U.S. Chamber of Commerce Foundation

T3 INNOVATION NETWORK

The New Data Paradigm

Empowering Learners and Workers in Skills-Based, Data-Driven Talent Markets

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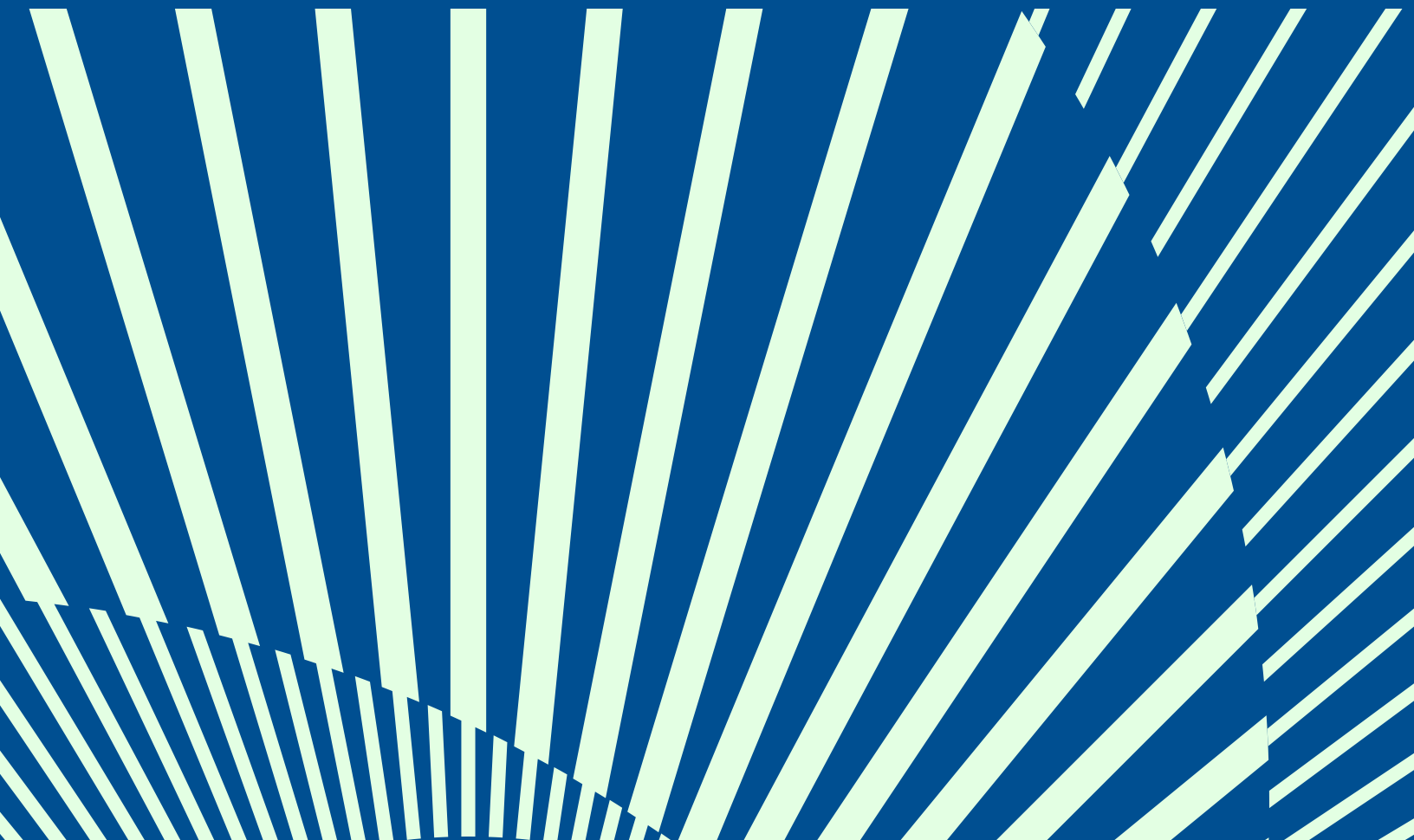


“Imagine a national, public-private data utility provisioning a marketplace of data about opportunities, experiences, and outcomes where learners and workers are at the center being served first, not last.”

—Jason A. Tyszko, Senior Vice President, U.S. Chamber Foundation

1. Introduction

Now is the time to rethink how we collect, manage, and use education and workforce data in the United States. Recent changes in federal policy and the growing recognition of the limitations and increasing costs of siloed federal and state government data systems, coupled with the growing adoption of disruptive technologies (e.g., Artificial Intelligence, or AI), are resulting in a need to explore new solutions. If the current data paradigm, built on a foundation of federal and state data systems, is now being reconsidered, then what may come to replace or augment it?

Recent digital transformation initiatives and innovations, which were once peripheral, are now well-positioned to build out and realize the potential of a new data paradigm. This will enable something qualitatively different from what preceded it, and can be achieved in ways that build on the lessons learned and the many strong foundations the current data paradigm has established. The promise of a new paradigm can fundamentally change how data about opportunities (e.g., jobs and learning opportunities), experiences (e.g., education and work), and outcomes (e.g., employment and earnings) will be collected, managed, and used, and by whom, while ensuring data privacy and security.

