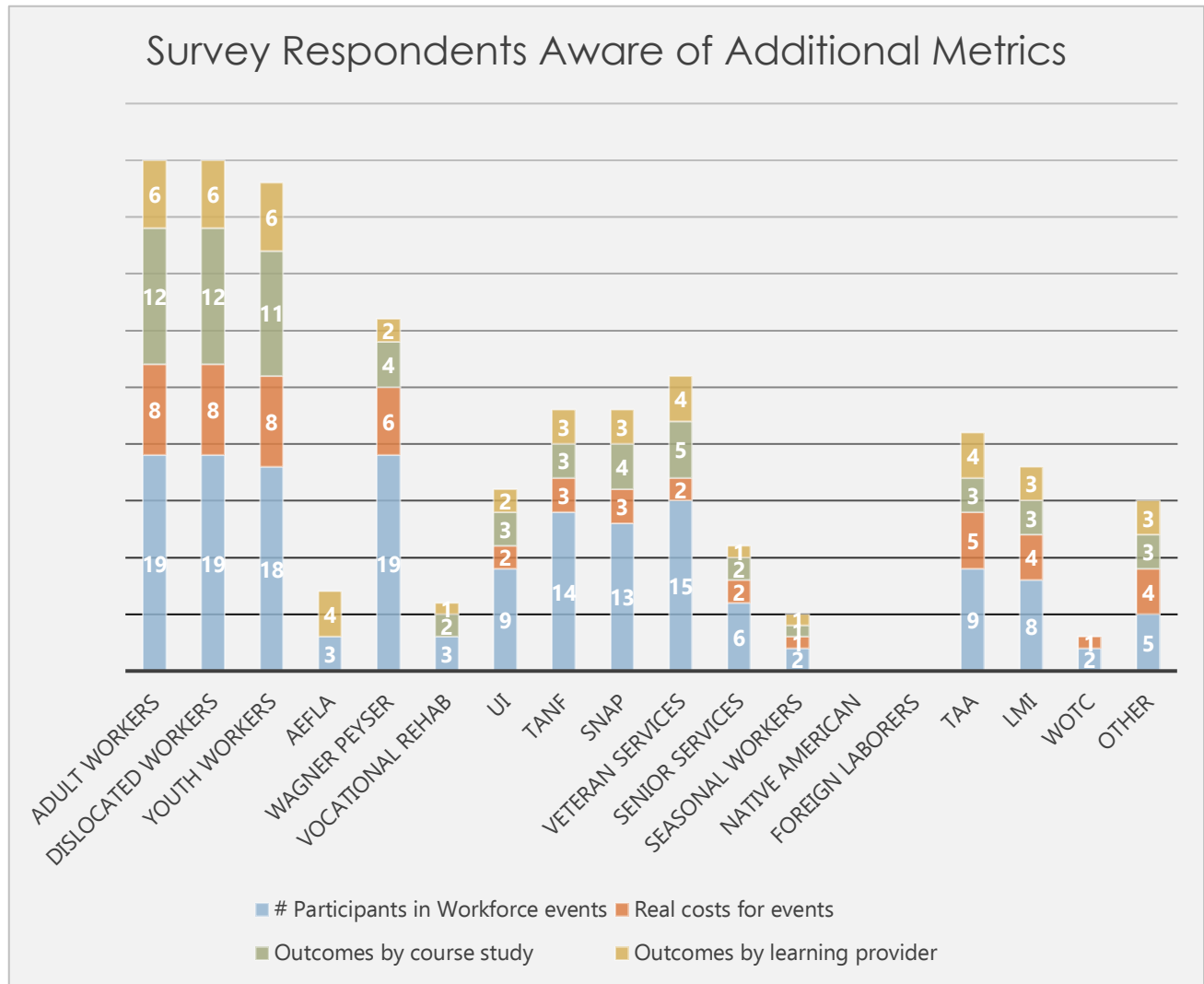

Consistent Metrics?

- 19% Yes
- 75% Mostly
- 6% No

To implement WIOA mandated changes onto Connecting Colorado, MIS assigned two technical staff to work with three workforce personnel who could translate WIOA policy to work through and transform the policy language into executable code. MIS then rolled out the WIOA updates as part of one of the systems upgrades. Because the state already has a clear change management and version control system in place, the WIOA mandated changes were no more disruptive to workforce operations than other system upgrades despite rollout delays. As a result, those with experience in the system have minimal issues accessing WIOA relevant data or producing federally mandated reports measuring WIOA activities within the system.

Respondents Aware of Basic Metrics

Legend: Public Facing Performance Metrics, Client Management Metrics, Other

Category	Public Facing Performance Metrics	Client Management Metrics	Other
ADULT WORKERS	18	19	4
DISLOCATED WORKERS	17	19	4
YOUTH WORKERS	17	17	4
AEFLA	7	7	1
WAGNER PEYSER	16	15	4
VOCATIONAL REHAB	4	7	
UI	8	10	1
TANF	10	12	1
SNAP	10	11	1
VETERAN SERVICES	13	16	2
SENIOR SERVICES	6	7	
SEASONAL WORKERS	4	5	1
NATIVE AMERICAN	3	3	
FOREIGN LABORERS	5	4	
TAA	10	12	1
LMI	10	7	3
WOTC	4	4	1
OTHER	5	6	

Participants' experiences using systems to produce state and local performance metrics, however, has been inconsistent. Some local workforce centers reported having robust metrics measuring outcomes at multiple different levels while others continue to struggle with capturing performance metrics that provided an accurate interpretation of local workforce center operations but that are not captured in federal performance measures. In both cases, participants in our survey reported that the capacity to produce additional metrics had more to do with a center's capacity to access additional human and financial resources that helped

Survey Respondents Aware of Additional Metrics

Legend: # Participants in Workforce events · Real costs for events · Outcomes by course study · Outcomes by learning provider

centers identify what additional data they needed to collect, how best to collect that data, and how to make sense of it to the benefit of local stakeholders. Where they exist, performance metrics beyond WIOA are largely produced by hand with analysts pulling what they need from each of the separate state systems and using an external tool to output and visualize results in order to give local managers the data they need to make decisions.

Participants felt that the inconsistency in executing local metrics was due to the lack of direction or clarity on what should be measured at the local level from federal or state policy makers. Some workforce centers, including Arapahoe/Douglas Works!, have developed metrics that show what could be measured that can provide a starting point for developing

standardized local performance metrics applicable at workforce centers across the state. Many participants suggested that standardization of metrics that capture the qualitative, nuanced activities of local workforce centers would be of great value to them and ultimately to the customers they serve.

Implementing the System Technology

Developing Connecting Colorado to Support the Workforce

Connecting Colorado provides its WIOA-related and partner users with job matching and other workforce functions. The system is siloed from other workforce-related systems administered by different federal and state agencies. With minimal data sharing agreements in place or resources devoted to system maintenance and upgrades, exchange data between systems remains a manual data entry process or physical batch data exchange between systems. Recent funded upgrades include a web-enabled interface and a mobile app for job seekers and employers to search Connecting Colorado's database.

There are six (6) MIS staff at the state level supporting Connecting

1 Data Flows and System Architectures – Connecting Colorado

	Documented Process	Undocumented Process	None
Common definitions of different data types, categories, libraries, taxonomies, etc.	✓		
Data architectures, system architectures, system designs clarifying inputs and outputs	✓		
Clarity on all manual, semi-automated, and automated data ingest mechanisms	✓		
Clear Extract, Transform, and Load (ETL) protocols	✓		
VV&A procedures for assuring quality of ingested data		✓	
VV&A de-duping, alignment, integration protocols for ingested data			✓
Data fusion schema identifying how data aligned and displayed to different users	✓		

Colorado, four of whom divide their time between workforce centers providing local training, support and troubleshooting on simple issues. State level staff of programmers and system engineers manage requests for changes to the system and prioritize changes based on policy directives as well as the cost and level of effort involved in implementing a requested change. The majority of MIS staff have been working with the system for over five years have considerable expertise in the system's backend and how it operates. The main party responsible for programming changes into the system is an outside contractor with experience in Fortran. The contractor has held a contract with the state for over 15 years and has been responsible for implementing changes on Connecting Colorado as directed by state officials.

In its current iteration, Connecting Colorado can maintain its core functionality through a centralized state system accessible at local levels. System access is secured by log in

credentials for staff and with a key card encryption program for others. The state uses a COTS vendor product to help manage system security. Administrators can manage access rights through six (6) tiered permission levels, including different rights for local instances of the system. There is also a common identification system established via state policy that enables Connecting Colorado to share data via a Secure File Transfer Protocol (SFTP) with the separately administered UI system, known as CUBS. Data sharing protocols can be established with other state and local systems, but it would be costly and require renegotiating agreements with data vendors.

Administrators believe that while the system is archaic, it is capable of doing significantly more than it currently does. Some argue that many of the system's current capabilities are not implemented because there is limited knowledge of its capacity and no demand or funding for new services. Many of the technical staff also feel the platform could serve as a

② Data Management Processes – Connecting Colorado	Documented Process	Undocumented Process	None
Anomaly / fraud detection protocols		☑	
Ongoing mgmt. / monitoring of network flows - interruptions in data pipelines	☑		
Ongoing user account management to ensure system access based on roles		☑	
Data mitigation plans in cases of network outages, cyber attacks, etc.		☑	
Clear security and privacy protocols to manage and protect data, including PII		☑	
Data provenance procedures, including time, and source stamps of forensic value		☑	
Data storage, warehousing, and archiving procedures for raw and processed data	☑		
Contact information for key data providers, WIOA system admin		☑	

foundation for any future build and that any new build would largely need to be focused on the front end user experience and middleware to integrate or share data across systems.

Managing Change

Participants highlighted MIS's management of Connecting Colorado and the general openness and collaboration between MIS, state policy makers, and workforce centers as key factors in the success of implementation efforts to date, despite the increasing limitations of the state's workforce data systems over time. The culture of openness and exchange and the structured communication and feedback process MIS established has helped workforce personnel across the state provide user inputs into system design, prioritize requests, and inform users about which changes are made and why.

Priorities are largely determined by the nature of level of effort, cost of a request, and on the terms of the contract with the outside contract programmer. MIS coordinators at the

workforce centers provide an initial level of vetting for new ideas, resolve what they can and work with local managers to help identify requests for consideration at monthly meetings.

Users own the meetings and are given full leeway to provide inputs on what they need MIS to include in the system. The programming contractor participates in the monthly meetings and gives users and managers inputs on the

3 — User Interface Processes – Connecting Colorado

	Documented Process	Undocumented Process	None
Single Sign-on for users to access different workforce program services		☑	
User interface that enables workforce services across cloud and mobile platforms	☑		
User specific / need based system access levels (e.g, customer vs. staff vs. admin)		☑	
Online user communication and collaboration mechanisms (chats, message boards, wikis, etc.)	☑		
User-oriented analytics dashboards (customer, workforce staff, etc.)	☑		
Standard Operating Procedures, training manuals, offsite or onsite training, etc.	☑		

feasibility and cost of different requests. The general system maintenance contract allows for 39 maintenance changes, including three small free changes per month, and covers most of the requests that arise out of the monthly meetings. Major changes are treated as separate undertakings and become part of a separate Statement of Work with the vendor. Local workforce boards also provide supplemental funding for the state system contractor to help implement specific components relevant to localized operations.

Because of budget and resource limitation, MIS has to be very clear on what system changes the state can afford on a month to month basis. To that end, MIS maintains a triage list that helps to prioritize system changes. If new priorities are identified, they are weighed against other priorities. Those that rank higher go to the top of the list while the implementation of others is delayed until additional funding can be identified.

4 — Data Output Processes – Connecting Colorado

	Documented Process	Undocumented Process	None
Data selection and output to different analytic tools / processes	☑		
On demand data analysis, interactive displays, dashboards	☑		
Mechanisms (MOUs, etc.) for sharing data between different stakeholder systems	☑		

In the case of big changes, such as those mandated by WIOA, MIS provides training to local users to make sure they are aware of how to work with the upgrades. The system is not as effective at alerting users to smaller changes which take anywhere from 4-6 weeks for the programmer to implement and execute. MIS coordinators make announcements of smaller changes at meetings with local users where attendance is not obligatory. Coordinators also share meeting minutes with stakeholders on a website.

That Colorado has a change management system in place that is part of the workforce culture helped the state manage the WIOA implementation process and made it relatively seamless. Technical implementers were able to inform users about the policy changes coming down the pike and keep users informed about the multiple, sometimes haphazard version changes the system had to go through while implementers worked to figure out how to translate WIOA-mandated changes into executable code.

Participants think highly of the change management system and see MIS staff as a partner in their efforts to make data systems better. Indeed the effectiveness of the change management system, collaborative nature of meetings, and responsiveness of the vendor to implementing changes is part of the reason that state implementers have had a difficult time deciding upon or recommending any particular new course of action. As one participant said, "We're in a conundrum because we have this great Volvo that works really well, and we have no money. So what are we going to do to design a new system?"

To help identify and resolve pain points, MIS are conducting surveys and collecting user inputs on what they would like to see out of a new system, taking feedback and incorporating the changes they can as they go with current funding levels. But participants recognize that any larger redesign efforts will likely be stopgap measures under the current budget. Without additional resources, technical implementers and the contractors responsible for coding changes may not be able to keep up with the pace of implementing workforce policy changes as they emerge or be capable of integrating external technology tools and services built using more current IT standards. Ultimately the state will need to make a decision on what they want to do with their aging, Fortran-based system, particularly given the difficulty of finding new personnel who would have the pre-requisite Fortran skills should something happen to the current contractors.
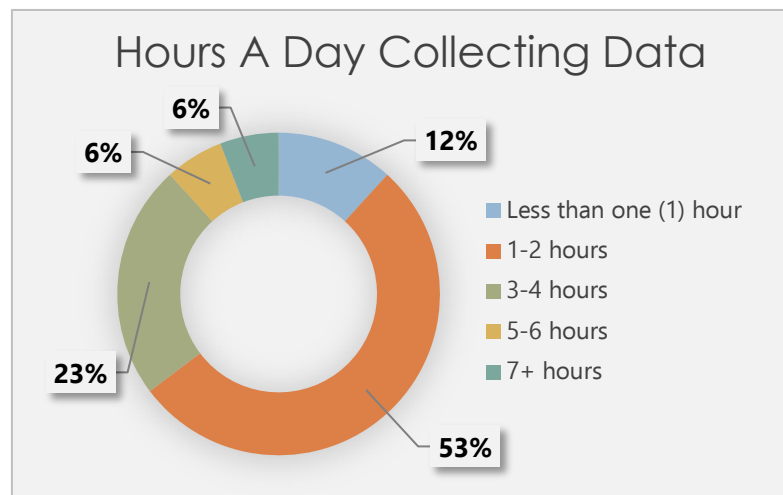
MIS has started to explore different options for upgrading their workforce data system including looking at what other states have done with their own builds and getting feedback on the strengths and weaknesses of building services onto legacy systems, developing new systems in-house, or purchasing and customizing a COTS tool.

Supporting the Workforce – Operational Readiness

Interacting with Connecting Colorado

There are four basic user groups that interact with workforce systems. They are workforce customers using employment services as a job seeker or provider, service providers helping customers navigate the system or tracking cases interactions with customers, analysts who generate reports or data services for workforce stakeholders, and workforce managers who assure workforce personnel have the support they need to do their job.

On average, user groups across services interact with three different, separate data workforce systems including Connecting Colorado on a daily basis regardless of their workforce role. 35% of participants reported spending three hours or more a day collecting data, impacting the time they could spend performing other key functions. All participants reported that re-entry of basic data and having to repeat simple tasks across multiple systems was a major impediment to providing quality service and suggested that system or data integration be made a priority in any new state wide build. Participants identified however that the lack of integration and in some cases lack of core functions in the state's workforce systems as a whole affected them differently.

Hours A Day Collecting Data

- Less than one (1) hour — 12%
- 1-2 hours — 53%
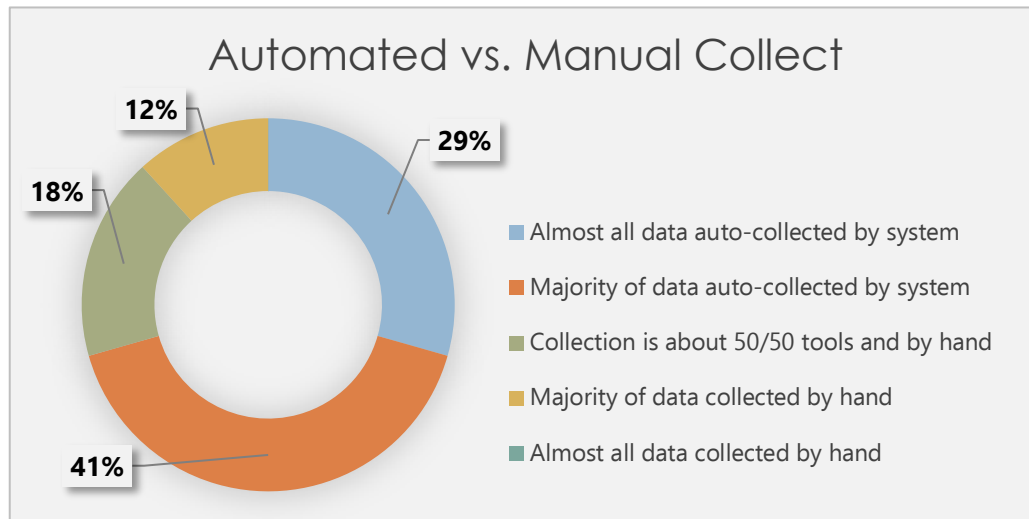- 3-4 hours — 23%
- 5-6 hours — 6%
- 7+ hours — 6%

Data Inputs

Survey participants with public facing responsibilities stated that the lack of integration particularly impacted the quality of service they could provide. Self-service customers are encouraged to use Connecting Colorado online or workforce center kiosks to search for jobs, but are not required to do so. In those cases where a customer needs more help, workforce boards have worked out systems to collect basic information to help direct them to the appropriate walk-in service representative.

