



Michigan.gov

MiLogin Secure Public Passwordless Authentication

Category: Emerging & Innovative
Technologies

State: Michigan

Project Start: October 2022

Project End: Ongoing

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MiLogin .Next – Our Deployment of Passwordless Authentication Delivered with Human Centered Design IDEA

EXECUTIVE SUMMARY

MiLogin (pronounced My-Login) is the State of Michigan's digital identity and single sign-on (SSO) solution, providing ~12 million constituents, business users, and workforce a secure access gateway to over 350 government services across 17 State of Michigan agencies. Over the last two years, Michigan began a project to modernize, add next generation identity technology and deliver it to constituents using human centered design (HCD) that rebrands the digital identity user experience. The program is branded as MiLogin. Next and is focused to become more user-centric, improve security and constituent privacy by offering secure phishing proof passwordless authentication functionality to all 12 million constituents. MiLogin. Next also delivers improved functionality progressively instead of a large release at the end so that our business and users benefit from improvements as modular functionality is developed. The project has delivered excellent measurable results at quarterly intervals and received great reviews from our business areas.

THE PROBLEM: MiLogin .Next is foundational to enable user centric access for public users to transact with state digital government services. Underpinned by one user ID, users access online services with the goal of completing a task, such as renewing their driver's license, filing an unemployment claim, or applying for food assistance, and they do not want to be stuck at step one, trying to log in. Therefore, the public user authentication processes have to be balanced between a seamless user experience while still delivering the best security. At the start of our journey, a usability study was conducted to provide guidance on where to focus our efforts. Users involved in the study described their MiLogin experience as overwhelming, disconnected, dated, and lacking help. Our goal of MiLogin .Next was to utilize our understanding of these pain points and deliver **emerging and innovative identity technology improvements** to the MiLogin solution.

WHY IT MATTERS: When users have a bad digital experience because they cannot successfully login and navigate intuitively to access digital services, or if they fall victim to a phishing scam and disclose their credentials that are then used to conduct fraudulent transactions, it results in a number of negative outcomes - increased calls to help desks, inquiries from legislative representatives, cyber reputation damage, lack of accessibility, user abandonment of the process, and even negative press. DTMB leadership wanted to be a better partner with our business areas to reduce the negative outcomes and improve adoption of online services.

HOW IT'S DIFFERENT: MiLogin. Next makes it a priority to simplify user experience in conjunction with adding innovative and emerging identity technology. It was initiated by conducting a usability study. As new functionality is released, ongoing usability studies and analytics provide key performance indicators (KPI) feedback to determine if tangible improvement is being achieved in user engagement, completion of transactions, level of difficulty, and inclusiveness across demographic spectrum.

WHAT MAKES IT UNIVERSAL: Digital government/digital services and Cybersecurity are top priorities among State CIOs Top Ten Technology and Policy Priorities for 2024. The need for **secure** digital government services is universal; less than 25% users interact with digital government services in the U.S¹, and demand will continue to grow as constituents expect more digital services from government.

¹ 2023 Deloitte Digital Citizen Survey

MiLogin .Next Accomplishments:

- Enabled the largest state government FIDO2 based passwordless login solution for ~10M public users.
- Conducted a proof of concept (POC) for a Public User Digital Wallet to hold identity and license information, enhancing security, privacy, and interoperability.
- Increased constituent engagement using HCD to deliver emerging identity technology.

MiLogin .Next – Deployment of Passwordless Authentication Delivered With Human Centered Design : IMPLEMENTATION

ROADMAP

Michigan began planning the MiLogin .Next roadmap in the spring of 2022. It consisted of 27 projects to improve end user experience, security, and infrastructure. The first leg of these projects focused on improving constituent engagement including the introduction of innovative technology that improved the digital experience. Passwordless authentication is the program’s first next generation identity project delivered through a wider lens of HCD driven user experience, one of a set of related projects which came directly from usability study observations, enhancement requests from our MiLogin Advisory Board, and DTMB’s need to adopt innovation, improve security, and offer a modern digital experience to Michiganders.