In the current paradigm, federal and state government agencies developed data systems and prioritized use case applications to largely inform government policymakers, agency managers and staff, and government-led initiatives, as well as research. While the current data paradigm has made significant progress in using federal and state data systems to provide learners and workers with labor market and consumer information (e.g., earnings outcomes for students at colleges and universities), it has, to date, stopped short of empowering learners and workers with their data and leveraging leading AI-powered applications to use their data to pursue more personalized education and career opportunities to achieve their goals. The current paradigm also provides only limited access to government data and tools for employers, learners and workers, education and training providers, and private sector initiatives (e.g., business and industry partnerships) to use for improving transparency and connections in skills-based talent markets, especially local talent markets.

Overview of the New Paradigm

In the new paradigm, learners and workers will be empowered with data first, not last. And, priority will be given to collecting and using data about opportunities, experiences, and outcomes with AI-driven applications to better connect employers, learners and workers, and education and training providers, and guide both public and private initiatives to improve the performance of skills-based talent markets throughout the United States.

This new paradigm will also focus more attention on improving connections (e.g., interoperability) by improving the development and translation of skills between employers, education and training providers, and learners and workers using public and private skill frameworks and taxonomies. It will also expand data access and use while ensuring data security and privacy. And, it will build on and accelerate the progress made in developing government data systems to address the most important government-centered use case applications from the current data paradigm.

By being open to the possibility and potential of a new paradigm, we can consider innovations that were previously unattainable or, at the very least, difficult to accomplish given current data infrastructure design and constraints. For example, in the new paradigm, we can explore a first-of-its-kind nationwide public-private federated[1] utility for education and workforce data that can provide basic universal services and support a diverse and dynamic public and private sector applications marketplace.

What is more, such a data utility could accelerate the adoption and use of disruptive technologies such as AI, which can then be harnessed to solve our most pressing data reporting and analytics needs (e.g., government reporting and analysis) while providing universal access to data for learners and workers (i.e., Learning and Employment Records or LERs). Such a data utility could also address the needs of other key stakeholders such as education partners and employers who will need to organize and share data with state and federal partners more efficiently and effectively while also empowering learners and workers with LERs based on data held and managed in their respective systems including Student Information Systems (SIS) and Human Resource Information Systems (HRIS) and systems that have richer learning and employment experience data.

With the release of this working draft brief, the T3 Innovation Network is launching the New Data Paradigm project. This effort will engage public and private leaders and experts in exploring how to collect, share, manage, and use education and workforce data differently, in part through a newly envisioned nationwide public-private federated data utility. Through this project, we will explore the guiding principles and priorities of the new data paradigm as well as key design features for a data utility, including the basic services provided to all learners and workers and other key stakeholders, such as employers and education and training providers.

This project will define and differentiate the current and new paradigms, including the major challenges and limitations of existing public sector governance models, data and technology infrastructures, and services. The new data paradigm guiding principles and the public-private utility design features will build on and integrate leading initiatives to promote public-private data and technology standards, enhance employer and education administrative data, and the provisioning and use of LERs.

In particular, this project will build on the work of many T3 Innovation Network partners that are promoting discussions and developing useful standards, tools and resources for a future LER infrastructure including but not limited to HR Open Standards Consortium, Data Standards United, A4L, 1EdTech, Credential Engine, SHRM Foundation, Western Governors University, Learning Economy Foundation, JFF, AACRAO, Education Design Lab, Digital Credentials Consortium, Trusted Learner Network, C-BEN, and SkillsFWD.

This project also will build on the work of other potential partners who are promoting discussions on improving the existing government data and technology infrastructure and providing tools and resources for data collection, management and use including but not limited to the Bipartisan Policy Center, National Governors Association, National Association of State Workforce Agencies, Coleridge Initiative, RIPL, and CredLens.

It also builds on prior government-led efforts, including those under the American Workforce Policy Advisory Board, such as the *White Paper on Interoperable Learning Records and Learning and Employment Records: Progress and the Path Forward*.[2]

For its part, the Chamber Foundation will explore how its work, including the Jobs and Employment Data Exchange (JEDx), JobSIDE, and projects stewarded under the T3 Innovation Network, can play a part.

This project will develop not only recommendations for how to transition to and fully realize a new data paradigm but will also support rapid prototype development and pilot-testing to explore the major design features of a nationwide public-private federated data utility.

Initial Topics

This working draft brief provides an initial rationale and vision for a new data paradigm and proposed nationwide public-private federated data utility as well as next steps. This working draft brief is designed to promote a national dialogue around four major topics:

1. Why Now? The Need for a New Data Paradigm and Public-Private Data Utility
2. Current and New Paradigms and Major Types of Use Case Applications
3. Current and New Design Features for a Data and Technology Infrastructure
4. Next Steps

2. Why Now? The Need to Explore a New Data Paradigm and Public-Private Data Utility

Why is now the time to explore a new data paradigm and public-private data utility for education and workforce use case applications? **Figure 1** provides a summary of the major reasons why it is timely and necessary.

Figure 1. Rationale for Exploring a New Data Paradigm and Public-Private Data Utility

1. **Changing Federal Government Role and Funding.** The federal government's long-standing leadership role and funding are changing, and the future is uncertain.

2. **Challenges and Limitations of the Current Government Data Paradigm and Systems.** Significant progress has been made in improving and using federal and state data systems, especially the collection and use of employment outcome data for colleges and universities. However, there is growing recognition of the limitations and challenges of the current government data paradigm and siloed federal and state education and workforce data systems with increased reporting burdens and coverage (e.g., non-credit programs) and data gaps (e.g., skills data) even for the most important government use case applications.