Case managers reported that on a given day, they spend 30-45 minutes interacting with each of their customers. Most of that time is spent physically interacting with multiple systems navigating through screens to fill in key information to assure that a customer could qualify for the right programs, leaving little if any time for personalized counseling. Participants report that in an average eight hour day, five hours consisted of screen time and the rest was divided between customer interactions, meetings, and other administrative functions.
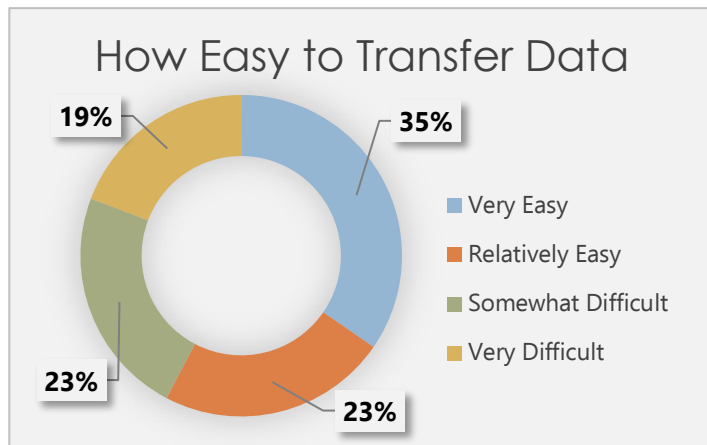
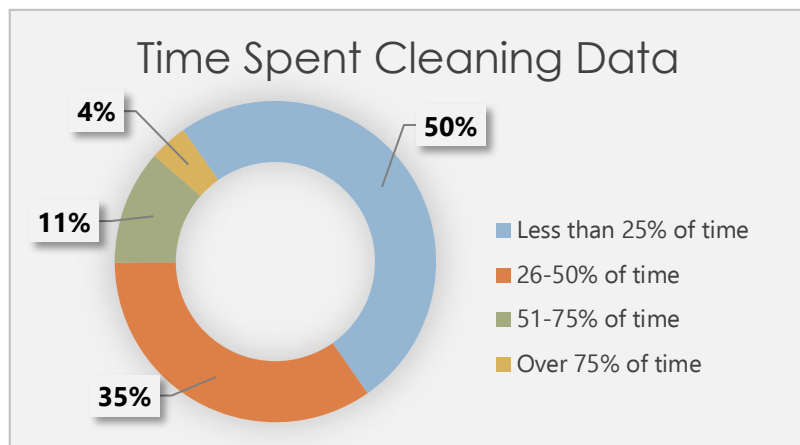Managers report that this leaves little time for personnel to participate in other workforce job-related activities such as strategic and problem solving meetings where their insight is key.

Automated vs. Manual Collect

- 29% Almost all data auto-collected by system
- 41% Majority of data auto-collected by system
- 18% Collection is about 50/50 tools and by hand
- 12% Majority of data collected by hand
- Almost all data collected by hand

Participants report that in general the self-service system is not particularly user friendly or intuitive and that in many instances, case managers need to help customers walk through how to use even relatively straightforward services such as those available on Connecting Colorado. Part of this is because many customers come from households without computers and have relatively fewer skills than individuals from households with computers. Likewise, many customers are non-native English speakers and face language barriers when using computers. However, participants note that the online, self-service interface is being redesigned and look forward to the new build addressing many of these issues.

How Easy to Transfer Data

- 35% Very Easy
- 23% Relatively Easy
- 23% Somewhat Difficult
- 19% Very Difficult

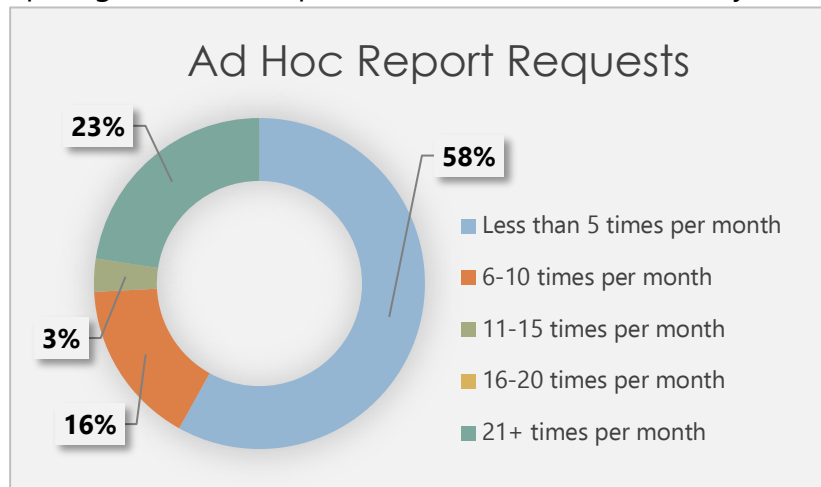Survey participants also report that due to the lack of functionality in state data systems, workforce personnel either develop or purchase additional tools to help them manage their day to day operations. For example, business engagement representatives reported that there were few tools available to them to manage day to day interactions with job providers, verify employers or track fraudulent businesses. In response, business service providers either build out their own processes in spreadsheets, personal databases, or use separate instances of off the shelf Customer Relations

Time Spent Cleaning Data

- 50% Less than 25% of time
- 35% 26-50% of time
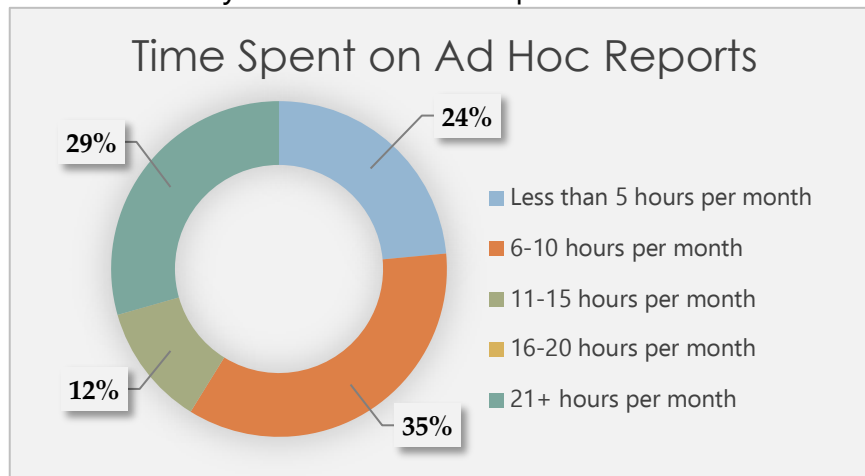- 11% 51-75% of time
- 4% Over 75% of time

Management (CRM) tools. Use of that data in any reports depends on local management and can be uneven.

Participants with analysis and report generation responsibilities said that while they were able to prepare most federal reports with data existing on Connecting Colorado, they spend a significant amount of their workday manually collecting and cleaning data across multiple systems to complete other reports, particularly those required at the local level. Those with reporting responsibilities find the system frustrating overall. Reports are difficult to find without prior knowledge of where to look. Some respondents also find the data limited in scope and frustrating to work with and output, forcing them to supplement with data from external system more often than they would like. MIS staff is responsive to helping them find additional data when they need it, but much of the data is not available within the system. Available data must be downloaded and manually inputted into an external system to produce mandatory and ad hoc reports.

Ad Hoc Report Requests

- 23%
- 58%
- 3%
- 16%

Legend:
- Less than 5 times per month
- 6-10 times per month
- 11-15 times per month
- 16-20 times per month
- 21+ times per month

Generating Reports

Participants highlighted Connecting Colorado's capacity to automatically generate and produce federal reports on demand. Many of those reports have been developed over time with different system iterations. Implementers noted that the legacy system has access to over 17 years of workforce data and the capacity for workforce career centers and staff to customize and track performance and participants outcomes across multiple variables. Report generators were also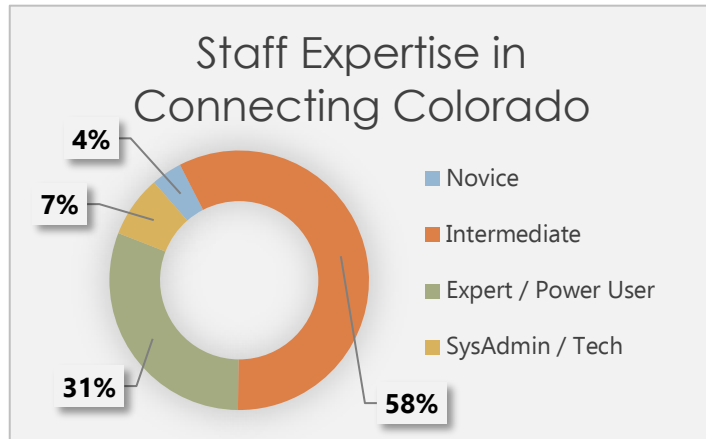 comfortable running standard reports and back filling with additional data stored at the local level in Excel or other tools as needed, a process they said took approximately 40 minutes per report.

Time Spent on Ad Hoc Reports

- 29%
- 24%
- 12%
- 35%

Legend:
- Less than 5 hours per month
- 6-10 hours per month
- 11-15 hours per month
- 16-20 hours per month
- 21+ hours per month

However, participants expressed significant frustration with the system's capacity to produce non-standard, ad hoc reports. Finding specific data is challenging and frequently requires the help of someone with specialized skills and knowledge to pull information. Those with the experience and skill set report issues with inconsistent data pulls. Participants have found that they can run the same report on the same parameters on different occasions and get different results, leading them to question the reliability and trustworthiness of the results. It is unclear how widespread this issue is, however. Some respondents reported that the issue was broad scale, while others said the issue occurred less than 5% of the time and were normally resolved in a timely manner.

Rating Connecting Colorado

Participant Level of Experience in Connecting Colorado

As a straightforward legacy system in operation for over 17 years, study participants reported a high level of comfort working with Connectin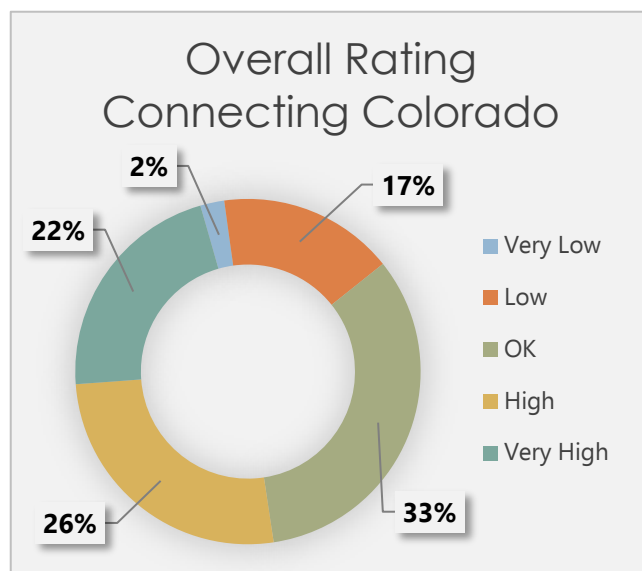g Colorado to perform job matching functions. Most of the participants had over six years of experience working with the system on a daily basis and learned through doing. Many participants are self-taught and have never received formalized training in the initial system or any upgrades. While participants receive training in other state run workforce related tools, such as the state's UI system, most formal state level training in Connecting Colorado is reserved for MIS staff. If issues arise with Connecting Colorado, staff can turn to other personnel for answers and then follow up with technicians, workforce specialists, and locally based MIS coordinators to resolve any issues. With significant on-the-job training in the data system's core job matching functions, participants did not consider the specific lack of formal training in Connecting Colorado or any of the state's other workforce related systems as an issue of concern.

Staff Expertise in Connecting Colorado

- Novice — 4%
- Intermediate — 58%
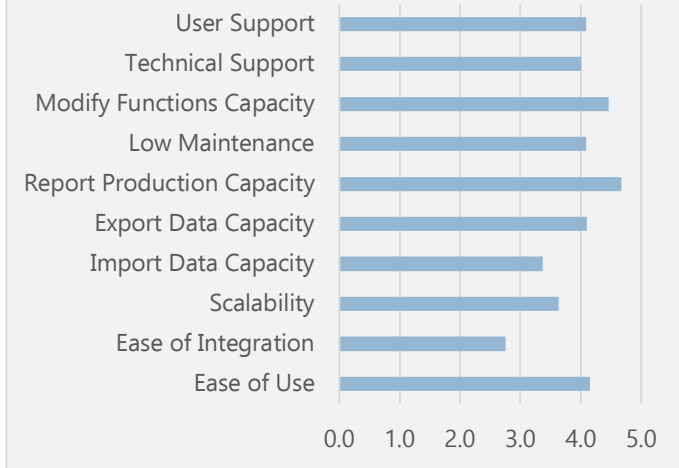- Expert / Power User — 31%
- SysAdmin / Tech — 7%

Rating Connecting Colorado Features

While other services are available, Connecting Colorado is primarily used by participants as a job matching service. Despite frustrations with the system, participants reported being relatively satisfied with the system's performance. 50% of participants gave the system ratings of better than average.

As a standalone system, most participants like Connecting Colorado. The majority of Connecting Colorado's low ratings were related to the inability to connect and exchange information

Overall Rating Connecting Colorado

- Very Low — 2%
- Low — 17%
- OK — 33%
- High — 26%
- Very High — 22%

Average Connecting Colorado Score by Feature

| Feature	Score
User Support	~4.0
Technical Support	~4.0
Modify Functions Capacity	~4.4
Low Maintenance	~4.1
Report Production Capacity	~4.7
Export Data Capacity	~4.1
Import Data Capacity	~3.4
Scalability	~3.6
Ease of Integration	~2.8
Ease of Use	~4.1

between Connecting Colorado and the state's other workforce related system tools, such as the CUBS system that is used for unemployment insurance. Participants noted that requirements to enter the same information by hand in each system was a great impediment to providing quality service to workforce customers. As a result, when rating the system by feature, on average participants rated the system's ability to integrate as 2.8 out of five and the ability to import data at 3.4. However, Connecting Colorado received high average marks for multiple other features. At 4.7 out of five, the systems' report production capacity received the highest average ratings. Participants also gave high marks for the ability to modify functions as needed and for its ease of use and low level of maintenance.
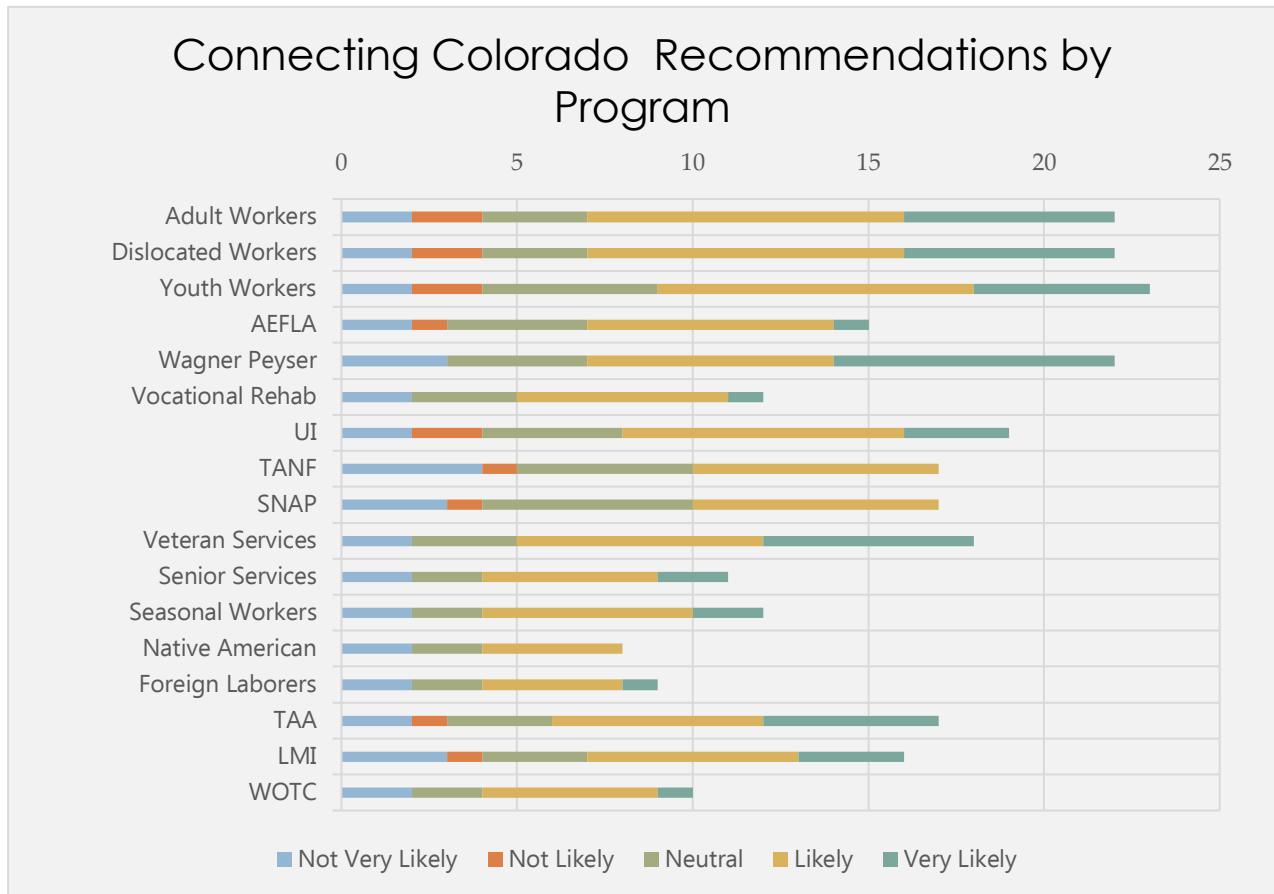
Recommending Connecting Colorado?

