

NORTH
Dakota
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Information Technology



Digital Services: Government to Citizen

Digital Credentials

2021-present

IDEA

What Problem or opportunity does the project address:

The Digital Credentials project addresses the need for individuals to collect, maintain, and share their learning and employment records (LER) as digital credentials. It solves the problem of inefficient and paper-based credential management systems by providing a secure and convenient digital wallet for individuals to store and share their credentials.

Why does it matter?

The project matters because it improves business processes and enhances citizen engagement with state government. By digitizing credentials and making them easily accessible, the project simplifies the process of verifying qualifications for educational institutions, employers, and other stakeholders. It promotes a seamless transfer of skills and promotes lifelong learning by enabling individuals to showcase their skills and competencies in a digital format. This improves efficiency in hiring processes, supports workforce development initiatives, and enhances individual mobility across state boundaries.

The project's impact is significant. It reduces administrative burdens associated with paper-based credential management, saves time for individuals and institutions in verifying credentials, and improves access to opportunities for citizens. It also aligns with the changing nature of work and the increasing demand for digital credentials in various industries.

What makes it different?

The project stands out for its adoption of open-source technologies and data standards such as the Comprehensive Learner Record (CLR), Open Badges, and W3C Verifiable Credentials (VC). The use of blockchain technology and self-sovereign principles through the Sovrin blockchain for verifying credentials adds an innovative and secure element to the project. The integration of these technologies and standards ensures interoperability, data integrity, and a high level of trust in the digital credentials.

What makes it universal?

The project addresses a universal need for individuals to manage and share their credentials digitally. In an increasingly mobile and interconnected world, digital credentials provide a standardized and efficient way to validate qualifications. The

project aligns with state and federal mandates to enhance digital services, support workforce development, and promote lifelong learning. It also aligns with the State CIO Top Ten Priorities by leveraging technology to improve service delivery, data interoperability, and security. The universal applicability of digital credentials transcends state boundaries, enabling individuals to carry their credentials with them and access opportunities in different states.

IMPLEMENTATION

What was the roadmap?

The roadmap for the Digital Credentials project involved multiple phases of development and implementation. The project started with the creation of a cooperative laboratory (Co-Lab) involving various organizations to establish open-source skills-based ecosystems. The phases completed include the development of a publishing engine called Open Credential Publisher (OCP) and the creation of web and mobile-based digital wallets for individuals to store their Learning and Employment Records (LER) credentials.

In Phase 1, the overall design and architecture of the project were established. Phase 2 involved the implementation of a mobile version of the high school transcript as a digital credential. Phase 3 included the development of Badge Services and Connectors to support the import of Open Badges into the digital wallet. The project is currently in Phase 5, working on larger credential initiatives in collaboration with workforce partnerships, education institutions, and career development agencies.

The Digital Credentials project fits into an enterprise view by creating a foundation to support skills-based learning, workforce development, and the self-sovereign agency of individuals' credentials. It involves collaboration between IT, K12, Higher Education, and Workforce Development entities to establish common standards and practices for digital credentials. The project promotes consistency and interoperability across departments and agencies by adopting data standards such as the Comprehensive Learner Record, Open Badges, and the Credential Registry.

Assessment and Successful Implementation: The project's success will be assessed based on key performance indicators (KPIs) such as the number of individuals establishing wallets, usage statistics, and acceptance of digital credentials by educational institutions and employers. The project aims to demonstrate the value of digital credentials through tangible outcomes such as cost savings in administrative processes, improved efficiency in verifying credentials, and increased opportunities for individuals. Successful

implementation would involve widespread adoption of the digital wallet, positive feedback from stakeholders, and a significant shift towards digital credentialing practices.

Who was involved?

The key stakeholders involved in the Digital Credentials project include legislators, vendors, agency staff, and citizens. Legislators play a crucial role in advocating for policies and funding to support the project. Vendors provide technical expertise and solutions for the development of the digital wallet and associated technologies. Agency staff are involved in implementation, oversight, and integration of the project within existing systems. Citizens are the end-users and beneficiaries of the digital credentials, as they can collect, manage, and share their credentials digitally.

Approval, buy-in, awareness, and adoption from stakeholders were obtained through a comprehensive communications and marketing plan. This plan involved targeted outreach to legislators to gain their support and involvement. Awareness was raised through public forums, presentations, and demonstrations to showcase the benefits of digital credentials. Collaboration with educational institutions, employers, and workforce development entities helped in generating buy-in and promoting adoption. Regular communication channels, such as newsletters, websites, and social media, were utilized to keep stakeholders informed and engaged throughout the project.

How did you do it?

The Digital Credentials project required financial resources for development, implementation, and ongoing maintenance. Human resources included project managers, developers, designers, and subject matter experts. The project also required a significant time investment to coordinate stakeholders, gather requirements, develop the technical architecture, and conduct testing and training.