3. **New Public-Private Use Case Applications.** The need to address the data requirements of new public-private use case applications for: (1) empowering learners and workers; (2) improving market transparency and connections (e.g., interoperability), including improving the development and translation of skills using public and private sector skill frameworks and taxonomies; and (3) supporting both public and private interventions in improving talent market performance.

4. **Public and Private Incentives for Data Sharing.** There is a need to increase the incentives for employers, education and training providers, learners and workers, and other stakeholders to share more data. These incentives include a greater role in shared governance, reduced data collection and sharing costs, and expanded data access and use while ensuring security and privacy protection.

5. **Harnessing the Power of AI and Data Collection and Management Advances.** The need to more quickly harness the power of AI applications in expanding access and use of data, including for skill translation. In addition, we need to modernize data collection and sharing through Application Programming Interfaces (APIs) and related technologies to improve data quality and timeliness while reducing costs. And this must all be done while using recent advances in data privacy and security.

Changing Federal Government Role and Funding. The federal government's role and funding for the existing federal and state data and technology infrastructure are now uncertain and being widely debated.

The federal government has historically been a major leader and funder of the existing federal and state infrastructure for collecting, managing, and using education and employment data. It funds federal statistical agencies that collect and maintain education and employment data, including the National Center for Education Statistics (NCES), Bureau of Labor Statistics (BLS), Bureau of Economic Analysis (BEA), and the Census Bureau. The federal government also provides funding for the collection, management, and use of education and employment data as required by major federal programs, including those at the U.S. Departments of Education and Labor. These agencies also have been major funders of the development and use of state longitudinal data systems (SLDS) that integrate education and employment data. Federal agencies have also encouraged the linkage of education and employment data to provide estimates of the employment and earnings outcomes of postsecondary programs. Finally, more recent federal policies have promoted more open data policies, and federal legislation has promoted improved access and use of data for evidence-based policy and evaluation.

In more recent years, the federal government has pulled back on its leadership role. The federal government has not taken action on recommendations to improve the federal and state infrastructure (e.g., enhancing Unemployment Insurance wage records) and has not maintained funding levels for federal statistical agencies for both education and workforce statistics.
The recent funding cutbacks at NCES and Senate budget proposals to restore funding raise major questions and uncertainty on the future federal role and funding. At the same time, the federal government has expanded state responsibilities and requirements for collecting data for managing federally funded programs and implementing federal policies (e.g., SNAP, New Hire). More recently, the federal government has passed legislation that requires states to collect more education and employment data for determining eligibility for Medicaid. This reduced funding and lack of action on key improvements in data systems along with increased federal data requirements for states raises the question: "What is the future role of the federal government and what is the level and types of funding and leadership required to play this role?"

Challenges and Limitations of the Current Government Data Paradigm and Systems. Significant progress has been made in improving and using federal and state data systems, especially the linking and use of education and employment outcome data. However, there is now growing recognition of the increased costs, inefficiencies, and reporting burdens of the siloed federal and state government data and technology infrastructure and its limitations in addressing government use case applications. The existing federal-state government data and technology infrastructure consists largely of hundreds of federal and state data collection systems that have evolved separately over the years to collect data from employers, education institutions, and households using different and inconsistent reporting requirements (e.g., data definitions) and reporting systems. Although there have been efforts to improve coordination and standardization across education and employment data systems (e.g., CEDS), there remain major gaps in data coverage (e.g., non-credit programs, certifications, independent contractors) and content (e.g., work location, work hours, skills).

This existing infrastructure has been developed to mainly address four major types of use case applications: (1) federal statistics and government-provided labor market information; (2) evidence-based policy and evaluation; (3) program administration (e.g., higher education funding, Unemployment Insurance, or UI administration); and (4) research. This paradigm has given secondary consideration to providing the necessary data for empowering learners and workers and improving the connections between employers, workers, education and training providers, and other intermediaries in rapidly changing national, state, and local talent markets (especially local markets where most transactions are done). This applies in equal measure to the jobs and employment data infrastructure as well as the education data infrastructure.

One of the major challenges and limitations of the current paradigm and existing federal and state systems is the collection, management, and use of skills data for both existing use case applications and new use case applications for empowering learners and workers and improving connections in talent markets. Federal and state governments have developed and promoted the use of skill frameworks and taxonomies in labor market information and career and education pathway development. For example, the U.S. Department of Labor has pioneered the collection and use of more detailed job work task and skills data based on the O*NET content model and has developed and promoted the use of industry competency models that contain common skill requirements. At the same time, the Department of Education has promoted the use of career clusters frameworks. AdvanceCTE now supports the National Career Clusters Framework, which organizes occupations into pathways requiring similar skills.

In the private sector, industry and professional associations and certification organizations have developed their own. In addition, leading private sector data providers have developed their proprietary skill frameworks and taxonomies to develop, analyze, and compare employer skill requirements, education and training program learning outcomes, and learner and worker skills communicated through resumes, transcripts, and LERs. Many of these private sector companies are now sharing and promoting the use of their more openly available skill frameworks and taxonomies.