Despite their frustrations with some of Connecting Colorado's core functions, many participants said they would likely recommend the system and approach to others. While most recognized it as an antiquated system, it works and does what it is supposed to do. Most of the participants' reservations came from the inability of the system to work with other systems.

Perhaps unsurprisingly, considering its functionality, Connecting Colorado received the highest recommendations

Recommend Connecting Colorado?

Category	Percent
Not Very Likely	14%
Not Likely	5..%
Neutral	21%
Likely	41%
Very Likely	19%

for its use administering Adult, Dislocated, and Youth Worker programs, as well as Wagner Peyser and Veteran Services. Also unsurprisingly, Connecting Colorado received lower recommendations for use with programs administered by other federal and state agencies, including Adult Education and Family Literacy Act (AEFLA), Temporary Assistance for Needy
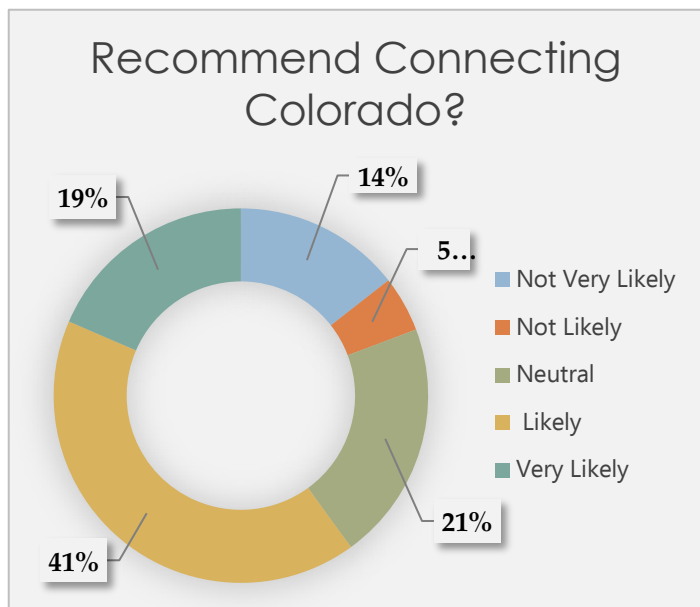
Families (TANF), Supplemental Nutrition Assistance Program (SNAP), and for less common but more specialized programs such as Native American, Foreign Language, and Senior Services.

Connecting Colorado Recommendations by Program

Participants believe Connecting Colorado works for them and fits into their culture of collaboration and feedback from users. However, the system was built specifically for Colorado on a unique platform that serves Colorado's purposes. As state implementers move forward to resolve outstanding issues with common intake of user data and data sharing across workforce systems, they may find that the simple solutions are good enough to keep the system going.

The Takeaways – Best Practices and Lessons Learned

Participants recognize that up to now, Connecting Colorado has been good enough in providing a technological foundation to workforce processes. Additionally, the development of Connecting Colorado has spawned a culture of human driven workforce processes that enable workforce personnel to successfully use data driven systems to provide service and measure effectiveness at the federal, state, and local level. However, Connecting Colorado has been losing its effectiveness as a technology foundation over time and is rapidly being overtaken by advances in the capacity and availability of other workforce technology solutions, whether COTS or built to order. Participants strongly believe that the state has reached a critical tipping point and that decision makers must make some fundamental choices about where to go with its data driven systems. As state decision makers grapple with the decision on which direction to take, and where to identify additional funding resources to make it happen, they may want to consider the following:

Best Practices

- <u>Letting human-led workforce processes take the lead</u> – One of Colorado's greatest successes are the human-led workforce processes that grew out of the state's embrace of technology. The state has maintained a focus on providing quality customer services by understanding what they can get from Connecting Colorado and increasingly by developing workarounds and supplementing with other tools where need be. As technical implementers consider which direction to move in, having stakeholders who understand the limitations of the current system and can explain them and show examples of technology that works to fill system gaps will go a long way in making sure any redesign fits state's needs over the long term.
- <u>Listening and collaborating from top to bottom</u> – Colorado stakeholders have built up a culture that simultaneously sets federal and state policy, promotes collaboration, and respects the independent choices and preferences that different workforce stakeholders at the local level make in how they apply technology to respond to policy and measure results. Key to this capacity is a bottom-up management strategy that allows for local-level problem solving on how to best to use technology to provide services that fit local communities.
- <u>Building a flexible change management process</u> – Stakeholders benefit considerably from an exceptionally well thought out change management process that balances changing requirements with federal and state policy directives and available resource constraints. The process allows users to provide inputs on what is and what is not working, and to get feedback on what changes are feasible and when. The excellent communication flow between operational and technical staff has bred a greater understanding of user needs and how to meet them, allowing technical implementers

to deliver as much as possible within the confines of the legacy system and available resources.

- The dependability of legacy – The state's decision to build a system in Fortran guaranteed it a technological foundation that could last for decades. That the state has maintained the system as needed with the same contractors who built the system has helped to assure that the state has had a robust and reliable system to date, even if it is not built to conventional, modern standards. With a solid system highly customized to Colorado stakeholder needs in place, implementers may decide that what they have is good enough as a foundation and focus any upgrades on building a front-end that responds to changing user requirements and expectations.

Challenges Ahead

- o No change without funding - Participants identified the single most important factor that would determine any new direction for data driven systems as financing. With no federal funds forthcoming, the state will need to figure out whether to fund any upgrade or redevelopment of Colorado's workforce data systems. Local workforce boards can only provide so much supplemental funding. Without additional funding, it is unlikely the state will be able to do anything substantive to the current system beyond maintaining it and providing for minor upgrades as is.
- o The limitations of legacy – The current IT system requires an exceptional level of skills and knowledge to maintain, making it highly dependent on the state's contracting staff to implement changes in policy requirements and respond to user needs. With only two contractors available to implement changes, the system is lacking in enough redundancy to ensure there is no single point of failure. Should the contractors no longer be available to maintain the system, the cost of finding new contactors or staff with enough knowledge in Fortran to keep up with the system could make the system too costly to maintain over time.
- o A culture of independence, decentralization and customization – Stakeholders are highly independent and used to being able to adapt to methods and processes that suit their localized needs, to the great benefit of local customers. That high level of separate customization for each locality will likely be very expensive to build into a new system. As technical implementers decide how to move forward with any implementation plans, they will have to weigh the costs of customization to local needs with the costs of implementing processes that work for most Colorado stakeholders.
- o Multiple systems, tools, and methods – Local workforce boards have considerable leeway to choose their own technical systems and tools to provide supplemental services not used or available in Connecting Colorado. Implementers will need to decide how it will enable locals to work with the state's system where needed and supplement as they like, preferable with ones that work with any new system build.

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Recommendations

To Colorado State Decision Makers

As state policy makers decide on a direction that is in the best strategic and financial interest of Colorado, they should consider the following recommendations that participants identified as potentially impacting the design, structure, cost, and maintenance of future data driven systems:

o Conduct a Cost/Benefit Analysis on which way to go – Colorado has some difficult choices to make. Having invested so much into Connecting Colorado, the state must now decide whether it is cost effective over the long term to continue with its Fortran based system or whether workforce stakeholders would be better serviced with a new system build on a new coding foundation for which they can find multiple sources of technical support. There are many hidden costs within this decision, not the least of which are the high cost of customization, self-service options, and user oriented experience that workforce stakeholders demand, the cost of training and maintenance needed to maintain and upgrade the system over the long term to keep up with changing requirements, the ability of the system to integrate with other technical tools and services and external systems, and the willingness of state and federal decision makers to finance any new or ongoing builds. Given the enormity of the decision making process, the state would benefit greatly from having a full understanding of the potential costs and benefits before any final decisions are made.

o Reassess User Requirements – When Connecting Colorado was originally built, multiple workforce stakeholders were involved in defining requirements to assure that users got the most out of the system that they could. However, user requirements have changed considerably, as have Colorado workforce stakeholders understanding of how IT systems can help them with workforce activities. Whatever route the state takes, it should adopt a process that seeks to understand current workforce needs and considers what technology systems can do now.

o Prioritize Human-Centric Design – Colorado business processes have evolved to integrate technology into every day processes from state policy down through to local level workforce stakeholder needs. This clear understanding of experiences with the data system should be prioritized and incorporated as much as possible into any new design. Whether the user is a job seeker, employer, case manager, analyst, operations manager, strategic partner, or policy maker, the system should augment their capacity to get what they need out of the system and effectively help them to deliver or receive workforce services as efficiently as possible.

o Inventory Preferred Data Systems and Tools – Understanding how users interact with different tools, what users like about them, and what users wish the tools did would help technical implementers establish a baseline for determining what kind of new system to invest in, which services to integrate within the system architecture, where

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to negotiate data sharing agreements or Memos of Understanding, and whether any future upgrades or rebuilds should be handled in house or through a customized vendor product.

o Design for flexibility in options and choices – Local workforce boards are independent and have developed multiple paths to get to the same ends. In any new build, technical implementers should assure that the needs of Colorado's culture of independent, collaboratively-minded workforce stakeholders continue to have choices in how to achieve results. This should be preserved where possible.

o Negotiate Data Sharing or System Integration Agreements with Key Partners – As state policy makers consider different technical options for workforce system upgrades, they will need to negotiate with partners responsible for other workforce related systems to determine the scope of integration as early as possible in the process. Early involvement will help identify what is feasible and what is not and help determine the direction of the state's technical investments before any resources are committed to development.

o Incorporate Existing Processes into System Architecture – State workforce representatives, local workforce centers, and strategic partners have already adopted procedures that could lend themselves to streamlining on a data platform, including the development of common intake forms, processes for providing business services, and implementing key metrics that provide a fuller picture of workforce activities.

o Develop and Maintain List of Preferred Tool Vendors – Workforce personnel have identified a variety of tools they can use to perform functions that are not mandated in federal or state systems. State implementers could maintain a list of those tools that work best with state systems or with which the state has negotiated favorable contracts, data sharing, or other usage agreements, and give workforce centers the flexibility to choose between tools that will work with whatever statewide data system the state adopts in the future.

o Avoid single points of failure – Decision makers need to ensure that there is enough redundancy in the expertise and training of technical staff in the inner working of the system to maintain and upgrade the system through any changes in the availability of contractors or staff, system upgrades, system failures, or other potential upheavals to normal day to day operations.

To Federal Policy Makers

Participants also highlighted several areas where US federal agency support would be beneficial and support WIOA implementation efforts in Colorado and elsewhere. Specifically, participants recommended that federal agencies consider:

o Providing clearer direction and more guidance on how to implement – Colorado stakeholders noted that there was little in the form of guidance or recommendations coming from the federal government in how they wanted new WIOA policy directives

implemented. State workforce stakeholders were forced to interpret WOIA policy to the best of their ability, with no clear indications of whether that interpretation was correct. This in turn led to multiple changes and clarifications in policy and how it was implemented on Connecting Colorado and throughout the state's workforce business processes, adding to the cost and creating delays in the ability to meet compliance requirements. In future efforts, stakeholders urged federal officials to provide directives that identified a clearer interpretation of policy and that included recommendations in how to implement or optional executable files that could be implemented across workforce systems in multiple formats.

o <u>The challenge of implementation without funding</u> – Colorado stakeholders were particularly frustrated that states received minimal to no funding or other resources to implement federal government's WIOA directives. The lack of sufficient federal funding to implement a federal program forced the state to look for alternative funding vehicles, frequently at the expense of other essential workforce programs and tasks. Participants found this unfair and requested that federal agencies provide appropriate federal funding vehicles for federally mandated policy changes in the future.

o <u>More coordination between federal agencies involved in WIOA</u>– One of the biggest challenges to implementing WIOA was the lack of coordination between federal agencies into how directives needed to be implemented. Colorado participants spent a considerable amount of time reconciling one agencies directives with those of another. Stakeholders felt this could be at least partially resolved had the different agencies involved in WIOA collaborated more to work through how policy directives should be implemented before it was handed down to the state level.

Acknowledgements

About the Facilitators

National Association of State Workforce Agencies (NASWA) is the national organization representing all 50 state workforce agencies, D.C. and U.S. territories. These agencies deliver training, employment, career, and business services, in addition to administering the unemployment insurance, veteran reemployment, and labor market information programs. NASWA provides policy expertise, shares promising state practices, and promotes state innovation and leadership in workforce development. For more information on NASWA, please contact Charlie Terrell at cterrell@naswa.org.

National Association of Workforce Boards (NAWB) represents approximately 550 Workforce Development Boards and their 12,000+ business members that coordinate and leverage workforce strategies with education and economic development stakeholders within their local communities, to ensure that state and local workforce development and job training programs meet the needs of employers. NAWB works closely with policy makers in Washington, DC to inform national strategy as it relates to WDBs and its partners in education, economic development, labor and business. For more information on NAWB and its advocacy for local workforce systems, please contact Josh Copus at CopusJ@nawb.org.

World Data Insights is a small, woman owned data consulting group with extensive experience in all aspects of designing, implementing, and maintaining data driven technologies and processes across industry, government, and international spheres. World Data Insights personnel have worked on multiple corporate, international, and government contracts of specific relevance to identifying and assessing the state of data driven systems used in disparate workforce processes. For more information on World Data Insights data and research services, please contact Anne Russell at Anne.v.russell@gmail.com.

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[i] All of the graphics, comments and insights in this report were developed using the results of the surveys and first-person in-depth interviews of workforce stakeholders – workforce personnel and partners – conducted during the course of the Workforce Data Assessment Project. At the beginning of each study survey or interview session, participants were informed that any personally identifiable information (PII) would not be shared publicly unless the authors received the participant's prior authorization to do so before publication of this report.

CASE STUDY #4: IMPLEMENTING SYSTEMS FROM THE TOP DOWN

Tennessee's Experiences Replacing Legacy Workforce Data Systems to Meet WIOA Guidelines

Report on the Workforce Data Assessment visit to Tennessee in July 2017 conducted by the National Association of State Workforce Agencies (NASWA), National Association of Workforce Boards (NAWB), and World Data Insights.

NASWA
NATIONAL ASSOCIATION OF STATE WORKFORCE AGENCIES

National Association of Workforce Boards

World Data Insights

CASE STUDY #4: IMPLEMENTING SYSTEMS FROM THE TOP DOWN

Tennessee's Experiences Replacing Legacy Workforce Data Systems to Meet WIOA Guidelines

Executive Summary

In July 2017, representatives of the State of Tennessee's Department of Labor and Workforce Development participated in a US Department of Labor funded project to study state level experiences in developing workforce data systems and implementing reforms mandated under the Workforce Innovation Opportunity Act (WIOA). Part of a larger project assessing workforce data systems nationwide, the primary goal of this study is to identify best practices and lessons learned that can help other states with their own implementation plans and identify potential next steps for Tennessee.

Tennessee's primary WIOA related data system, Jobs4TN, is a Custom-Off-The-Shelf (COTS) system that Tennessee workforce stakeholders started implementing in phases in December 2014. State workforce leadership decided to replace the state's 44-year old COBOL system and revamp the state's technical infrastructure after public feedback and state audits revealed the antiquated system could no longer respond to the state's need for digitally oriented workforce services and performance measurement. At the behest of workforce leadership, state implementers contracted the system vendor, Geographic Solutions (GeoSol) to provide initial and additional modules, the most recent of which went live in May 2016.

State leadership has spearheaded change in the state's workforce systems and process, and readily takes responsibility for the early successes as well as glitches during the new workforce system roll out. Still early in its implementation process, state implementers respond to expected and unexpected glitches in a timely manner and continue to work with GeoSol to make sure the vendor implements the technical changes the state needs to make its system works to meet Tennessee's needs.

Participants largely attribute their negative ratings to the growing pains of learning and becoming comfortable with a new system, as well as limited access to training, an unfamiliar and somewhat complex user interface, limited capacity to link data from externally managed workforce systems, and on ongoing changes that make difficult to keep track of how upgrades and modifications affect different features.

In many respects, frustration is not unusual this early in any system implementation process. The mark of long term success is responding to issues as they arise proactively. And Tennessee implementers are responding accordingly. State implementers are working to iron out glitches to its public interface, understanding how different users are interacting with the system, and continuing to fine tune features and tasks important to workforce personnel users on the fly. Additionally, implementers continue to assess which GeoSol modules work well for the state, whether they need to invest in additional modules, and where else they can look for other features state leadership and workforce personnel need to have integrated into the workforce system.

Overall, participants gave the new system very high marks and a great improvement over the state's prior legacy system. Current frustrations with implementation were seen more as a short-term issue that could be resolved with increased understanding of and training in how to use the systems to complete core workforce job functions. Given the strong backing of state workforce leadership and the consistent workforce personnel culture of wanting to help their customer base, implementers are well positioned to investigate and address specific frustrations further, make adjustments as needed, and pave the path for a smoother implementation process into the future.

Summary Recommendations

To date, the majority of issues that Tennessee workforce implementers face relate to assuring that workforce stakeholder users can get the best out of Jobs4TN. In order to improve user adoption rates and feedback options, Tennessee stakeholders may want to consider the following:

- Empowering users through increased training options –To assure workforce stakeholder adoption of Jobs4TN and any enhancements to the system as a whole, implementers should consider providing additional training options that go beyond the basic training provided by the vendor. This training could train different workforce stakeholders in how to best use the system to specifically meet their operational needs and help to identify additional issues as needed.