Excerpts from MiLogin .Next roadmap for passwordless authentication and related projects.

KEY INVOLVEMENT

When determining how we wanted to prioritize the deployment of our MiLogin .Next projects, we leveraged our already established MiLogin Advisory Board. The MiLogin Advisory Board provides a forum for two-way communication between DTMB and multiple agency business owners and DTMB general managers assigned to agencies. The board meets monthly to discuss upcoming system changes and feedback from the business about their needs for MiLogin. We solicited assistance from this group to be a part of MiLogin design reviews before beginning our development sprints to ensure business alignment with end user experience updates.

For a project as large as MiLogin .Next, Michigan’s CIO also recognized the need for direction and guidance from a higher level, resulting in the formation of the MiLogin Executive Committee. This is a smaller committee of key agency executives with voting capability, to which DTMB can bring forward MiLogin strategic initiatives for decisions on cost, scope, and schedule. The MiLogin Executive Committee meets monthly, allowing us to have buy in from senior leadership on MiLogin strategic direction.

IMPLEMENTATION

MiLogin established a project management office (PMO) and utilized Agile methodology to prioritize and deploy the MiLogin .Next projects in quarterly releases over a two-year period. Each release not only includes feature delivery but also analytical tools to measure the usage of new features being deployed and their impact on overall user interaction.

The development and deployment of MiLogin .Next is done by onboarding a new team of approximately 25 to 35 members who are allocated to different scrum teams executing in parallel. The passwordless authentication team included 3 to 5 members depending on the project phase. The duration was 6 to 8 months including initial technology research, NIST policy research, and design sessions between MiLogin team and state cybersecurity architects. Out of the total cost of MiLogin .Next, the cost of one time implementation of passwordless authentication was an estimated \$400,000.

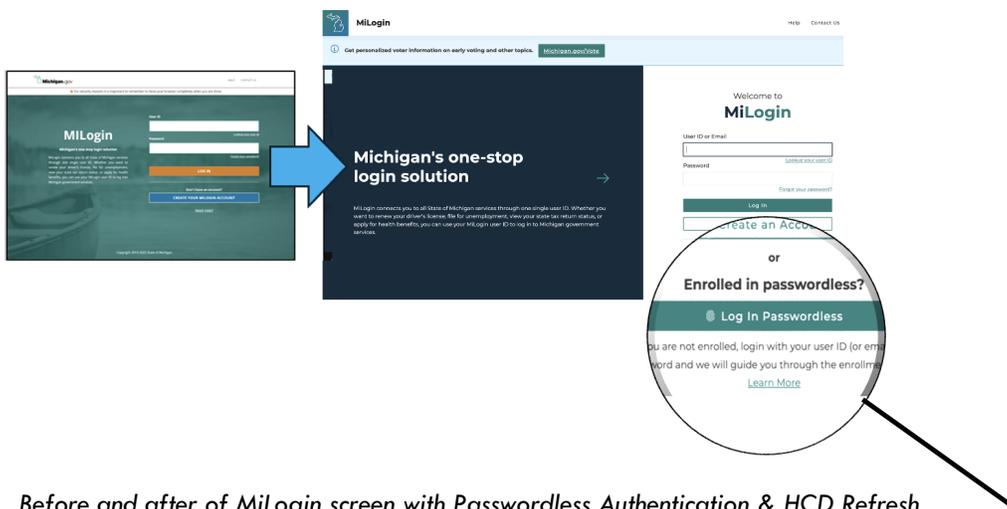
MiLogin passwordless authentication was built on the Fast Identity Online 2 (FIDO2) framework. This was chosen because:

- FIDO2 is an open standard solution, ensuring interoperability without needing additional software to purchase or for users to download.
- Multiple vendors support FIDO2, including: Google, Apple, Microsoft, Amazon, Mozilla, and Yubikey,) and its rapid adoption promotes the long-term continuity of FIDO authentication as a service.
- FIDO2's standards accommodate various authenticator types, such as biometric sensors, mobile devices, hardware keys, and browser passkeys, across desktop and mobile devices, which caters to our diverse user base.
- The framework prioritizes user privacy and ecosystem partner security, ensuring the biometric data and cryptographic keys never leave a user's device.