Finally, leading standards organizations have developed standards for organizing and sharing skills data. Three examples are Credential Engine's Credential Transparency Description Language (CTDL), IEEE's Shareable Competency Definition (IEEE 1484.20.3), and 1EdTech's Competencies and Academic Standards Exchange (CASE) standards. The T3 Innovation Network has promoted the sharing and use of openly licensed skill frameworks and taxonomies based on these open data standards. Recent AI innovations have the potential to improve skill statement development and translation using different skill frameworks and taxonomies. These efforts have shown the difficulty in promoting the use of one public or private sector skill framework and taxonomy. They also have shown that the legacy models of producing and maintaining skill frameworks are not keeping up with the acceleration of change in the talent marketplace, and on-the-fly AI-generated skill labels do not address the need for comparability across data sets. Finally, they have shown the potential of using AI applications to improve the development and translation of skill statements between employers, learners and workers, and education and training providers using different openly licensed and machine-readable public and private skill frameworks and taxonomies based on open data standards. There is now a need to bring together these public and private efforts to improve skills data for both existing government use case applications as well as new applications for empowering learners and workers and improving connections in talent markets.

New Public-Private Use Case Applications. Although government statistics and labor market information products and services based on the existing federal and state infrastructure provide some useful information and tools for employer and learner and worker decision-making applications, they do not provide the sufficiently granular, customized, comprehensive (e.g., skills) and geographically detailed data necessary for employer, education and training providers and learner and worker decision-making and action, especially at the local level. In particular, they do not address the data requirements of new public-private use case applications for:

1. Empowering learners and workers with data;
2. Improving market transparency and connections (e.g., interoperability) with a focus on improving the development and translation of skills using public and private sector skill frameworks and taxonomies; and
3. Supporting both public and private interventions in improving talent market performance.

Public and Private Incentives for Data Sharing. Recent research on the existing national data and technology infrastructure has documented current data limitations and the need to explore how to provide incentives for public and private partners to share and use data through an expanded data infrastructure.[3]

This is especially applicable to education and employment data. The existing education data infrastructure includes data that schools, colleges, and universities must report to receive federal funding. The existing workforce data infrastructure is based largely on data required for Unemployment Insurance and other federal and state programs. Prior efforts to expand data collection beyond these requirements have not been successful because expected costs exceed expected benefits. This is similar to the debate on expanding state UI reporting requirements to include data that are not priorities for UI administration. Incentives for public and private partners may require greater shared governance, reduced data sharing costs, and expanded data access and security to ensure privacy protection. This should be considered in the design of a new nationwide data infrastructure.

Harnessing the Power of AI and Data Collection and Management Advances. There is an immediate need to more quickly harness the power of AI applications in expanding access and use of data, including for skill statement development and translation. There is also an immediate need to modernize data collection and sharing through Application Programming Interfaces (APIs) and related technologies to improve data quality and timeliness while reducing costs. And this must all be done while using privacy-preserving data management advances that also ensure security.

The existing federal and state data and technology infrastructure is based on federal survey systems and federal and state administrative data reporting systems that were developed decades ago. They have not undergone a fundamental modernization consistent with approaches to data sharing and management now used by education and HR systems that are the source of government administrative data. There have been many recommendations to explore how to utilize more modern approaches to data sharing, including the use of APIs to more directly connect with source data systems.[4]

Any new national data infrastructure should be based on leading public-private technology standards for sharing and managing data to improve efficiency, reduce costs, and improve data quality, as well as current and future data use cases and applications.

One major limitation of the existing national infrastructure is the lack of access and use for even the traditional use case applications, coupled with rising concerns about data security and privacy. Also, as discussed earlier, one of the most important incentives for expanded data sharing is confidence in data security and privacy, and full transparency on data access and use. In recent years, there have been major advancements in privacy-enhancing practices that can enable expanded access and use with fewer tradeoffs on data security and privacy. Any new nationwide data infrastructure must utilize these advanced practices to accomplish both.

3. Current and New Paradigms and Major Types of Use Case Applications

Any discussions about improving the existing federal-state government infrastructure or creating a new nationwide public-private infrastructure should start with discussions on the major types of guiding principles and assumptions, and the major types of use case applications that they are or should be designed to support.

As shown in **Figure 2** and discussed earlier, the current data paradigm is focused on informing and guiding federal and state government actions. Although used by a wide variety of public and private stakeholders, federal education and labor market statistics and related information programs are largely funded and designed to measure economic, labor market, and education trends and patterns to inform and guide federal and state government actions. They are less useful for local talent markets.

Federal and state education and workforce reporting systems are designed to inform government policy and provide data for government program administration (e.g., student financial aid, unemployment insurance). They are also designed to support government-led system building (e.g., higher education systems, public workforce systems), connecting education and workforce through data applications such as occupational demand and supply analysis.