- <u>Integrating / expanding Jobs4TN functionality</u> – Some participants signaled that the Jobs4TN platform does not yet meet their operational needs. Workforce stakeholders should consider determining whether Jobs4TN can meet these needs or whether additional tools and services need to be purchased or integrated into the platform to meet those needs.
- <u>Developing and maintaining a change management system</u> –A comprehensive change management system would provide stakeholders with a clearer means to learn about and adapt to system upgrades and maintenance schedules. It would also provide implementers with a method to collect and consider ongoing system issues, prioritize resolving them in context of emerging needs, and help to make sure that the state is getting the user feedback it needs to assure that users remain satisfied with workforce systems over time.

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Introduction to the Workforce Data Systems Project

Project Overview

Under [the Workforce Innovation and Opportunity Act](#) (WIOA) of 2014, Workforce Boards, State Workforce Agencies, and their representatives – including the National Association of State Workforce Agencies (NASWA) and the National Association of Workforce Boards (NAWB) – have undertaken a project to study and explore how emerging data driven information technologies can help align workforce program processes within the parameters of WIOA mandated reforms. Undertaken with support from the United States Department of Labor's Employment and Training Administration, the project is geared towards assessing the current state of workforce data systems and processes to:

- Analyze the data innovation challenges and successes state workforce agencies and local workforce boards are experiencing while trying to meet WIOA mandates;

- Identify workforce agencies and boards sharing similar successes and challenges;

- Facilitate sharing and collaboration between NASWA and NAWB members on best innovation practices; and

- Develop a body of knowledge and resources to which state and local entities can turn if they need extra help.

During phase 1, NASWA, NAWB, and World Data Insights, developed baseline assessment tools to compare the status of state and local workforce data systems across all 50 states. In Phases 2 and 3, we used the tools to collect and analyze data from participating states. The results provided an initial, broad level insight into the overarching, aggregated trends that effect the ability of state workforce agencies and local workforce boards to implement WIOA mandated reforms. (To read the initial report, visit the NASWA website [here](#)).

In Phase 4, the team visited five (5) different states across the continent to collect and analyze additional in-depth information on board capacities, data strategies and policies, workforce data system components and tools, and on the business processes underpinning them for the development of state-level case studies. The focus of the state assessment studies is to understand local experiences with technical systems, learn what has worked, and assess the biggest challenges each participant is facing. States participating in the in-depth studies reflected a mix of experiences in implementation efforts, governing and policy environments, budget and resource constraints, and in the technical systems and business processes they use to support their local workforce stakeholders.

This report reflects the experiences and perceptions of Tennessee workforce staff and personnel participating in the fourth in-depth data assessment study in this series. Conducted

in the beginning of July 2017, the report captures a snapshot of Tennessee's workforce data assessment process, from the technical systems underpinning workforce activities to the business processes that personnel use to provide state workforce customers with the services they need.
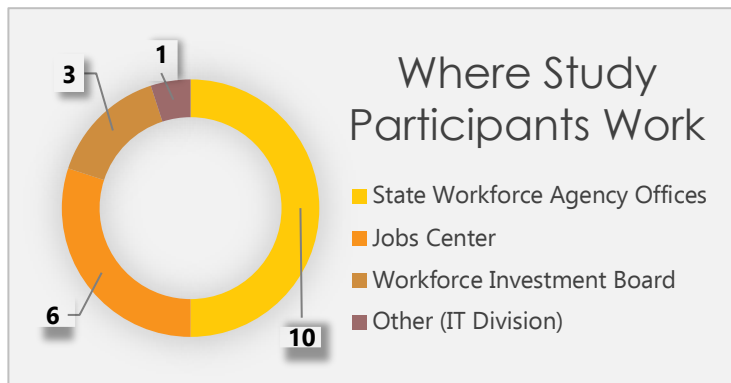
The insights gleaned from study participants can be a valuable resource for other implementers as they move forward with their own state-level WIOA system digitization and upgrade efforts and provide them with a glimpse of the experiences, lessons learned, and successes and challenges different states have faced in their efforts to date.

To conduct the in-depth study and gather all of the perspective and insights needed during the state level site visits, the team designed a series of surveys and tools based in systems theory. This systems approach focuses on integrating information from a broad swath of workforce system designers and users to assure that a full picture of all of the inputs and outputs into a state's system are captured and assessed. It also involved developing an assessment structure from which to contrast and compare perspectives on workforce systems across states.

The results of the study are provided in the context of a common assessment framework that is used to report on results for each state. This common assessment framework enables WIOA implementers and the federal, state, and local level to compare, contrast, and analyze key variables that may help or hinder implementation of WIOA innovations at the state level for consideration of future decision making.

Details on the Tennessee Visit

In Tennessee, the team met with and elicited in-depth insight from the Tennessee workforce Commissioner Burns Phillips, Deputy Commissioner Dustin Swayne, multiple representatives of Tennessee's Department of Labor and Workforce Development, as well as representatives of local workforce boards and American Job Centers who are involved in different levels of workforce data systems and processes.

Where Study Participants Work

- State Workforce Agency Offices
- Jobs Center
- Workforce Investment Board
- Other (IT Division)

During the visit, the team:

- Conducted focus group surveys and in-depth interviews with workforce staff and contractors, including:
    - operational stakeholders responsible for providing direct services to and interacting with customers;
    - technical stakeholders responsible for implementing and managing systems;

o analytical stakeholders responsible for producing output reports and metrics; and

o managerial stakeholders responsible for budgeting, policy and decision making;

- Observed notable business processes and how disparate workforce stakeholders interact with system tools;
- Observed how staff collect and process data, output metrics and produce reports at select state agency and local board locales; and
- Interacted with workforce data systems, tools and processes to understand the strengths and challenges of different systems.
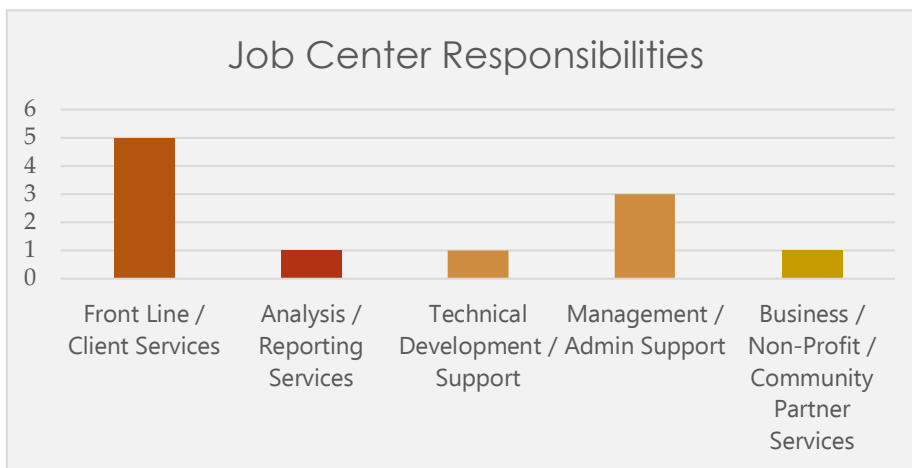
The team conducted on site sessions with managers representing state agency and local workforce boards in Nashville. They also visited an American Job Center in Nashville as well as one of the workforce [mobile response units](#) the state deploys to augment workforce services in response to critical need.

State Manager Responsibilities
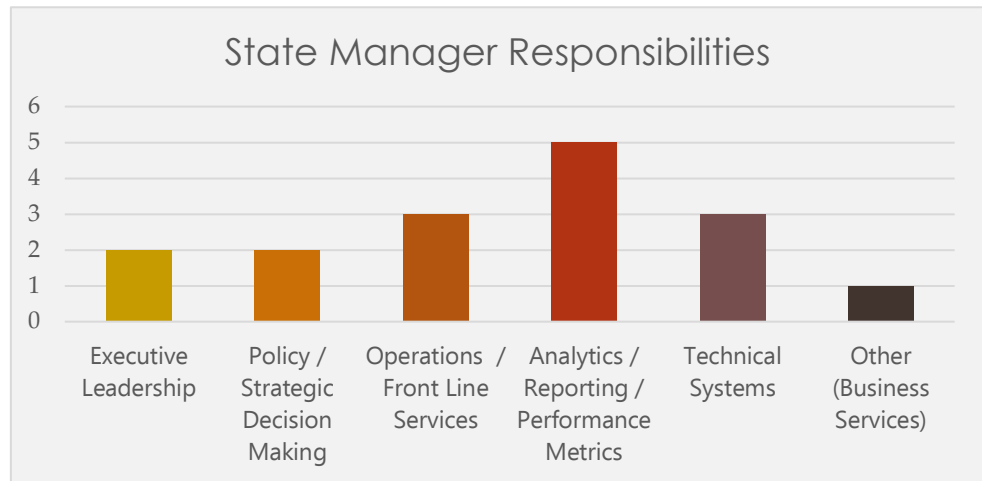
Overall, the team interviewed 19 workforce personnel, 17 of whom participated in the assessment survey [i]. Participants represented a broad swath of responsibilities across workforce services and included personnel responsible for policy making, executive leadership, front facing customer services, analytics and reporting, and technical implementation. At the American Job Center site, the team met with site managers, case managers, analysts, and other local workforce personnel responsible for providing services to the Tennessee workforce and business communities. Personnel representing American Job Center sites reported serving over 10,000 walk-in customers between July 2015 and June 2016.

Job Center Responsibilities

More than 60% of the respondents had three or more years of experience serving workforce communities in various capacities. A large majority of participants with managerial responsibilities reported they were directly responsible for 25 personnel or less. The majority of participating staff with customer facing responsibilities said they saw

Years Spent Supporting Workforce Activities

- Less than two (2) year — 37%
- 3-5 years — 25%
- 6-10 years — 12%
- 11-15 years — 13%
- More than 15 years — 13%
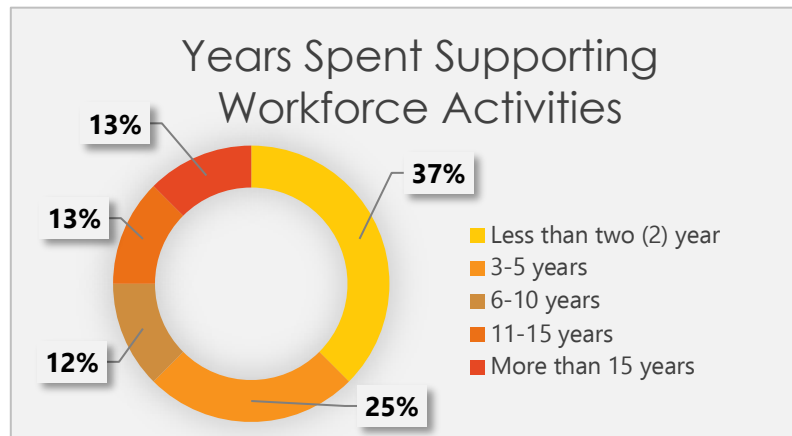
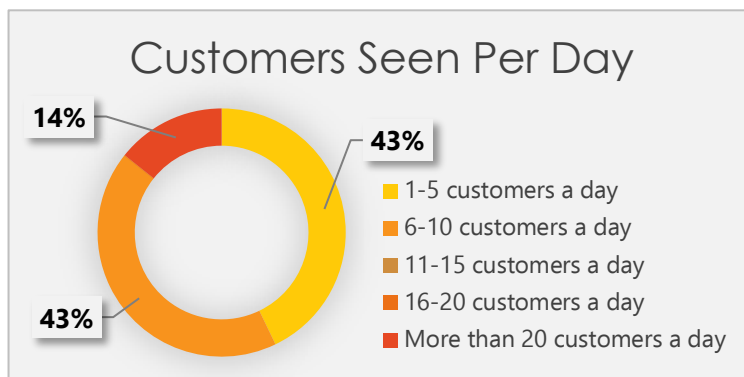less than 10 customers on a given day, reflecting their responsibilities as case managers and business service providers. The broad range of workforce experience levels and responsibilities helped the researchers understand how the state's new workforce system was impacting different workforce personnel user groups and identify early successes as well as current implementation challenges.

Customers Seen Per Day

- 1-5 customers a day — 43%
- 6-10 customers a day — 43%
- 11-15 customers a day
- 16-20 customers a day
- More than 20 customers a day — 14%

The involvement of Tennessee's Workforce Commissioner and Deputy Commissioner during the site visit was notable and provided researchers with insight into the state leaderships reasoning for and role in overhauling Tennessee's workforce systems. Separate interviews with state executive leadership set the tone for Tennessee's choices, highlighting the need to respond to the history of public frustration with the state's workforce systems and for better performance measurement as the principle driver for systemic change. They also enabled researchers to capture key information on how and why the state decided to implement their new COTS based system, a factor that may help other states in their workforce systems decision making process.

This multi-level insight allowed the team to understand how and why the state decided to use a COTS based system as the foundation for Jobs4TN, how implementation has affected the culture of workforce customer service, where WIOA mandated changes impacted system roll out, and where challenges may lie ahead as the state moves forward to further integrate and solidify the usage of tools available within the system into workforce business processes.

The Big Picture – Tennessee's WIOA Experience

State of Tennessee's Workforce Programs and Services

As with most states, responsibilities for Tennessee's workforce activities are divided between multiple state, regional, local, and community level partners. Partners who share responsibility for providing services and maintaining data systems or who use workforce data systems in addition to the Tennessee Department of Labor and Workforce Development (TDLWD) include the Department of Human Services, the Department of Education, and the State Workforce Development Board. 13 Local Workforce Development Areas manage 47 American Job Center sites located throughout the state and have access to a fleet of six (6) Mobile American Job Centers that can be deployed as needed in response to increased demand. During the Gatlinburg wildfires in November 2016 when 14 people were killed and 14,000 people were displaced, the state was able to deploy five (5) mobile units and reassign 90 workforce staff to help deal with the increased local need for human and employment services for those who could not travel to permanent centers.

WIOA Programs in the Jobs4TN System
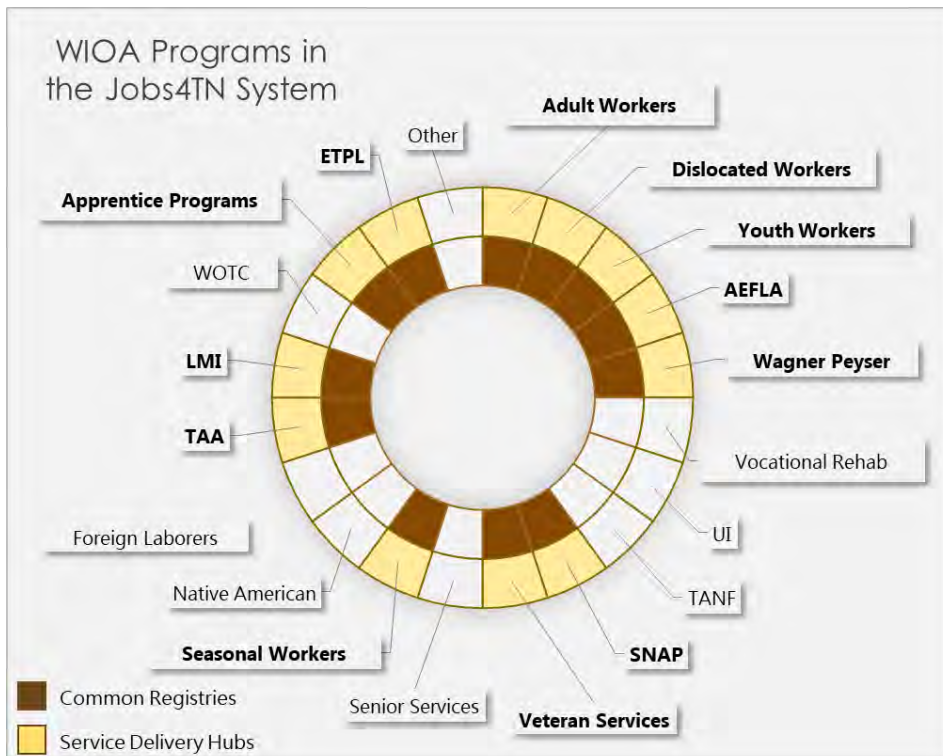
Tennessee's state workforce system, commonly referred to as Jobs4TN, is founded on a Geographic Solutions (GeoSol) platform that incorporates three of the vendors service-oriented products: Virtual LMI, Virtual One Stop (VOS) and the Geographic Solutions Unemployment System (GUS). The vendor maintains the software platform and provides its customers with a common registries and a single foundation for service delivery. Jobs4TN users also have access to workforce data warehoused at the Center for Business and Economic Research, at the University of Tennessee, Knoxville as part of the national Workforce Data

Quality Campaign. Workforce personnel use the data predominately for longitudinal studies, performance measurement and LMI reporting.

State leadership decided to go with a COTS based system after public outcry and internal audits revealed that the state's prior legacy workforce system was not capable of handling the state's emerging need for online, customer-oriented services and metrics that helped leaders manage workforce performance. Leadership saw a need to implement and automate a new workforce system that would enable the state to put customers first, manage performance with analytics based on real workforce data, learn and adapt processes from the experiences of front line personnel, and quickly respond to the change demand of its workforce customer base.

Developing and Implementing Jobs4TN

Tennessee's state leadership undertook the overhaul of its workforce system as part of a broader, statewide push to modernize the state's operational and technical infrastructure starting in 2008. The effort intensified in 2012 when Governor Bill Haslam staked his administration on civil reform and innovation as a way to meet customer demands for services.

One of the first initiatives of the new administration was to audit government business processes and technical systems, an initiative that helped leadership identify and start to address critical service gaps. The failure of the state's antiquated workforce systems and processes rapidly emerged as a core issue that needed to be addressed. While some systems, such as the state's instantiation of the GeoSol LMI service, were functioning adequately, the state's 44-year old COBOL based Unemployment Insurance (UI) mainframe became a target in the press and in government-led audits for the sheer number of processing errors the system was producing.