The MiLogin team also created animated videos of common authenticator use cases for passwordless authentication at [MiLogin - Passwordless User Guide \(michigan.gov\)](https://michigan.gov/milogin).

MiLogin .Next – Our Deployment of Passwordless Authentication Delivered With Human Centered Design IMPACT

WHAT DID THE PROJECT MAKE BETTER AND HOW DO WE KNOW?



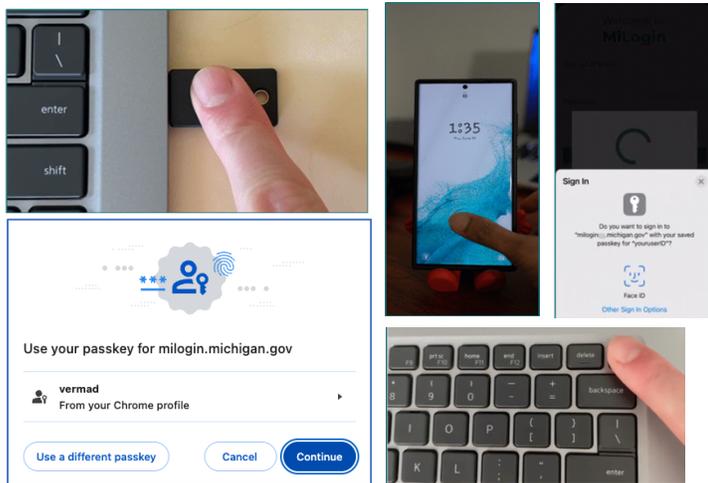
Before and after of MiLogin screen with Passwordless Authentication & HCD Refresh.

The passwordless login option, delivered with a HCD driven branding refresh of MiLogin, not only modernized the MiLogin solution but also provided a **phishing proof authentication** mechanism. As adoption ramps up over time, it will **improve security** by eliminating password-based credential compromise and **enhance constituent privacy** by moving ownership of credentials to the user's device. Coupling this with a HCD driven refresh that keeps consistent branding and continuity

between agency services and MiLogin has **increased constituents' trust in government services**. Michigan's chief security officer Jayson Cavendish says: "I am proud that our MiLogin team has brought passwordless authentication to our public digital identities. Passwordless brings additional protections to our public digital identities, and helps protect our systems from account takeover attempts such as brute force and password spray attacks."

Key Metrics of Passwordless Authentication

- CURRENT METRICS**
- **Largest passwordless authentication** implementation in state government, enabled for **10M users**, showcased on [FIDO Alliance Government Deployments showcase](#).
 - Supports Apple and Android mobile biometrics, browser passkeys, hardware keys, Windows Hello, and Apple laptop biometrics.
 - **~190K users enrolled** since go-live in July 2023, adding **~18K new enrollments per month**.
 - **Zero issues** reported in passwordless enrollment or passwordless access by users.



Impact

With the successful deployment of passwordless authentication in July 2023, MiLogin .Next has successfully delivered on increasing constituent engagement, adding a secure phishing proof authentication mechanism that also eliminates password attack vectors, and reducing Help Desk effort and costs, as illustrated below.