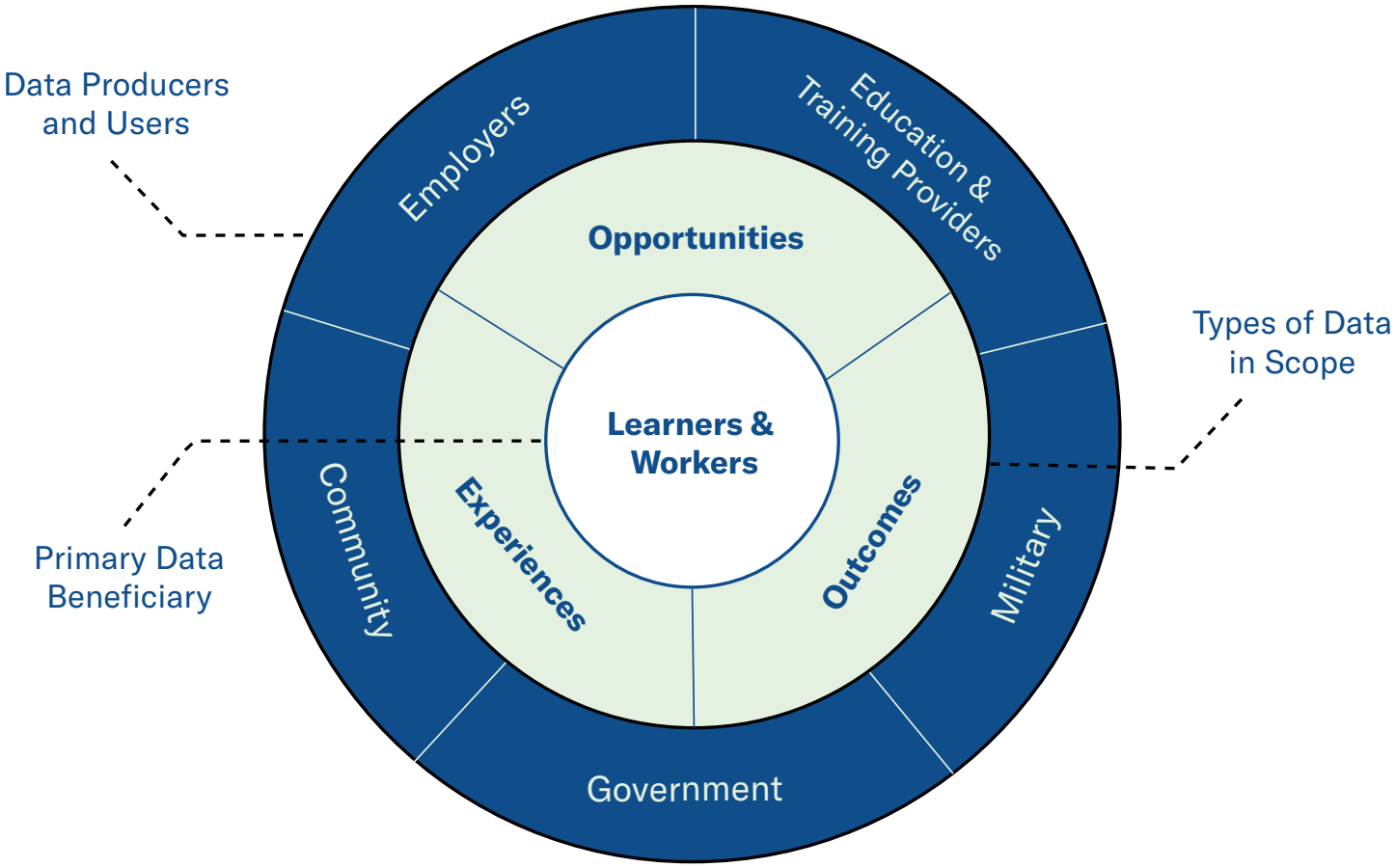
And while federal and state agencies have developed data and guidance tools for education and career decision-making for learners and workers, they are not the major priority in the existing paradigm and have not been designed to promote an open applications marketplace of more individualized guidance tools for decision-making in national, state, and local education and talent markets.

Figure 2. Current and New Data Paradigm Guiding Principles and Priorities

Current Data Paradigm – By Government for Government Actions. Developing Government Statistics and Improving Government Policy, Planning, Program Administration and Other Government Interventions	**New Data Paradigm – By Public-Private Partnerships for Public and Private Sector Actions.** Empowering Learners and Workers to Pursue Opportunities in More Transparent, Interoperable, and Connected Talent Markets and Enabling Both Public and Private Sector Interventions
• Developing and maintaining federal statistics and related federal/state education and labor market information programs • Developing federal and state government evidence-based education and workforce policies • Administering federal and state government programs • Government-led education and workforce planning and systems-building and other interventions • Promoting government policy-related academic research • Providing aggregated data for public and private applications marketplace	• Empowering learners and workers to use data to pursue education and career opportunities as a first priority • Improving access and use of data by employers, learners and workers, and public and private service providers and intermediaries to improve decision-making, connections and transparency in rapidly changing skills-based talent markets • Providing access and use of data on national, state and local talent market performance for both public and private sector-led actions to improve performance. • Improving data access, timeliness, and use through an open public and private AI-powered applications marketplace. • Improving data for current data paradigm use case applications (e.g., improving postsecondary outcome data)

With **Figure 2**, we begin to see the new data paradigm take shape. As illustrated in **Figure 3**, we begin to see how a variety of data producers and users are now operating on the periphery, with learners and workers moving to the center. The bridge between both is the data itself, specifically data about opportunities (e.g., jobs and learning opportunities), experiences (e.g., education and work), and outcomes (e.g., employment and earnings).

Figure 3. Orienting the New Data Paradigm with Learners and Workers at the Center



As shown in **Figure 4**, these different paradigm guiding principles and priorities provide the basis for changes in the major types of use case applications that drive the design of government data infrastructures and a future public-private data utility. The new data paradigm expands the public-private scope of these applications and emphasizes four new use case applications that empower learners and workers to access and use their data. It also provides data to better connect employers, learners and workers, and education and training providers, as well as other intermediaries, and inform both public and private sector actions based on market performance.