In response, the state undertook a cost/benefit analysis of whether to overhaul the antiquated government-off-the-shelf (GOTS) system with a new GOTS system, contract with an external vendor for a Custom-off-the-shelf (COTS) system, or to participate further in the Southeast Consortium Unemployment Insurance Benefits Initiative (SCUBI) approach where the state's leadership role in the consortium put it in a position to provide most of the funding and take on most of the risk if the initiative failed.

After analyzing past performance data, audit results, and programming and other implementation costs for the different options, the state decided that it would be more cost effective for them in the long run to implement a COTS solution. GeoSol soon became the vendor of record for the state's workforce system and was awarded with a 5-year contract of $40 million. In December 2014 the state launched the customized VOS module from GeoSol providing self-service core job matching and labor statistics as well as case management and performance functions for workforce personnel under the Jobs4TN moniker. And in May 2016, the state launched its newly restructured UI system using GeoSol's GUS system.

The goal of the new system is to "collect real time customer data upon which evidence-based TDLWD policies can be structured and continuously improved while measuring customer performance and accountability" (pg. 85, Tennessee Combined State Plan). To make sure that it could engage customers and receive rapid feedback on the system, the state also implemented Zendesk, a customer relations management tool with chat features, on the online Jobs4TN portal.

Jobs4TN is supported by three to four full-time technical staff who are responsible for liaising with and defining issues for GeoSol to resolve. However, that staff is not dedicated to GeoSol tasks. GeoSol remains responsive to state needs and requirements but does not maintain a full time physical presence at state headquarters.

Only a year in operation, GeoSol implementers were well equipped to instantiate the state's new workforce-related policy and strategic reforms to align them with prior existing Workforce Investment Act (WIA) guidelines. However, early implementation results of the new system have been mixed.

Staff implementers identified two key factors that have affected roll out to date. First, while the system underwent some testing, the state decided to launch the system without additional beta testing. As a result, many of the system's core services ended up being tested live with customers after system launched. Participants noted live testing in lieu of additional testing before launch caused relatively significant early upheavals to services and public criticism and suggested more testing before launching would likely have resulted in a smoother roll out.

Secondly, state implementers noted that WIOA was signed into law in the middle of the GeoSol system instantiation and implementation in Tennessee. With little or no concrete federal guidance on how to implement WIOA measures, GeoSol had to respond and make changes to its core system code on the fly without knowing whether any changes they made would satisfy the new federal mandates. This affected all of GeoSol's customers. Tennessee implementers had to work with GeoSol to figure out their own blueprint, where federal mandates competed with state policy, and find solutions for the Jobs4TN instantiation that would work within the GeoSol system parameters. Participants note that GeoSol continues to update
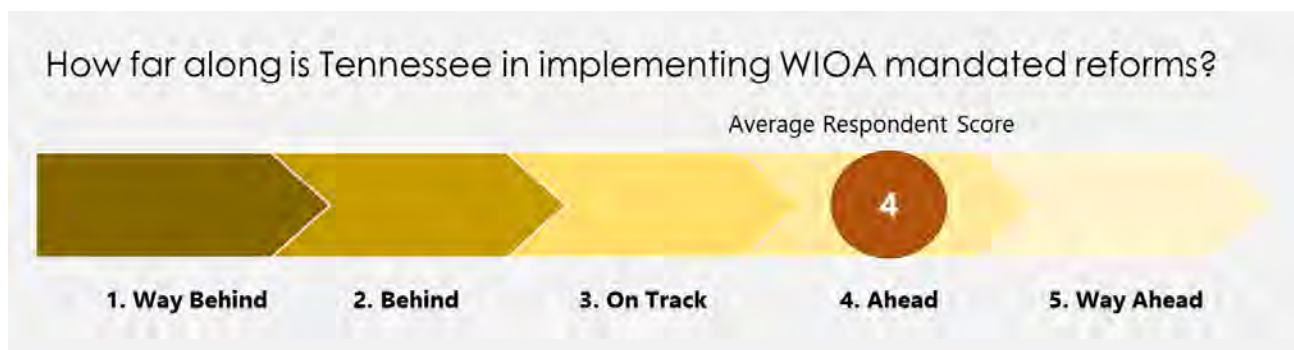
Jobs4TN system configurations to align with WIOA with relative frequency, leaving users having to consistently relearn how to use the system. Participants also note that GeoSol has been less responsive to state needs during their migration to WIOA, a fact they attribute to GeoSol's need to respond rapidly to WIOA implementation demands across multiple customized state systems. Implementers believe this is a temporary issue that will hopefully disappear once the GeoSol system has stabilized WIOA changes onto its core system and within Jobs4TN.

Despite early issues, implementers are satisfied that the Job4TN system instantiation is heading the right way. The state believes it has built a good relationship with the vendor and that once stabilized, the GeoSol modules adopted to date will be able to provide the state with the level of customer feedback and performance measurement it needs to fulfill its mission of putting the customer first. State implementers also continue to work with different state agencies and state and local partners to work through adoption and implementation challenges to determine how well Jobs4TN is working at the local level, whether additional GeoSol modules might be implemented in the future, and where other system enhancements might be made in the future.

Status of WIOA Reforms – Overcoming Roadblocks

Tennessee is largely ahead of the process of implementing WIOA mandated reforms, a status that participants attribute to state leadership's decision to modernize workforce systems and processes before WIOA mandated changes were enacted. State leadership started ramping up workforce modernization in 2012 as soon as Governor Hassam took office. By the time WIOA mandated reforms became law, the state had already begun fleshing out workforce policies and legal frameworks to support the state's mission to put workforce customers first, working with workforce personnel and partners to identify ways of doing

How far along is Tennessee in implementing WIOA mandated reforms?

Average Respondent Score

4

1. Way Behind   2. Behind   3. On Track   4. Ahead   5. Way Ahead

business that would promote its mission, and customizing its new system with state specific data and business processes. Implementers started incorporating WIOA mandated changes before Jobs4TN launched. Since the launch, implementers continue to issue system updates to users that incorporate changes to federal and state polices as they emerge.

Participants note that the process of implementing WIOA significantly impacted the state's ability to streamline and stabilize its system in the short term. WIOA became law just

as Tennessee launched the VOS component of Jobs4TN in 2014. Instantiating GeoSol's GUS component occurred throughout the initial year of WIOA, when translating WIOA into practice was a very fluid process. Many stated that the Department of Labor provided little or no direction on how the broad WIOA guidance should be translated into statewide policies and procedures, let alone into the business rules the state's workforce information systems would use to operationalize WIOA. With no blueprint forthcoming, state leadership and implementers had to work out how to interpret federal policy and reconcile that policy with state workforce priorities, some of which directly contradicted and competed with federal policy mandates. In turn, implementers had to work with GeoSol technicians to figure out how to instantiate the rules and reconcile computational processes to make sure Jobs4TN was compliant.

Participants noted that ongoing changes to federally mandated requirements have continued to effect the state's ability to consolidate and stabilize Jobs4TN. Many of the mandated changes are costly to implement and have delayed the state's ability to resolve issues with Jobs4TN. For example, when TIGL 10-16-7 required states to outline what services can trigger participation, implementers had to modify the difference between reportable individuals and participants, changing the parameters for start dates, eligibility, and end dates. While relatively easy to resolve on paper, this required a retooling of the entire platform to implement.

WIOA Programs with MOST Progress

Adult Workers	Dislocated Workers	Youth Workers	Wagner Peyser
5	4	4	3

Working with a COTS system has also proved somewhat challenging. GeoSol maintains responsibility for making WIOA mandated changes to their core intellectual property as well as to localized customer instantiations. Implementers note that every change in requirements to date has resulted in the vendor needing to retool significant parameters in its data schema and frameworks, as well as to GeoSol's source code. With every change, the vendor has to push system patches to all of its customers, each of which has its own customized GeoSol client instantiated with respective state business processes. At the same time it is working to resolve issues with its core code, the vendor must work on each, separate customer instantiation to make sure they are compliant and functioning. As a result, the cascade of any single

WIOA Programs with LEAST Progress

Vocational Rehab	TANF	Seasonal Workers	Adult Workers	TANF	TAA	SNAP
4	4	2	1	1	1	1

WIOA mandated change is felt across all of GeoSol's customers, including Tennessee.

In Tennessee, changes to federal policies continue to affect the state's capacity to stabilize Jobs4TN and normalize usage throughout the state enterprise. Mandated changes continue to be implemented within the system on a weekly basis making it difficult for users to know how to access services critical to their job from one week to the next. Many participants reported being unable to keep up with changes, affecting their understanding of how to use core functions and creating frustration with the system overall in the short term. The vendor continues to issue update guides, but has not been as responsive to addressing localized technical issues.

Management Pain Points

Pain Point	Value
INSUFFICIENT FUNDS	4
INSUFFICIENT TECHNICAL EXPERTISE	1
MINIMAL PLANNING	4
BUSINESS PROCESSES UNDOCUMENTED	4
METRICS MINIMAL	5
DATA SILOS HARD TO ALIGN	6
COMPETES WITH OTHER PRIORITIES	1
OTHER	2
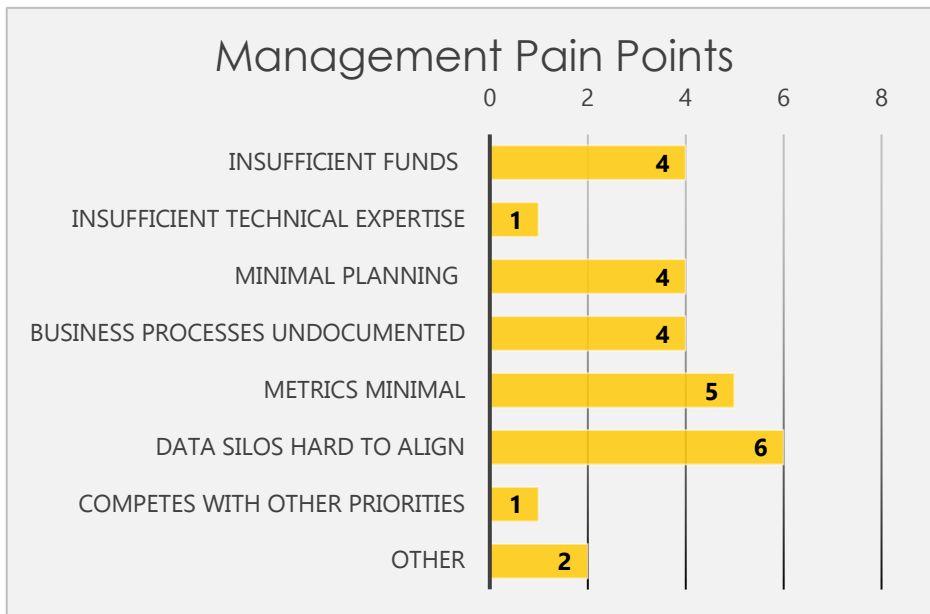
According to respondents, Jobs4TN has made the most progress in support of the WIOA Title I and III programs, the programs that fall directly under the policy and administrative rubric of the TDLWD. Those where minimal progress has been made tend to be WIOA programs administered by other at the federal or state agencies, each of which has its own administrative and IT policies, customer databases and system configurations and require long-term policy and technical engagement to integrate into Jobs4TN.
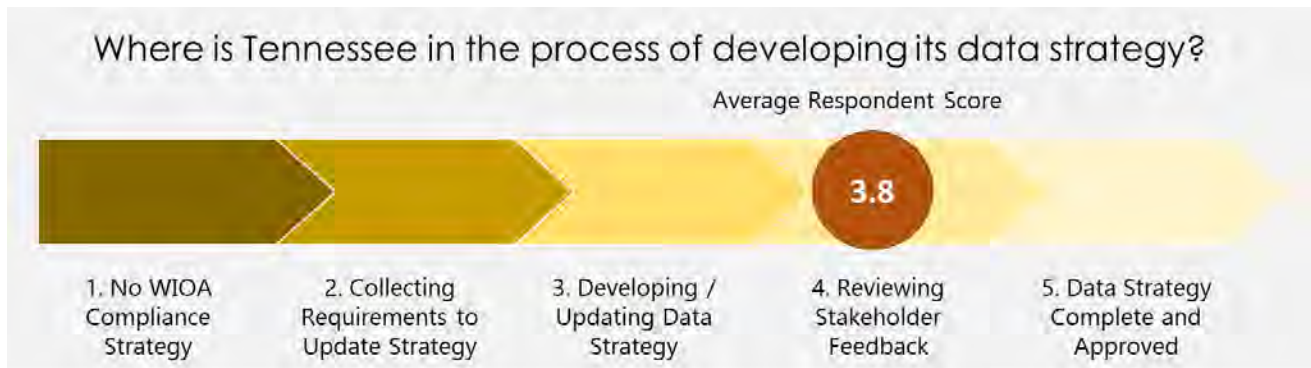
Participants also noted a lack of coordination between different federal level WIOA partners resulted in conflicting guidance at the state and local level on critical implementation issues, such as how to integrate services or structure cost sharing agreements. Many participants want more practical guidance in how to translate the intent of the law into practical information and processes that helped them to do their jobs and provide good customer service to Tennessee residents.

The existence of issues early in the implementation process is not surprising. In any enterprise, the number of issues encountered in early deployment of new software is very common. That number tends to lessen over time as the new system becomes familiar to users and its usage becomes ingrained into the business culture. However, in Tennessee, the current spate of ongoing changes is affecting how the vendor responds to local user needs. To date, system changes have been so frequent that they are inhibiting user's capacity to learn and become comfortable with the GeoSol system and its capabilities. As the state moves forward with consolidating Jobs4TN and assuring that users know how to use it to the best

of its capacity, the state will need to make sure that users better understand and become comfortable with system changes that affect daily operations.

Supporting Data Driven Systems through Strategic Policy

Leading Change from the Top Down

Where is Tennessee in the process of developing its data strategy?

Average Respondent Score

3.8

| 1. No WIOA Compliance Strategy | 2. Collecting Requirements to Update Strategy | 3. Developing / Updating Data Strategy | 4. Reviewing Stakeholder Feedback | 5. Data Strategy Complete and Approved |

Modernization in any organization is hard, all the more so when the systems and process needing revamping are part of an enterprise legacy and culture that has been in operational use for decades. But when it came to addressing systemic issues across workforce services, workforce personnel and stakeholders across the state recognized that the state's antiquated legacy system was not capable of meeting the needs of the changing workforce. Citing increasingly vocal frustration with workforce services among Tennessee voters, Governor Haslam made workforce development and modernization a key issue of his incoming administration in 2011. The Governor established a workforce mission of putting customers first and appointed workforce leadership to lead his modernization initiative.

From the onset, state leadership set out key driving philosophies for modernization throughout the state enterprise. These included working with key government and workforce stakeholders to enact a state policy standard based on:

Does Tennessee's workforce agency process include any of the following components of a data strategy?			
Yes	No	?	
7	0	1	Understanding among key stakeholders
5	0	3	Feedback from key stakeholders
5	0	3	Knowledge of data
6	1	1	User Guide
7	0	1	WIOA - aligned metrics
7	0	1	High level outline of business processes
4	3	6	High level data architecture
12	2	0	WIOA Compliance standards
2	3	9	WIOA Master Plan
13	0	2	Understanding of Policy Mechanisms Needed

- A commitment to service the customer first and foremost;
- Effective performance management as a means to provide efficient government service delivery;
- A culture of not being afraid to try new things and sometimes to fail;
- A willingness to learn what works and what doesn't from front line personnel;

- A technology based process that can adapt to the changing demands of the customer; and
- A commitment to measurement of performance, staff and manager accountability, and continuous improvement in service delivery.

With the tone established and changes to the policy framework underway, workforce leadership set out to understand the scope of workforce service delivery issues and identify core problems fueling symptoms. Leadership undertook a full assessment of workforce customers "whole journey" through services, working with personnel and stakeholders to determine what worked and where changes needed to be made to provide a light touch to a modern workforce customer and help them get from point A to point B as efficiently as possible.

How does Tennessee include key stakeholders in their processes?				
	As Key Implementation Staff	In Internally Focused meetings / updates	In Public Facing meetings / updates	N/A / Don't Know
Job Seekers	0	3	3	2
Employers	1	1	4	1
State Workforce Agency Personnel	3	3	1	0
Other Workforce Agencies Personnel	3	2	1	0
State or Federally Funded Partners	3	0	2	2
State Executives & Policy Makers	2	1	1	2
Federal Agencies	3	0	1	1

Leadership quickly determined that the state's 43-year old workforce system was a critical point of failure. The state was receiving 43,000 troubleshooting calls per week from customer unable to complete core workforce functions online. Furthermore, the system was unable to provide state leaders with even basic metrics, particularly any related to customer satisfaction. State leadership conducted a cost analysis to determine the effectiveness of maintaining the current system and quickly determined that a new system would be more effective in the long run.

Participants note that the state's bold course of modernization has been successful to date largely because of the state leadership's and other workforce stakeholder's commitment to change. Participants at the state and local level support efforts to modernize and recognize it is much needed. The state's 13 local workforce boards are fully engaged in decision making and in open communication with state leadership to make sure that workforce federal and state policies align with local needs.

However, participants also note that while there is support for the overall modernization goal, the top down implementation approach has not always been smooth. In the early stages of roll out, for example, glitches in the UI component of Jobs4TN created a backlog of 20,000 claims causing significant frustration among UI recipients that took months to resolve. While most of the backlog has been dealt with, state workforce leadership continues to work with
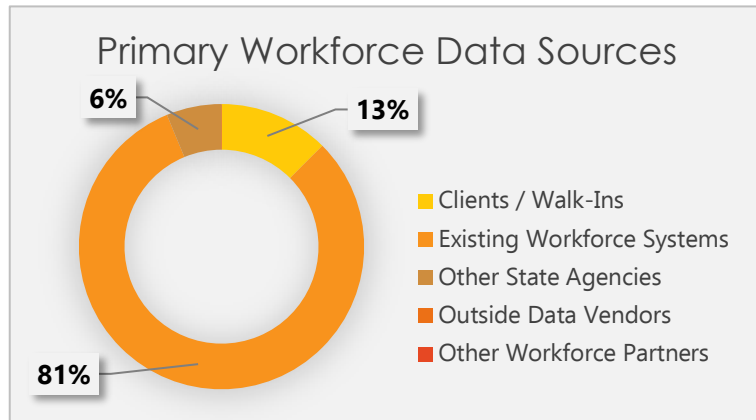
the vendor to resolve any remaining outstanding issues, ensure that system based workforce disruptions are minimized, and provide workforce stakeholders with accountability and responsive service that meets the state leaderships' standards for putting the customer first.