The technical architecture of the project focuses on ensuring data interoperability, security, and privacy. It leverages emerging technologies such as blockchain (Sovrin) for verifying credentials, W3C Verifiable Credentials (VC) standards for credential

IMPACT

What did the project make better?

The Digital Credentials project has brought significant improvements and benefits to the education, workforce, and credentialing landscape. It has transformed the way individuals collect, maintain, and share their credentials digitally, providing them with greater control and convenience. The project matters because it addresses critical business problems such as the need for secure and verifiable credentials, efficient verification processes, and alignment with emerging standards.

Before the project, the environment relied heavily on paper-based credentials and manual verification processes. This resulted in administrative burdens, delays, and potential for fraud. With the implementation of digital credentials, the process has become streamlined, efficient, and secure. Individuals can now store their credentials in web and mobile-based wallets, easily share them with verifiers, and have their validity instantly verified.

The benefits and impact of the project are evident for both the nominating agency and constituents. The agency experiences improved efficiency and cost savings in credential management, reduced administrative burdens, and increased interoperability with educational institutions and employers. Constituents, such as students, job seekers, and professionals, benefit from the convenience of managing and sharing their credentials digitally, increased portability of their skills and competencies across state boundaries, and enhanced access to educational and employment opportunities.

How do you know?

Digital Credentials that articulate an individual's education, training, job roles and experience is an international movement firmly supported with adopted and emerging standards that allow an individual to hold and share their credentials in a self-sovereign manner (no central repository is needed). The cost and time-savings will be immediately recognized as not paying fees to have credentials sent by the issuing institution. Additionally, the technology of being able to hold all your credentials such as a teacher licensure and all the endorsements associated with the licensure may take up to a year for a teacher to be evaluated for a license in another state, with digital credentials all that information is delivered by the teacher electronically in minutes. The ability for job seekers and employers to find each other based on 'skills' matching will be a disruptive technology over traditional job searches as this nation moves from certificate/degree hiring requirements to job roles and skills matching.

- **Increased productivity:** Hiring employees based on their skills can lead to higher productivity levels, as skilled workers are more likely to complete tasks efficiently and

effectively. This can result in increased output, cost savings, and revenue generation. According to a study by the National Bureau of Economic Research, skilled workers are 50% more productive than their unskilled counterparts.

- **Reduced training costs:** Skilled employees require less training than unskilled workers, which can save employers money and time. Additionally, skilled workers can often adapt more quickly to new technologies and processes, reducing the need for ongoing training. The Society for Human Resource Management reports that it can take up to two years for a new employee to reach full productivity, and that it costs an average of 6 to 9 months' salary to replace an employee.
- **Improved job satisfaction:** When employees are hired based on their skills, they are more likely to feel challenged and fulfilled in their roles. This can lead to increased job satisfaction, higher levels of engagement, and lower turnover rates. A study by LinkedIn found that 87% of workers feel more engaged and fulfilled when they're able to use their strengths on the job.
- **Improved quality:** Hiring skilled workers can lead to higher quality products and services, as these employees are often better equipped to identify and resolve problems. This can result in increased customer satisfaction and loyalty. Research by the Aberdeen Group shows that companies with a focus on skills-based hiring are 60% more likely to have employees who meet or exceed performance expectations.
- **Competitive advantage:** Skill-based hiring can give organizations a competitive advantage by allowing them to quickly adapt to changing market conditions and customer needs. Skilled workers can also help companies differentiate themselves from competitors by providing unique skills and expertise. A report by the McKinsey Global Institute estimates that up to 375 million workers (or 14% of the global workforce) may need to switch occupations by 2030 due to automation and other technological advances. Skill-based hiring can help organizations adapt to these changes more quickly and effectively.
- **Higher profitability:** Hiring skilled workers can ultimately lead to higher profitability for organizations, as it can result in increased productivity, reduced costs, improved quality, and greater customer satisfaction.

What now?

The longer-term plan for the project includes further expansion of credential initiatives, engagement with additional stakeholders, and continuous improvement of the digital credentialing ecosystem. This involves collaborating with workforce partnerships, educational institutions, and career development agencies to establish comprehensive credential pathways and support apprenticeship programs. Ongoing maintenance and

updates to the technical infrastructure, data standards, and security measures will be crucial to ensure the project's sustainability and adaptability to evolving needs.

This project is worthy of the initial investment and ongoing investment due to its transformative impact on the education and workforce landscape. By digitizing credentials and establishing interoperable standards, the project addresses critical challenges in credential management, verification, and portability. The initial investment has already demonstrated positive outcomes such as improved efficiency, cost savings, and enhanced access to opportunities. Ongoing investment is necessary to maintain and enhance the digital credentialing ecosystem, keep pace with emerging technologies and standards, and continue providing tangible benefits to the agency, constituents, and the broader community.