Figure 4. Current and New Paradigm Types of Use Case Applications

Type of Use Case Application	Current Data Paradigm	New Data Paradigm
Federal Statistics and Labor Market Information	Federal employer and household surveys with data provided at the national, state, and major metropolitan area levels Federal and state administrative data are reused for statistical purposes, including survey sampling.	Expanded use of more standardized federal and state administrative data to provide more current, granular, and localized statistics and labor market information to support employer, provider, learner and worker decision-making and action
Evidence-based Policy and Evaluation	Federal and state government policy and evaluation applications	Public and private sector evaluation applications
Government Program Administration	Federal and state administrative data and linked data applications	Improved administrative data and expanded learner and worker and employer access and use of their data, now used for program administration
Research	Mainly academic research relevant to government policy, with data access centers and other arrangements	Expanded public and private sector research applications with more data access centers and other arrangements, all while protecting privacy
Learner and Worker Access and Use of Own Data	No major use case applications	Initial focus on three major use case applications: • Applying for employment and exploring education and career advancement opportunities • Applying for education and training opportunities • Applying for and maintaining enrollment in government programs (e.g., Medicaid, SNAP, Unemployment Insurance)

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Type of Use Case Application	Current Data Paradigm	New Data Paradigm
Employer HR Analytics and Access and Use of Data	Limited access to relevant government data and applications	Expanded access to employer and provider data for leading provider analytics applications at different labor market levels, including: • Employer job demand and skill requirements • Aligning program learning outcomes and employer skill requirements • Provider and program benchmarking • Learner and worker population analysis • Analysis of learner and worker applicant skills
Skills Translation and Gap Analysis	Limited skills analysis services	Providing skills translation and gap analysis services to employers, providers, and learners and workers based on open public and private skill frameworks and taxonomies
Market Performance Analytics for Public and Private Interventions	Limited market performance analytics, especially for local talent markets	Expand data access for government agencies, private sector organizations, and public-private partnerships (e.g., sector partnerships) at different market levels, including: • Comprehensive market performance metrics • Market performance benchmarking • Market performance analysis for employers, providers, learners and workers, including skills gap analysis • Evaluation of public and private interventions

Learner and Worker Empowerment. The new paradigm focuses first on addressing how to empower learners and workers to use their data in conjunction with the more personalized analytics provided by the larger national data utility. There are at least three major types of use case applications:

- Applying for Employment and Exploring Career Advancement Opportunities. Using resumes supported by verifiable LERs with documented skills to search for and apply for employment opportunities and explore more personalized career advancement opportunities based on large-scale data analysis of existing and potential career pathways. This would improve the development and use of enhanced employment data (e.g., occupation, work location) for constructing more personal career pathways.
- Applying for and Exploring Education, Training, and Credentialing Opportunities. Using verifiable LERs with documented skills to apply for education and training opportunities, as well as professional certificates, certifications, and licenses. This would build on advancements in comparing and analyzing employment and earnings outcomes of education, training, and credentialing opportunities.
- Applying for and Maintaining Enrollment in Government Programs. Using verifiable LERs to apply for and maintain enrollment in government programs, including state UI benefit programs and other income-based and/or work-based programs such as SNAP and Medicaid that require verifiable data for initial enrollment and constantly updated verifiable data to maintain enrollment.

Employer HR Analytics and Decision-Making. The new data paradigm provides incentives for employers to report more expanded administrative data in return for expanded use of the data for HR analytics and decision making in ways that will improve connections with learners and workers, and partners in talent markets while protecting employer privacy. These employer use case applications could include:

- HR Benchmarking Analysis. Employer benchmarking on standardized HR metrics such as job openings, hiring rates, and advancement and retention rates.
- Job Analysis and Skill Requirements. Developing and communicating skill requirements utilizing open skill frameworks and taxonomies
- Talent Pipeline Analysis. Analyzing the current sources of hires for critical job openings compared to industry patterns within talent markets



Provider Analytics and Decision-Making. The new data paradigm provides incentives for education and training providers (e.g., schools, colleges, universities, apprenticeship programs) to report more expanded administrative data in return for expanded use of the data in ways that will improve connections with employers, learners and workers, and other partners in talent markets. These provider and intermediary use case applications could include:

- Job Demand and Requirements. Analysis of employer job demand and requirements (e.g., skills, credentials) within national, state, and local talent markets.
- Aligning Program Learning Outcome and Employer Skill Requirements. Developing program learning outcomes that are aligned to employer skill requirements.
- Provider and Program Benchmarking. Comparison of provider and program characteristics relevant to employer job demand and their roles in talent pipelines in national, state, and local talent markets.
- Learner and Worker Population Analysis. Analysis of the size, location, and characteristics of potential learners and workers who could benefit from education and training services to meet employer job demand in national, state, and local talent markets.
- Analysis of Learner and Worker Applicant Skills. Improving enrollment management and advanced placement and prior learning credit determination based on the analysis of learner and worker applicant skills.

Skills Translation and Gap Analysis. One of the major new data paradigm priorities is improving how employers, learners and workers, and education and training providers develop and communicate skill statements using open skill frameworks and taxonomies, and providing translation and gap analysis services to improve the transparency and connections in talent markets.

The old paradigm provided access to government skill frameworks and taxonomies (e.g., O*NET) but did not provide job analysis, program planning, or resume services tools to use them and determine differences or gaps between employers, providers, and learners and workers. The proposed public-private data utility can provide universally available skill development, translation, and gap services based on openly available and machine-readable skill frameworks and taxonomies accessible through said utility. It can also promote a diverse and dynamic applications marketplace to make sure that employers, learners, workers, and providers have access to the tools that work best for them.