What kind of Data does Tennessee use now? What would respondents like to use in the future?*	Agency Staff		Front Line Staff	
	Actively Using	Would like to use	Actively Using	Would like to use
Official workforce data	7	0	2	0
Official state / federal data from other agencies	4	2	0	0
Official stakeholder data	5	2	5	0
Survey Data	4	1	0	0
Passively collected data	3	1	0	0
Additional workforce data from non-govt / business / other partners	2	1	4	2
Additional workforce data from other job sites	4	1	3	3
Social Media Data	4	1	1	5

Participants identified an additional challenge – that workforce personnel have a hard time understanding how to use Jobs4TN to provide stakeholders with the full menu of services available within the system. Participants attribute their lack of knowledge to the newness of the system, but also to the sheer number of changes related to WIOA reforms and resolving early technical issues that have created a new or different process for services every week. The constant of changes has made it difficult for users to become knowledgeable in is use and in the myriad of functions the system might offer. Given the pace of changes, training modules are straining to stay updated and relevant.

Participant also pointed out that Jobs4TN is just one of 14 workforce related systems with which they interact on a daily or weekly basis, the majority of which are not integrated into Jobs4TN. Some of the other systems – such as certain excel tools personnel build to provide a specific function – provide functionality that personnel would likely be able to complete

Primary Workforce Data Sources

- Clients / Walk-Ins — 13%
- Existing Workforce Systems — 81%
- Other State Agencies — 6%
- Outside Data Vendors
- Other Workforce Partners

within Jobs4TN with the right training and understanding of the new system. Others provide enhanced services that users prefer over what is available in Jobs4TN. And yet others involve core data functions that workforce personnel must complete using other workforce related systems not integrated with Job4TN. State implementers are currently in discussions with other state agencies on how to align data systems and integrate services with Jobs4TN and further developing the policy environment to support any decisions on systems implementation. However, workforce leadership recognize that any future decision will

depend on how Jobs4TN performs moving forward and how much it becomes part of the state's workforce culture.

Having resolved most of the early launch issues and retooled the system to assure WIOA mandated compliance, the pace of system changes is now likely to slow. State implementers will be in a better position to further develop and consolidate Jobs4TN usage as the system of record for workforce services throughout the state. Implementers will also be in a better position to determine how well the system performs, where there are gaps in current functionality, whether the state should purchase add-ons to enhance functionality from the current vendor or from others. In the coming months, state implementers will have more data available to analyze system performance with other state and federal agencies and better determine next steps.

Consistent Metrics?

- Yes
- Mostly
- No

17%

83%
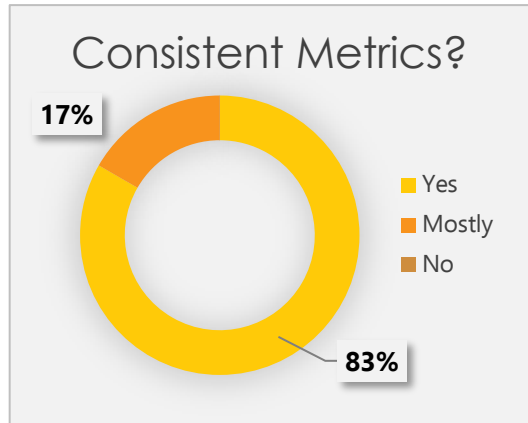
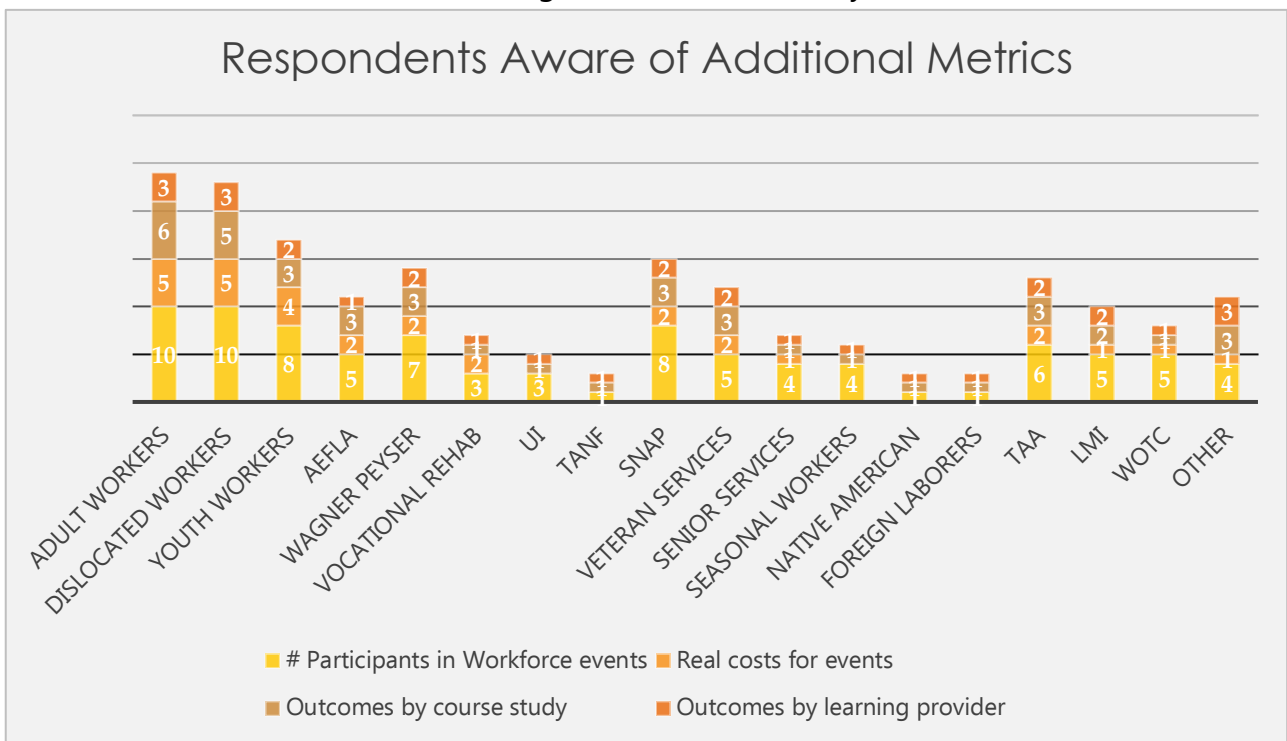## Measuring Performance at the Federal, State, and Local Level

One of the main issues driving state leadership to implement a new workforce system was to have better and more consistent performance metrics. The prior COBOL-based system was unable to provide leadership with any insight into what the state needed to do to assure Tennessee customers were obtaining satisfactory service. In searching for a new system, state

Respondents Aware of Basic Metrics

■ Public Facing Performance Metrics   ■ Client Management Metrics   ■ Other
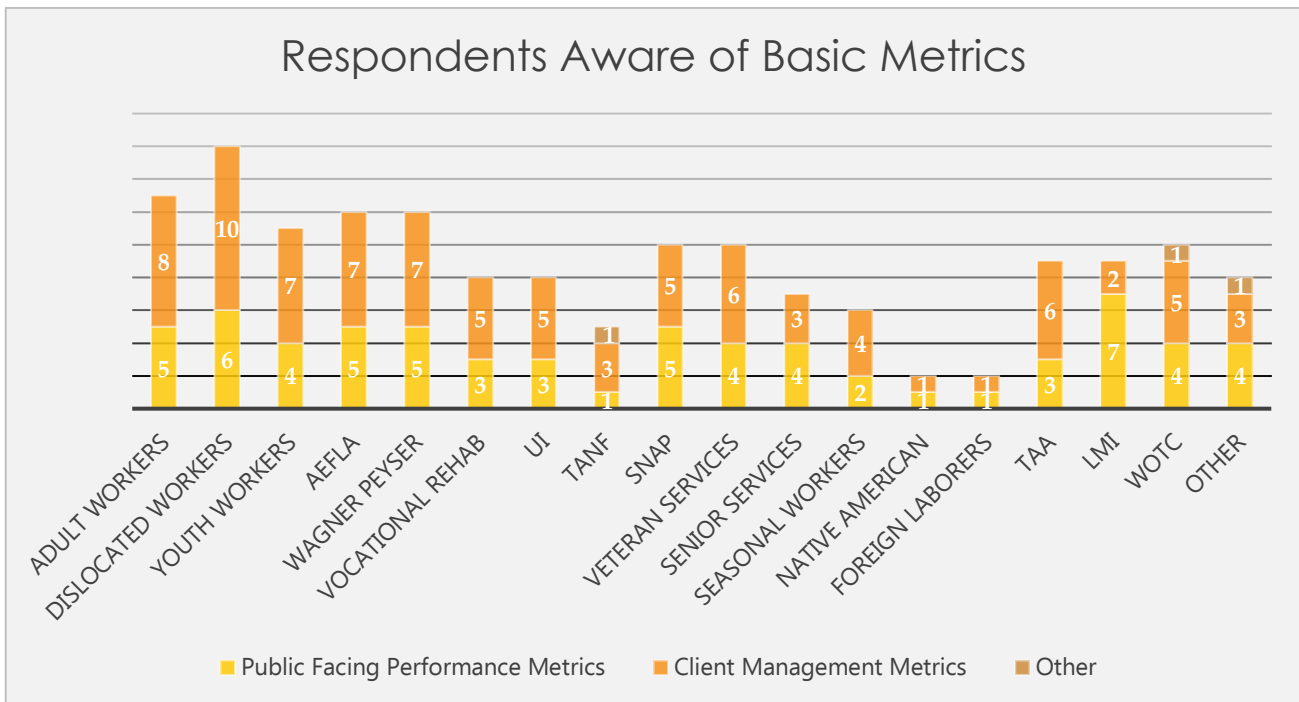
leadership wanted a system that could provide them with workforce analytics as mandated by WIA and WIOA as well as on four (4) key state mandated metrics: reply time, volume of

tickets, customer satisfaction, and on how many times a customer had to touch different parts of the system to complete their request for service – with the goal on the latter being one touch service. State leadership and implementers are looking forward to a future of virtual career centers and how any new system would provide customers with online services when physical service centers are not available or nearby.

As a GeoSol platform, participants are aware that Jobs4TN has the horsepower to implement a full slew of WIOA mandated metrics as well as additional metrics mandated by its multiple state partners. State implementers pointed to GeoSol's relatively long record within Tennessee as evidence of that capacity. However, implementing the state's capacity to measure WIOA-mandated metrics has been challenging in the short term, an issue participants largely attribute to the ongoing changes in requirements for assuring compliance with WIOA and to the lack of knowledge in how to use the system to its full effectiveness.

Respondents Aware of Additional Metrics

Legend:
- # Participants in Workforce events
- Real costs for events
- Outcomes by course study
- Outcomes by learning provider

To date, rollout of and training on WIOA mandated federal reports has been inconsistent. The challenge of having to retool system structures has affected the state's ability to develop automated reports. Inconsistencies in requirements across multiple federal agencies further exacerbate the state's ability to create stable report structures and participants remain unclear on what different federal agencies want in their reports. Participants believe that some of the inconsistency is related to the state's workforce culture and that they will have to put additional effort into facilitating an environment in which representatives of different federal and state programs work together moving forward. State implementers are working with different agency representatives to make this happen and to increase collaboration with the hope of integrating workforce related processes across the state and within Jobs4TN.

Participants' experiences with state and local performance metrics has also been uneven. While participants are largely aware of and capable of collecting data and producing reports manually or with tools other than Jobs4TN, their lack of knowledge in how to effectively use Jobs4TN to produce mandated reports to track basic metrics hinders their adoption of Jobs4TN functions within their daily processes. The constant of changes to the system, including where to find canned reports essential to work functions, has further inhibited the system's adoption. Participants who learn how to use report functions one week report finding what they learned upended, forcing them to spend additional time retraining on core skills. Participants also note that the number of changes makes them wary of report functions and whether in the effort to get the system up and running, they are still being tested and upgraded to make sure they are accurately measuring what they are intended to measure. As a result, many continue to use the systems they developed themselves where they can and remain frustrated that they cannot yet confidently use the system to its full capacity.

Implementing the System Technology

Developing Jobs4TN to Support the Workforce

Jobs4TN, the state's primary WIOA focused data system, replaces the antiquated COBOL-based legacy workforce system that was built in house to support workforce functions and process for over forty years. Described by some participants as a Leviathan, the system had become a disrupting force in the state's capacity to provide consistently satisfactory workforce service. Recognizing the state needed to start from scratch and make customer satisfaction first, state leadership

① Data Flows and System Architectures – Job4TN	Documented Process	Undocumented Process	None
Common definitions of different data types, categories, libraries, taxonomies, etc.	☑		
Data architectures, system architectures, system designs clarifying inputs and outputs	☑		
Clarity on all manual, semi-automated, and automated data ingest mechanisms	☑		
Clear Extract, Transform, and Load (ETL) protocols	☑		
VV&A procedures for assuring quality of ingested data	☑		
VV&A de-duping, alignment, integration protocols for ingested data		☑	
Data fusion schema identifying how data aligned and displayed to different users	☑		

worked with implementers to develop clear customer-oriented and performance management system requirements that included robust services accessible online and clear processes to track cases, business services, and personnel performance.

The state had already started to replace the antiquated system with specific vendor modules to provide enhanced services before WIOA. State leadership had already contracted with GeoSol to use its Virtual One Stop (VOS) module within its system in December 2014. After an open, competitive process, the state decided to add GeoSol's UI module, GUS, and use the GeoSol platform as the core component of its workforce IT. State leadership also decided to install GeoSol's VOS greeter as well as ZenDesk's customer service management (CRM) and chat systems to help respond to customers and track their satisfaction with services.

During the three-week long migration and customization phase, GeoSol worked on site with the state's technical staff to migrate existing data into the new system and customize core functions to state requirements. The responsibility for developing any data schema and data mapping tasks fell to state implementation staff, a process that took the full department to complete. Implementers also developed a data dictionary to help make sure that the vendor understood what different terms meant to the state and to the vendor. System users, including local performance staff, were involved in testing and helped to run lifelike scenarios and identify potential challenges before launch. However, implementers suggest in hindsight that they should have run more scenarios that reflected common issues rather than exceptional ones.

As part of the implementation process, key Job4TN users from different centers were provided with basic training in how to use the system. Those users were then tasked with training locals at each of the centers, a basic training process that state workforce personnel continue to use to train new users to date.

2 Data Management Processes – Job4TN	Documented Process	Undocumented Process	None
Anomaly / fraud detection protocols	☑		
Ongoing mgmt. / monitoring of network flows - interruptions in data pipelines	☑		
Ongoing user account management to ensure system access based on roles	☑		
Data mitigation plans in cases of network outages, cyber attacks, etc.	☑		
Clear security and privacy protocols to manage and protect data, including PII	☑		
Data provenance procedures, including time, and source stamps of forensic value	☑		
Data storage, warehousing, and archiving procedures for raw and processed data	☑		
Contact information for key data providers, WIOA system admin	☑		

Overall, implementers found the process of migrating, preparing and testing Jobs4TN for launch to be satisfactory despite the disruption of WIOA and the upheaval of UI issues early in the launch. Implementers cite a good relationship with the vendor as key to working through the significant challenges related to WIOA mandated changes as well as other issues related to making sure the new system is customized as much as possible to meet state needs. Implementers stated that it was important to have technically savvy people on their team to make sure that the vendor fully understood and implemented Tennessee workforce processes within Jobs4TN.

Managing Change

Implementers note that, as is the case with most vendor based systems, the launch of Jobs4TN was planned to occur as quickly as possible, and to fix issues as they occur. A year later, the state is still in the "fix" phase, and the system is continuing to be upgraded, retooled, and patched to respond to glitches as they occur. Now in operation, the GeoSol based system is managed remotely by GeoSol who remains responsible for any system changes or other customizations that affect core IP. While there is no specific IT staff dedicated to liaising with GeoSol or implementing WIOA mandated changes, the TDLWS maintains an IT staff of 3-4 FTE who coordinate issues with GeoSol as they arise. GeoSol maintains backups of older versions during system upgrades and pushes announcements of upgrades and changes to users after each system upgrade. GeoSol also provides basic training modules after each system upgrade, normally in the form of self-directed PowerPoint tutorials. State implementers provide additional training guides as needed, but the brunt of training remains the responsibility of local workforce center personnel who have undergone basic training.

Customization of functions within the system is limited. While the system allows for some user-specific customization, all of the 40-50 privilege groups are managed centrally and deployed based on a user's access rights. Each user can report technical defects directly from their interface. When users encounter an issue, they fill out a ticket. State agency staff test the issue and if they cannot resolve it locally, the issue is submitted to IT. IT prioritizes the tickets and submits an OPC ticket to GeoSol for issue resolution. Implementers and other participants said that the majority of issues to date were related to the rapid implementation of the platform and to constant upgrades.