Market Performance Analytics for Public and Private Interventions. The current data paradigm emphasizes performance analytics and management for government programs (e.g., WIOA, Perkins) and government systems (e.g., higher education systems, public workforce systems) for government actions. The new data paradigm expands the focus to include market-level analytics for both public and private actions. This includes public interventions by economic development organizations, workforce boards, and private interventions by chambers of commerce and industry associations, as well as public-private partnerships such as sector partnerships. These use case applications could include:

- Comprehensive Market Performance Metrics. Balanced metrics addressing employer employment projections and job opening hiring rates, provider performance and capacity utilization, and worker employment, earnings, and advancement.
- Market Performance Benchmarking. Comparison of national, state, and local talent markets for specific jobs and industries based on market performance metrics.
- Evaluation of Public and Private Actions. Analysis of the results from public and private actions on employer, provider, and worker metrics.

4. Key Design Features of the Current and New Data Infrastructures

As shown in **Figure 5**, the current and new data paradigms, and their respective use case applications, are associated with different design features or attributes for data infrastructures.

Figure 5: Key Design Features of Current and New Data Infrastructures

Design Feature	Current Public Systems	New Public-Private Data Utility
Governance	Federal and state governments	Public-private
Architecture	Siloed federal and state government agency systems and state longitudinal data systems	Nationwide federated network with multiple secure data linkage services and points of access and LER infrastructure
Employer and Education Provider Data Collection	Government surveys and administrative records (e.g., UI)	HR system and education system (e.g., SIS) API integration
Learner and Worker Education and Employment Data	Learner and worker enrollment and completion records, and employer-provided employment records	LERs are based in part on administrative records, including skills data
Data Standards	Federal statistical and federal and state agency program administration data standards and SLDS data standards	Public-private data standards

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Design Feature	Current Public Systems	New Public-Private Data Utility
Privacy and Security	Federal and state agency guidelines and practices	Public-private guidelines and practices
Skill Frameworks and Taxonomies	Government frameworks and taxonomies (e.g., O*NET)	Public and private frameworks, taxonomies, and translation services
Universal Data Services	Providing access to aggregated workforce data and education provider/program level data, with or without basic government data tools and applications	Providing access to aggregated as well as disaggregated education and workforce data with security and privacy protections, and basic data applications and support for an open applications marketplace Providing basic LER data services for all learners and workers based on employer, provider, and government administrative records and other data sources

Governance. One major change proposed in the new data paradigm is the move from public governance to public-private data infrastructure governance to support expanded data collection, access, and use. This would require a move from a federal and state government agency approach to a more coordinated federal and multi-state government approach with private sector partners. Private sector partners would include representatives from major stakeholders, including employers, providers, and learners/workers, as well as data users, application developers, and privacy and security experts.

Architecture. The new data paradigm includes a vision to consolidate and expand current federal and state data systems and move toward a nationwide federated public-private data utility with multiple points of data access and use based on public-private data security and privacy guidelines and practices to support the major public and private sector use cases. This architecture would also include the infrastructure requirements for providing universal access to LERs, including identity management and trust frameworks and registries (e.g., issuer registry) and wallet requirements in ways that promote a more open applications marketplace.

Employer and Education Provider Data Collection. As discussed earlier, there is a need to standardize, consolidate, and modernize current federal and state data collection systems to reduce costs and reporting burdens for employers and providers and improve data quality and timeliness. The new data paradigm promotes the use of employer and education provider administrative records and standards-based APIs and related technologies to improve data collection and sharing, similar to how employer HRIS and provider SIS systems now integrate and share data. This approach is currently being pilot-tested by the Chamber Foundation's Jobs and Employment Data Exchange (JEDx) project using a consolidated data package with a prototype API based on standards developed in cooperation with the HR Open Standards Consortium. This approach could also be used in education provider administrative records in ways that build on existing standards and extend their interoperability across P-20 education and workforce, including non-degree education opportunities.

Learner and Worker Education and Employment Data. The new data paradigm focuses heavily on empowering learners and workers to use their data for pursuing education and career opportunities. This would be enabled by education and training providers and employers maintaining administrative records as comprehensive LERs that can be reported to the public-private utility through the APIs and provided to all workers through wallets and other devices supported by the utility. These more comprehensive records would go beyond current administrative records, including learning outcomes and skills data.

Data Standards. The current government data paradigm gives primary responsibility to government agencies and programs to define data standards for their reporting systems, which has resulted in major differences across federal and state agencies and programs that increase reporting burden and reduce data quality. The new data paradigm promotes the development and use of public-private voluntary consensus standards coordinated through a public-private entity. This includes data standards developed by standards organizations consistent with federal Office of Management and Budget (OMB) guidance on the use of voluntary consensus standards.[5]

Privacy and Security. The existing paradigm provides wide latitude in how to develop and implement privacy and security guidelines and practices. The new data paradigm vision is to expand data collection, access, and use while at the same time developing and implementing rigorous public-private privacy and security guidelines and practices that give confidence to all stakeholders in sharing and using data.