3 User Interface Processes – Job4TN	Documented Process	Undocumented Process	None
Single Sign-on for users to access different workforce program services	☑		
User interface that enables workforce services across cloud and mobile platforms	☑		
User specific / need based system access levels (e.g., customer vs. staff vs. admin)	☑		
Online user communication and collaboration mechanisms (chats, message boards, wikis, etc.)	☑		
User-oriented analytics dashboards (customer, workforce staff, etc.)	☑		
Standard Operating Procedures, training manuals, offsite or onsite training, etc.	☑		

In its early implementation, the production server has been prone to crashes and that most of the upgrades and changes are due to GeoSol efforts to stabilize the system with WIOA changes as well as Tennessee specific customizations. At the time of the team's visit, GeoSol had just pushed out version 17.1 of Jobs4TN, but participants reports they were still trying to train up on the changes from the prior three upgrades. With no additional training forthcoming, the change process is leaving users without guidance on where changes were made. As a result, many reported reverting to older or self-constructed tools to manage and complete jobs related tasks where possible.

While there is a benefit in using a vendor with experience in building workforce systems to handle the brunt of technical issues, implementers note that the service and attention to Tennessee customer needs has been somewhat lagging since the GeoSol instantiation in Jobs4TN launched. It has been harder to get and keep the attention of GeoSol service providers now that the system is up and running, particularly in the wake of ongoing changes to federal requirements and demands for customized services from multiple states.

4 Data Output Processes – Job4TN	Documented Process	Undocumented Process	None
Data selection and output to different analytic tools / processes	☑		
On demand data analysis, interactive displays, dashboards			
Mechanisms (MOUs, etc.) for sharing data between different stakeholder systems	☑		

Some participants believe the lack of attention is a short term issue that will resolve itself over

time as WIOA mandated changes stabilize on GeoSol's platform. Others expressed frustration that GeoSol does not understand Tennessee state and local workforce business processes and is not providing the training and attention the state currently needs to consolidate system usage throughout the state workforce enterprise.

GeoSol's responsiveness to state needs may become an issue as Tennessee seeks to further integrate Jobs4TN with other state based workforce systems and processes. State implementers are currently working with other departments to determine how to integrate other federal and state mandated workforce services, and where to purchase additional workforce system functionality, whether from Geosol or from other vendors. Where purchases are made will depend on the cost of additional modules, whether they can provide the customized functionality the state needs, how the current platform performs over time, how easily new functions can integrate with the existing platform, and whether systems users – workforce customers and staff – are able to complete the tasks relevant to their workflow within the system.

Supporting the Workforce – Operational Readiness

Interacting with Jobs4TN

There are four basic user groups that interact with workforce systems. They are workforce customers using employment services as a job seeker or employment provider, service providers helping customers navigate the system or tracking cases interactions with customers, analysts who generate reports or data services for workforce stakeholders, and workforce managers who assure workforce personnel have the support they need to do their job. In its quest for effective governance, State leadership has made a commitment to implement a data driven workforce system that garners high customer satisfaction at levels over time. Assuring high satisfaction levels depends on the system's capacity to provide customers interfacing with the system directly with the self-directed services they demand. It also depends on the capacity of other users to interface with the system and provide more intensive customer service to those whose needs are more complex.

The state's initial focus of customer satisfaction has borne fruit. While early glitches soon after system launch were highly publicized and resulted in a drop in measurable customer satisfaction levels of 50-60%, the state's efforts to resolve many of the outstanding issues has resulted in customer satisfaction levels climbing back to 87% and above state leadership's goal. However, participants in this study – who represent service providers, analysts, and workforce managers – suggest that their capacity to interact with and get the best out of Jobs4TN to help customers is constrained by their lack of knowledge and understanding of how the system can help. Efforts to familiarize themselves with the system have in turn been hampered by constant upgrades to the system, frustrating many and inhibiting their desire to use Jobs4TN at all. For lack of options and with few power users available to turn to for help, many continue to use the tools with which they are most familiar.

Some of the reticence towards Jobs4TN is likely related to the system's newness. It is common for users to become frustrated with systems as they learn them. Additionally, the state's prior antiquated workforce system, the Enhanced Case Management System (ECMATS), was much more customized and in tune to state and local workforce processes, a level of customization that is usually lost in the conversion from GOTS to COTS platforms. In ECMATS, participants said they knew how to run queries and could get the information they needed when they needed it. They also had much more flexibility and more permissions to access different levels of the old system.

However, participants also said that while the vendor consulted with some managers and board members on policy requirements and involvement in use case testing, local staff and other service providers with knowledge of business processes were minimally involved in determining customization requirements or identifying key Tennessee specific business rules
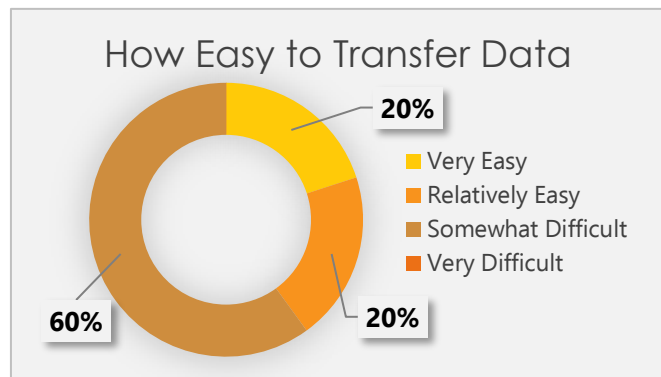
for implementation in the system. Participants were also discouraged by the process for bringing up and resolving system specific issues not related to defect reports. From system implementers perspective, defect reports are meant to signal specific technical errors related to error paths, dead pages, and the like. However, they do not provide a means for users to report larger issues such as data inconsistencies, reporting inaccuracies, or other such occurrences within the system. Participants also noted there was no mechanism through which they could address data precision and accuracy based issues or problems that fell outside of defect report parameters.

Hours Per Day Collecting Data
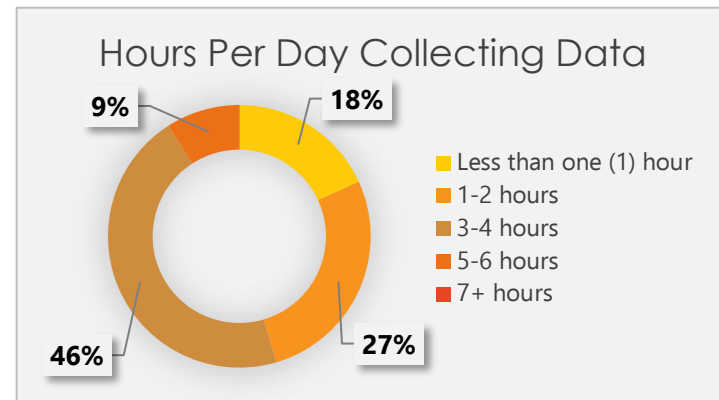
- Less than one (1) hour — 18%
- 1-2 hours — 27%
- 3-4 hours — 46%
- 5-6 hours — 9%
- 7+ hours

The lack of integration with other systems is also an issue. On average, participants across services interact with three different, separate data workforce systems on a daily basis regardless of their workforce role. These include Jobs4TN, the Department of Homeland Security ACCENT system, as well as locally based tracking databases built in Access or Excel and external vendor products that provide specific functionality such as customer relations management and performance tracking. A majority 55% of participants reported spending three hours or more a day collecting data, impacting the time they could spend performing other key functions. All participants reported that re-entry of basic data and the need to repeat simple tasks across multiple systems was a major impediment to providing quality service and suggested that system or data integration be made a priority in upcoming modifications to the system.

How Easy to Transfer Data

- Very Easy — 20%
- Relatively Easy — 20%
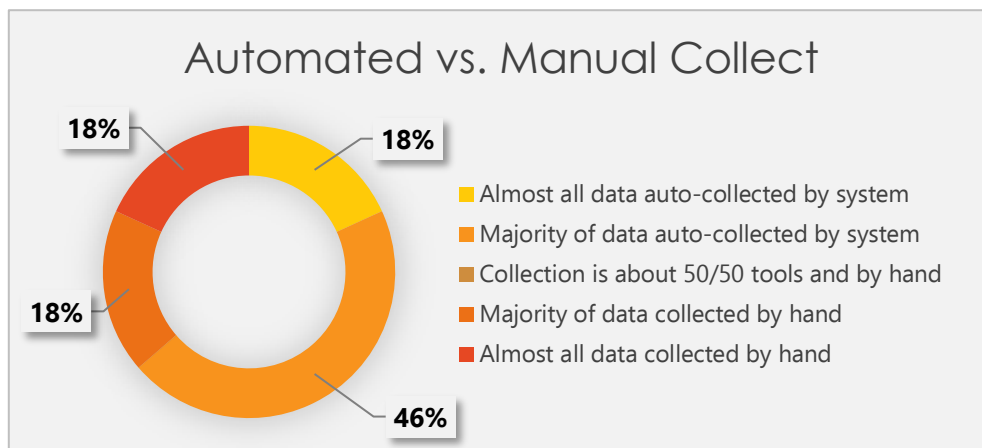- Somewhat Difficult — 60%
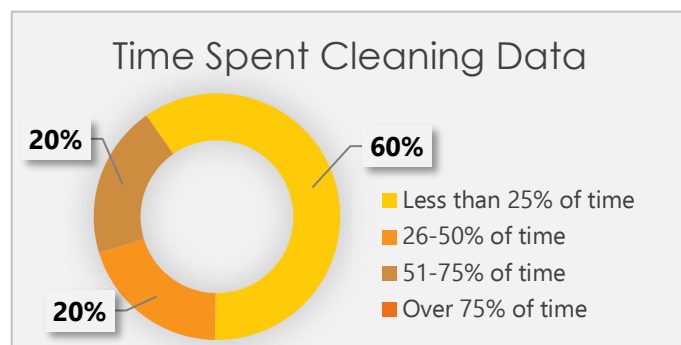- Very Difficult

Data Inputs

Tennessee customers can input data from the Jobs4TN interface online via the Jobs4TN portal. When residents visit a local American Job Center, they are directed to a VOS Greeter, one of the new GeoSol modules that state implementers incorporated into Jobs4TN. The VOS greeter allows users to directly input personal data and helps first line customer service providers direct customers to the appropriate personnel for additional services or consultations. Once that basic info is inputted, the rest of data collection and input falls upon the case managers or service providers interacting directly with the customers.

Participants noted that the data input and collection process within Jobs4TN was good at collecting customer self-reported data whether via the Jobs4TN online portal or VOS Greeter.

However, the interface they used was clunky and did not help them walk through the steps and collect the basic additional data they needed to provide the additional intensive services customers expected as walk-ins. While

Automated vs. Manual Collect

- 18%
- 18%
- 18%
- 46%

■ Almost all data auto-collected by system
■ Majority of data auto-collected by system
■ Collection is about 50/50 tools and by hand
■ Majority of data collected by hand
■ Almost all data collected by hand

employment and UI information is tracked within the system, participants stated they are left to their own devices to collect other customer data. As a result, participants continue to depend on their own caseload/customer tracking forms which include fields for data on all of the metrics they are required to report on. Because of the dependence on systems other than Jobs4TN, as well as other workforce systems not integrated with Jobs4TN, participants

Time Spent Cleaning Data

- 20%
- 60%
- 20%

■ Less than 25% of time
■ 26-50% of time
■ 51-75% of time
■ Over 75% of time

find they spend a considerable amount of time manually inputting key data into Jobs4TN and elsewhere to make sure that the state has the data it needs to track performance. Participants noted however that the vendor had just upgraded to a new UX/UI with the latest system version and hoped these upgrades would resolve many of the data ingest issues reported here.

Participants with reporting and analysis on statewide workforce data as their core job function reported that almost 90% of what they needed to complete their tasks was available within the Jobs4TN system. These workforce staff members, who depend on the data inputted by other system users, reported that the data they needed was largely cleansed on the back end and ready for them to use in the different reporting products generated as part of their tasks. Some participants said however, that they supplemented their reports with data from external sources, including LMI data from EMSI, the Tennessee State Data Center at the University of Tennessee at Knoxville, and others. They noted that these sources were more responsive than what they could get from within Jobs4TN. State implementers are aware of these additional data sources and of their reported capacity and are evaluating whether to incorporate these sources more broadly into the Jobs4TN processes in the future.
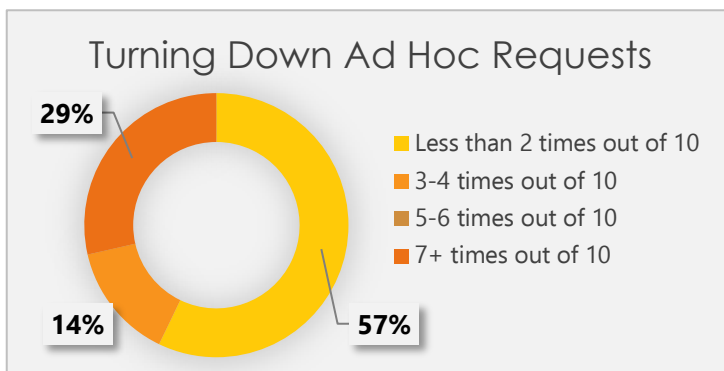
Generating Reports

While participants expressed confidence that the data they needed was largely within Job4TN, participants said that there continued to be significant issues with their ability to use Jobs4TN to generate reports. The major issues participants cited were the implementation of WIOA mandated changes, the rapid launch first, fix later implementation strategy, and the lack of knowledge among participants in where and how to complete required reports within the system.
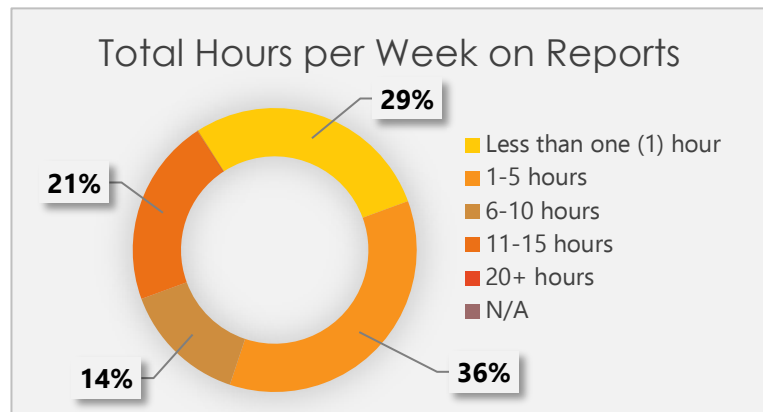
Participants report that it is relatively easy to generate reports from the VOS greeter as well as job data reports based on localized geographic data and individual offices. Participants also note that the system's dashboard provides access to multiple on demand reports of GeoSol determined performance metrics. Additionally, participants are increasingly able to

Total Hours per Week on Reports

29%
21%
14%
36%

- Less than one (1) hour
- 1-5 hours
- 6-10 hours
- 11-15 hours
- 20+ hours
- N/A

generate canned reports that align with WIOA mandated and state performance measures. However, the ongoing changes to the system and lack of training has made it difficult for users to keep track of where to pull the reports they need in a timely manner. Many said that the reporting dashboard contains too many functions that are irrelevant to their needs. Participants also note ongoing errors that continue to hamper their ability to get a complete picture of workforce issues. They further cited a lack of available resources to help users navigate through and learn how to effectively find and run federal, state, and local reports of relevance to their workforce tasks.

In contrast to the antiquated ECMATS system, participants found their capacity to produce on-demand ad-hoc reports in response to customer requests significantly curtailed. In

Turning Down Ad Hoc Requests

29%
14%
57%

- Less than 2 times out of 10
- 3-4 times out of 10
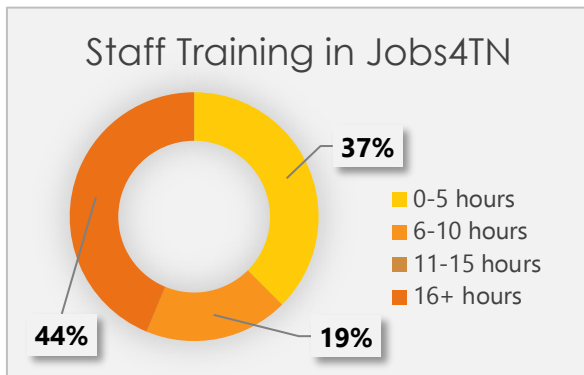- 5-6 times out of 10
- 7+ times out of 10

ECMATS, participants knew how to write queries to pull up the data they needed or who to ask if they couldn't complete a task on their own. In the new system, however, there is no one who has developed enough experience to be a power user who can help others find key information as needed. Participants also find that they no longer have access to the deeper levels

of data that they had previously used to complete reports. In the early set up of business processes, implementers assumed that managers would be able to fill the gap and help

employees find what they needed, and train them in the functions they needed to do their job. But many managers reported that the system was as much a mystery to them as to their employees, and with little or no additional training from GeoSol power users, they were equally confused in how best to consistently use the system to generate reports, whether they be canned performance mandated reports or one time, ad-hoc customer requests.

Rating Jobs4TN

Participant Level of Experience in Jobs4TN

Participants are still getting used to Jobs4TN as a new system. During early implementation days, GeoSol provided intensive training to a core group of trainers representing different workforce functions and staff throughout the state. Those who received intensive training in turn pro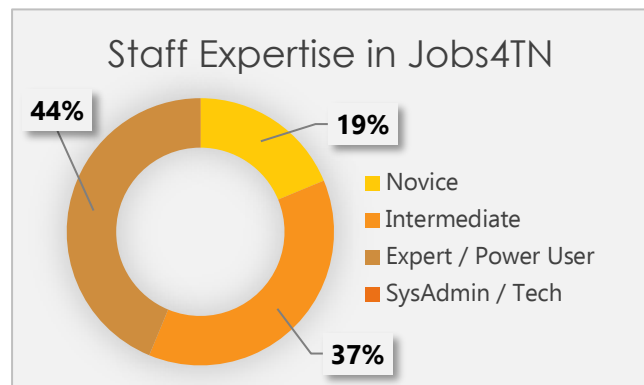vided initial training to other state agency employees, local staff, and other workforce service providers with reporting responsibilities. Structured training since launch has been haphazard, a reflection of training teams needing to rapidly push out updates to training programs that capture changes in system functions with each subsequent system upgrade. Trainers have had little to no time to familiarize themselves with changes, develop new training curricula, or trainer other trainers and staff between system upgrades.