Skill Frameworks and Taxonomies. The current data paradigm supports the development and use of government skill frameworks and taxonomies such as O*NET. Previous national and state initiatives have attempted to build consensus on using a shared skill framework and taxonomy. In contrast, the new data paradigm promotes the development and use of multiple public and private skill frameworks and taxonomies that are openly licensed and machine-readable, and encourages employers and providers to reference and expand on them, resulting in dynamic frameworks and taxonomies that rise or fall in use based on their market acceptance and effectiveness. This approach would require employer and provider AI-driven tools to develop skill profiles for jobs, credentials, and programs that can reference and build on these open frameworks and taxonomies, such as the Chamber Foundation's JobSIDE tool.

Universal Data Services. The current data paradigm encourages federal and state government agencies to provide universal access to aggregated workforce and education data through government agency websites that can be downloaded or accessed through APIs. It also encourages the development and access of provider/program-level education data with associated aggregated employment and earnings data that can also be easily downloaded and accessed through APIs and analyzed through government-provided applications and tools (e.g., College Scorecard). The new data paradigm proposes to build on these advances and provide even more universal access to aggregated and disaggregated data through the public-private data utility with privacy and security provisions. It will also provide some basic, universally available applications and tools for using the data, but will also promote an open applications marketplace. In addition, the new data paradigm would provide basic LER data services for all learners and workers based on employer, provider, and government administrative records and other data sources.

The U.S. Chamber Foundation's Jobs and Employment Data Exchange (JEDx) project (see **Figure 6**) illustrates how many of these key design features could be used to develop a public-private data utility for the collection, management, and use of education and workforce data, resulting in reduced costs and improved data quality and timeliness.

Figure 6: JEDx Illustrating the Use of Public-Private Data Utility Design Features

Jobs and Employment Data Exchange (JEDx) is developing and pilot-testing a new approach to jobs and employment data from employers based on:

- **Public-Private Data Standards.** Utilize public-private data standards developed in cooperation with the HR Open Standards Consortium, the leading standards organization of employer HR systems.
- **Learner/Worker Employment Data.** Utilize Administrative Records and LERs to explore how enhanced employer administrative records used for government reporting could be transformed to meet multiple government reporting requirements and provide all learners and workers with LERs.
- **Employer Data Collection.** Utilize Standards-Based APIs and Integration with Data Tools to use and API for sharing HR administrative records that can integrate with employer HR systems in cooperation with HR third-party administrators and integrators. This API was developed based on API standards developed in cooperation with the HR Open Standards Consortium. The JEDx API is designed for integration with automated coding systems, starting with occupational autocoding and eventual integration with employer-facing tools such as JobSIDE for improving the specification of skills requirements based on public and private skills frameworks and taxonomies.
- **Privacy and Security.** Expand employer data sharing for consolidated government reporting while improving data privacy and security based on public-private standards and best practices, including the use of Privacy Obligation Documents (PODs).

5. Next Steps

In building on this initial working draft brief, the New Data Paradigm project will carry out the first phase of work between August 2025 and April 2026. This first phase will consist of the following activities based on this working draft brief:

- From August through December 2025, the project will conduct a more detailed landscape analysis of current government governance models, data, and technology infrastructures and services, as well as develop the key design features of a new data utility. The project will also develop recommendations for how to transition to the new data paradigm and how to phase in the proposed nationwide public-private data utility through pilot-testing its features. This work will be shared through a public update by the close of the year.
- An interim report will be shared in January 2026, and from January through March 2026, the project will facilitate meetings with administrative data, LER, and other technology experts, as well as skills taxonomy and translation experts, to explore the proposed key design features, how to pilot-test them, and the path forward for a nationwide public-private federated data utility.
- The first phase will conclude in or around April 2026 with the issuing of a final report, which will detail the next steps for 2026 and beyond.

6. Conclusion

This working draft brief is designed to promote a national dialogue around the need for a new data paradigm that focuses on new use case applications for learner and worker empowerment in skills-based and data-driven talent markets while expanding the scope of existing government-centered use case applications. This working draft brief is also designed to promote a national dialogue on the design features of the existing federal and state education and workforce data infrastructure and the potential to transition to a nationwide public-private federated data utility based on different design features that can support an expanded set of public and private sector use case applications.

This is only a starting point. Exploring this new data paradigm and utility further will require deeper analysis and consensus-building among public and private leaders and experts, as well as the design and implementation of pilot tests to demonstrate scalable solutions. This includes bringing together leading experts from the administrative data, LER, and skill translation professional communities. We look forward to working with many partners and experts over the coming months to continue to explore this vision for a new data paradigm and public-private data utility.

Learn More About the New Data Paradigm

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Endnotes

1 In this context, we are using the term “federated” to refer generally to a decentralized network approach to system architecture that enables more public-private collaboration, flexibility and scalability while protecting privacy and security. The New Data Paradigm project will further explore this approach along with other design features summarized in Figure 5.

2 https://www.t3networkhub.org/resources/white-paper-on-interoperable-learning-records; https://www.t3networkhub.org/resources/learning-and-employment-records-progress-and-the-path-forward

3 National Academies of Sciences, Engineering, and Medicine. 2023. Toward a 21st Century National Data Infrastructure: Mobilizing Information for the Common Good. Washington, DC: The National Academies Press. https://doi.org/10.17226/26688.

4 Ron S. Jarrmin, Evolving Measurement for an Evolving Economy: Thoughts on 21st Century US Economic Statistics, Journal of Economic Perspectives—Volume 33, Number 1—Winter 2019—Pages 165–184

5 T3 Network publication.



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