Staff Training in Jobs4TN

37%
19%
44%

- 0-5 hours
- 6-10 hours
- 11-15 hours
- 16+ hours

Since initial training, trainers and participants have also had to use the system on the fly. System upgrades have been numerous and GeoSol and state trainers have struggled to produce power point based training guides that show users functions that have changed since the last upgrade. Because of all the changes, early training quickly became out of date leaving participants with the unfortunate effect of receiving lots of training with little impact on their capacity to use the system effectively.

In other situations where systems are being significantly upgraded and changed, users can turn to power or expert users to troubleshoot, find solutions and empower users to learn how to complete functions from multiple angles. And indeed, some participants noted that they had found

Staff Expertise in Jobs4TN

44%
19%
37%

- Novice
- Intermediate
- Expert / Power User
- SysAdmin / Tech

multiple paths to resolution for most issues within Jobs4TN. However, despite 44% of participants identifying themselves as power users in Jobs4TN, few said they felt comfortable enough with the system to know how to navigate to core functions, let alone transmit that knowledge others. Those who expressed the greatest levels of comfort with helping others had direct experience with other instantiations of vendor-based workforce products in other states or departments.
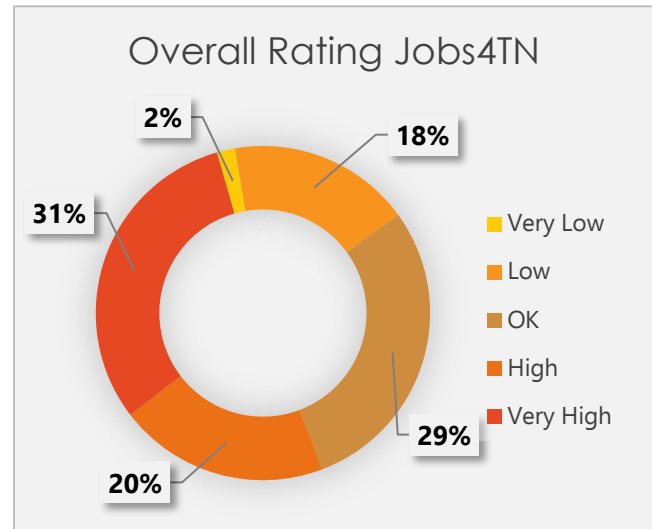
In many respect, the current issues with training and experience in Jobs4TN are temporary and short term issues. As the number of system upgrades winds down, Jobs4TN becomes

more stable and core functions can be consistently performed, state implementers will be in a better position to assure that users receive sufficient training in how to navigate to and complete functions related to their job duties within Jobs4TN. Over time, there will also be more local staff with direct experience on the ins and outs of Jobs4TN. However, implementers are aware of the short term issues and of their significance, and know that resolving them should be a priority in the near future.
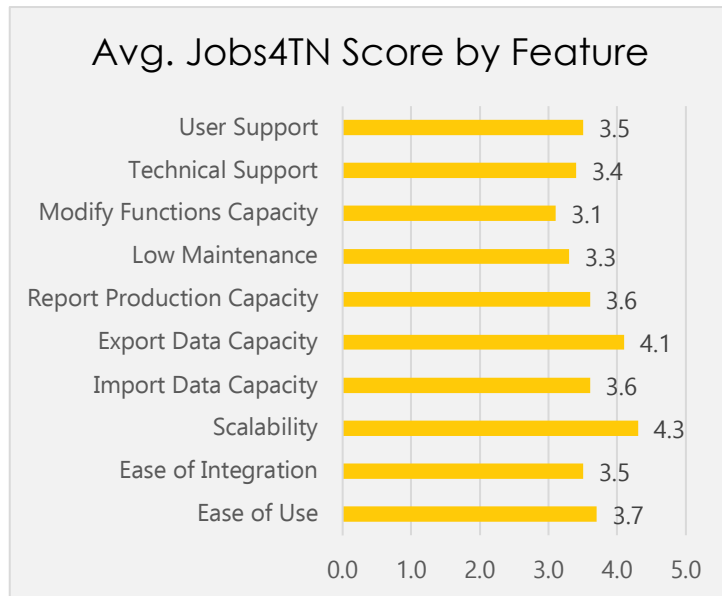
Rating Jobs4TN Features

Despite vocal frustrations with the number of system changes and lack of training in Jobs4TN during early implementation phases, 31% of participants gave the system very high ratings and 20% gave it high ratings. Likewise, participants' ratings of individual features were relatively good overall despite the number of upgrades.

Jobs4TN received the highest marks for its scalability, likely a reflection of the modular set-up of GeoSol's core product platform.

Overall Rating Jobs4TN

2% Very Low
18% Low
29% OK
20% High
31% Very High

Additionally, the system received high marks overall for its capacity to support data export functions and its ease of use. Participants noted that the data ingest and output and reporting capacities were also good and lauded the systems user support overall.

Avg. Jobs4TN Score by Feature

| Feature	Score
User Support	3.5
Technical Support	3.4
Modify Functions Capacity	3.1
Low Maintenance	3.3
Report Production Capacity	3.6
Export Data Capacity	4.1
Import Data Capacity	3.6
Scalability	4.3
Ease of Integration	3.5
Ease of Use	3.7

Perhaps unsurprisingly, the system received lower marks for technical support, the level of maintenance it needed and in the ability for users to modify functions on the platforms. These low ratings are likely a reflection of the upheaval of WIOA mandated changes to the system and participants comparisons to the level of customization they could achieve with their prior legacy system. They could also reflect the natural inclination of vendor systems to minimize the level of customization and modification capacity it allows customers to make within its environments.
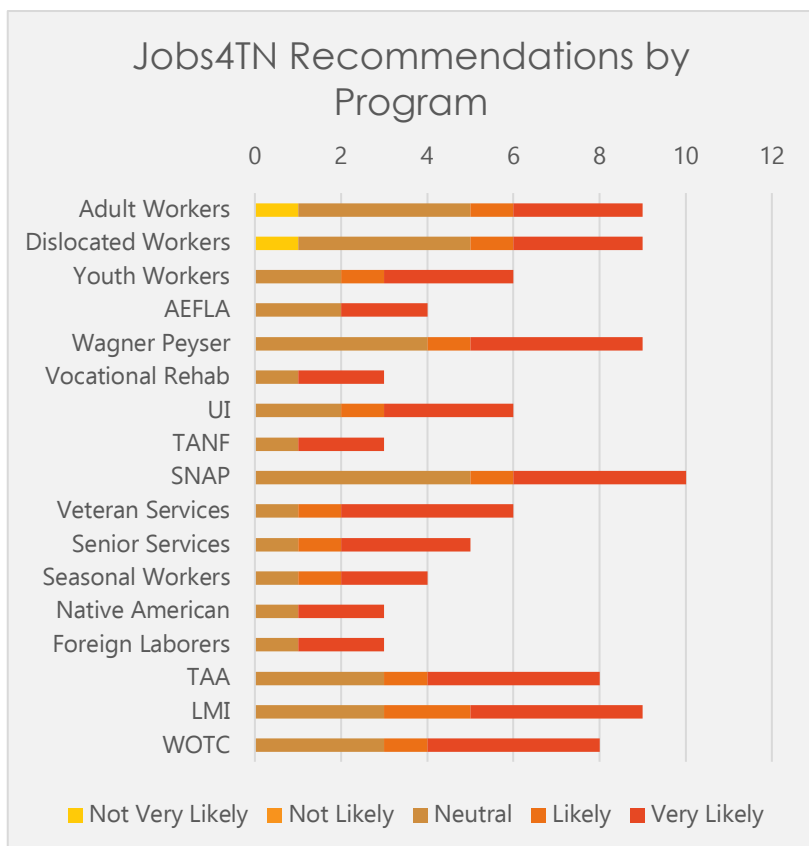
Recommending Jobs4TN?

Overall, 61% of participants said they were likely or very likely to recommend Jobs4TN and the underlying GeoSol platform to others. Of those, 49% reported strong positive sentiment towards Jobs4TN. 37% of participants remain system neutral, perhaps reserving final judgment for when it is stable and incorporates more of their job-specific functionality.

Recommend Jobs4TN?

2%
37%
49%
12%

- Not Very Likely
- Not Likely
- Neutral
- Likely
- Very Likely
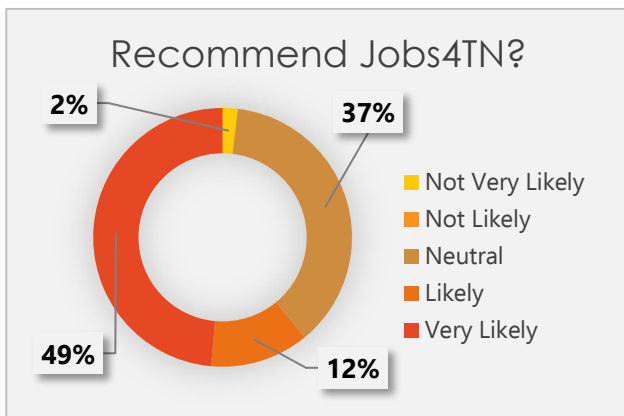
In their responses on whether they would recommend Jobs4TN for any specific workforce programs, participants indicated the same mix of very likely and likely recommendations. Only two programs falling within the Jobs4TN purview, Adult Workers and Dislocated Workers, received "Not Very Likely" ratings, perhaps a reflection of the current frustration and lack of understand in how to best use the system to provide satisfactory customer service. However, recommendations for other Jobs4TN programs, including Youth Workers, Wagner Peyser, and UI remained largely positive. Functions for other programs not yet integrated into Jobs4TN were also positive overall.

Jobs4TN Recommendations by Program

0 2 4 6 8 10 12

Adult Workers
Dislocated Workers
Youth Workers
AEFLA
Wagner Peyser
Vocational Rehab
UI
TANF
SNAP
Veteran Services
Senior Services
Seasonal Workers
Native American
Foreign Laborers
TAA
LMI
WOTC

- Not Very Likely
- Not Likely
- Neutral
- Likely
- Very Likely

The high ratio of positive recommendations are likely a reflection of participants overall satisfaction with the new system in comparison to the state's prior legacy system. Despite current frustrations, most participants seem to recognize that issues related to implementing and using the system are temporary and will straighten themselves out over time. As the system stabilizes, users become more familiar with the system, and state leadership enables implementers to incorporate additional functions into the system, these numbers will likely change for the better.

The Takeaways – Best Practices and Lessons Learned

Implementing a new COTS platform as the foundation of Tennessee's workforce systems at the same time as WIOA mandated reforms has been challenging. Tennessee's leadership and other workforce system stakeholders recognized that the antiquated ECMATS system needed to be replaced if the state was going to move beyond the workforce service issues it was facing before WIOA. They had already identified their key system requirements, conducted a cost-benefit analysis and chosen a system they believe is in line with their current workforce needs for a modern digital system capable of meeting customer needs. That WIOA became law in the middle of system customization and instantiation made the implementation process more difficult, particularly during the instantiation of the state's new unemployment system. The double challenge affected the ability of users to familiarize themselves with the system and understand how to best use it to complete their workforce job functions. With little training or help in understanding system changes to date, participants have become frustrated and turned back to older systems and processes where possible. However, while participant frustration was palpable, most see these issues as transient and believe in the new system, despite initial challenges. Participants recognize that many of the current issues are a reflection of the early phases of an instantiation process and are solvable problems. Now having overcome the biggest challenges, the state can proceed to deal with the next level of issues, many of which they identified during the study.

Having gone through the initial stages, participants identified some of the best practices and lessons they learned in the process. The following is a summary of those experiences as expressed by participants themselves.

Best Practices / Lessons Learned

- The important role of leadership – Tennessee's workforce data system has benefitted significantly from the involvement and leadership of top state policy makers. State leadership listened to workforce stakeholders and recognized the need for a new system early on. They empowered workforce staff to make the essential changes and lay the early policy and technical groundwork needed to incorporate the new system into existing culture. And they continue to support workforce implementers as they work to harden Jobs4TN into a robust and effective system tool used across the state. Participants lauded the state leaderships' role in implementing the new system, for taking responsibility for its strengths and flaws, for listening to complaints about the system, and for working to resolve issues as they arise.
- Understanding needs – Tennessee workforce implementers saw early on that in order to choose between different systems and approaches, they needed a full picture of current needs and how users wanted to work with any new system. Before choosing any approach, implementers conducted a full requirements assessment to determine

the scope of work and how any new system would need to fit existing and new user needs at the state and local level. That assessment helped implementers focus in on the system options to determine whether hiring staff and contractors to build a fully customized system in house (GOTS approach) or investing in an existing vendor based platform (COTS approach) would work best for the state over the long term.

- Working with old vs. new system – Any time a new system is adopted, there is a period of adjustment and learning how it works, and of comparing the new system to the functionality of prior systems to what users will be able to do in the new system. The more that implementers prepare users for the differences during the transition between systems – whether by training, familiarization with new features, or identify where and how users can access old features in the new system – can help facilitate the smooth adoption of the new system and minimize disruptions to workforce operations.
- The strengths and pitfalls of a live launch – Tennessee stakeholders were committed to getting Jobs4TN up and running as quickly as possible and opted for a COTS system they knew could be rolled out quickly. The state also decided to launch the system live, with minimal pre-launch beta-testing period to iron out expected kinks. The decision assured that the system came online on schedule, but created fallout in public perception that workforce stakeholders worked hard to overcome. In hindsight, many stakeholders suggested that beta-testing before launch would have made their lives easier and save them time over the long run.

Recommendations

To Tennessee State Decision Makers

As state policy makers and workforce stakeholders work to consolidate and build the structures and culture that supports Jobs4TN over the long term, they should consider the following recommendations participants identified as potentially improving the understanding and usage of Jobs4TN throughout Tennessee:

- <u>Empowering users through increased training options</u> – One of the biggest issues participants raised during the study is their lack of understanding of what they can do with Jobs4TN in its current instantiation. Many believe that the platform provides considerably more functionality than what they currently know how to use. To assure user adoption of Jobs4TN and any enhancements to the system as a whole, implementers should consider providing additional training options that go beyond the basic training provided by the vendor. This training could train different workforce stakeholders in how to best use the system to specifically meet their operational needs and help to identify additional issues that technical implementers should be aware of for any new builds.

- <u>Integrating / expanding Jobs4TN functionality</u> – Some participants signaled that the Jobs4TN platform does not yet meet their operational needs. Workforce stakeholders should consider determining whether the functionality these individuals require is something that can be covered within the existing Jobs4TN platform, whether additional tools and services need to be purchased or integrated into the platform to meet those needs, whether state or local stakeholders will purchase and maintain the necessary components, and how any data collected from and outputted by any additional services will be used within the broader scope of workforce reporting processes.

- <u>Developing and maintaining a change management system</u> – Participants indicated that it was difficult for them to keep informed of new changes to the system and to provide feedback on existing components and how they worked. A comprehensive change management system would provide stakeholders with a clearer means to learn about and adopt to system upgrades and maintenance schedules. It would also provide implementers with a method to collect and consider ongoing system issues, prioritize resolving them in context of emerging needs, and help to make sure that the state is getting the user feedback it needs to assure that users remain satisfied with workforce systems over time.

To Federal Policy Makers

Participants recommended that federal agencies consider:

- <u>Providing implementation guidance beyond current body of regulations</u> – The WIOA regulations and other documentation published to date does not provide sufficient guidance in how WIOA mandates should be transformed into operational processes and implemented on digital platforms.   In the absence of standardized operational procedures, usage manuals, example executable software code, federally vetted data maps or schema, or other process oriented WIOA guidance, state implementers are left to transform federal mandates into executables to the best of their ability and hope that they are compliant. Additional guidance would help assure standardization across performance metrics and minimize the potential for mistakes.

Acknowledgements

About the Facilitators

National Association of State Workforce Agencies (NASWA) is the national organization representing all 50 state workforce agencies, D.C. and U.S. territories. These agencies deliver training, employment, career, and business services, in addition to administering the unemployment insurance, veteran reemployment, and labor market information programs. NASWA provides policy expertise, shares promising state practices, and promotes state innovation and leadership in workforce development. For more information on NASWA, please contact Charlie Terrell at cterrell@naswa.org.

National Association of Workforce Boards (NAWB) represents approximately 550 Workforce Development Boards and their 12,000+ business members that coordinate and leverage workforce strategies with education and economic development stakeholders within their local communities, to ensure that state and local workforce development and job training programs meet the needs of employers. NAWB works closely with policy makers in Washington, DC to inform national strategy as it relates to WDBs and its partners in education, economic development, labor and business. For more information on NAWB and its advocacy for local workforce systems, please contact Josh Copus at CopusJ@nawb.org.

World Data Insights is a small, woman owned data consulting group with extensive experience in all aspects of designing, implementing, and maintaining data driven technologies and processes across industry, government, and international spheres. World Data Insights personnel have worked on multiple corporate, international, and government contracts of specific relevance to identifying and assessing the state of data driven systems used in disparate workforce processes. For more information on World Data Insights data and research services, please contact Anne Russell at Anne.v.russell@gmail.com.

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[i] All of the graphics, comments and insights in this report were developed using the results of the surveys and first-person in-depth interviews of workforce stakeholders – workforce personnel and partners – conducted during the course of the Workforce Data Assessment Project. At the beginning of each study survey or interview session, participants were informed that any personally identifiable information (PII) would not be shared publicly unless the authors received the participant's prior authorization to do so before publication of this report.