Login Abandonment Rate		
237K Users June 2023		63K Users February 2024
73% decrease		

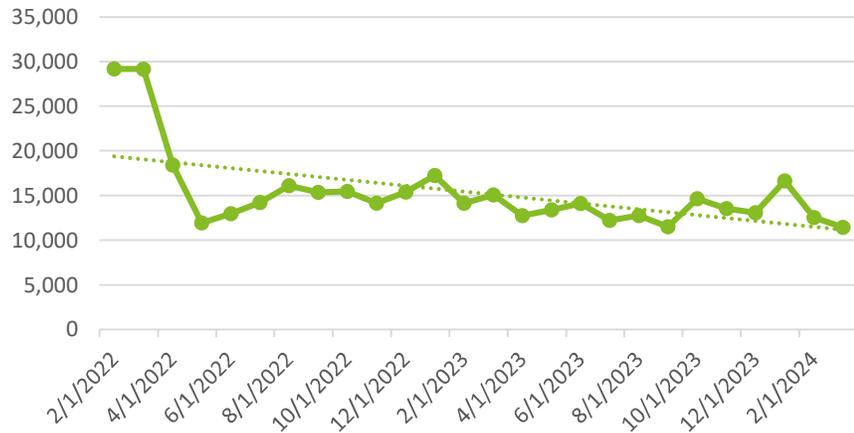
Passwordless authentication delivered with MiLogin branding has increased constituent access to government services, with continuity with agency services, increasing consumer confidence that they are in the right place. As such, monthly login abandonment rates have been significantly reduced.

The elimination of password based access, combined with improved password self-help flows have led to monthly Help Desk assisted password resets to be reduced by more than half.

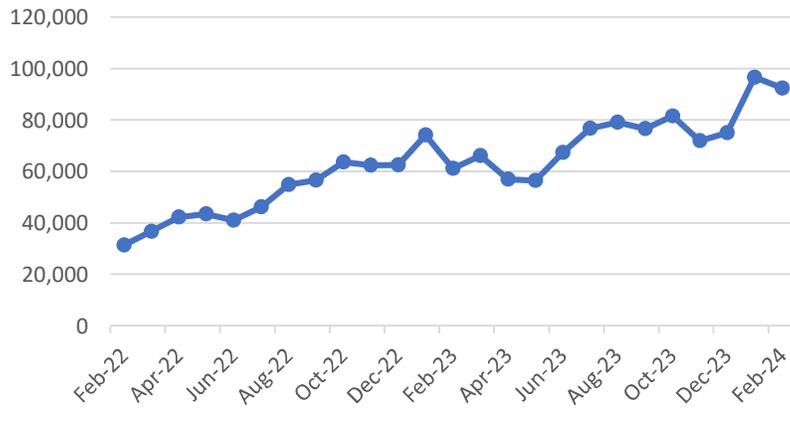
To put numbers to it, March 2022 had 29K calls whereas February 2024 had 12.5K calls.

At an industry standard rate of \$12 per Help Desk interaction, this is **saving the State almost \$2.4M annually**

Help Desk Assisted Public Password Resets



User Self-Reactivation Counts



Password expiration due to account dormancy required Help Desk assisted user reactivation. Passwordless access eliminates expired passwords, and coupled with self-service reactivation has reduced Help Desk assisted account reactivation by 50%, from 16K per month to 8K per month.

Furthermore, the number of citizens using self-reactivation is seven times that of Help Desk assisted reactivation.

This indicated to us that we had gained online engagement of users who previously could not engage with the Help Desk.

As part of the HCD refresh, MiLogin was also able to streamline the new user registration process. This resulted in more users completing the process while spending less time doing it.

Time to Register a New Account

7 min 29 sec
June 2023



4 min 46 sec
February 2024

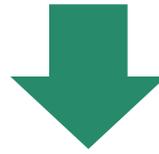
36% decrease

With the HCD refresh, MiLogin was able to reduce the average time to register by 36% by adjusting the user flow to be more single task oriented.

By simplifying the registration process during HCD refresh we were able to streamline the new user registration process which resulted in more users able to complete it

Registration Abandonment Rate

85%
June 2023



15%
February 2024

82% decrease

MiLogin .Next’s passwordless authentication, delivered with a HCD driven focus has been embraced by customers, improving constituent engagement, and enhancing customer satisfaction. Usability studies conducted in 2022 and 2024 showcase the improvement MiLogin has received. In 2022, MiLogin received an average of 2.2/5 stars. In 2024, the satisfaction increased to 4.1/5 stars. After deploying passwordless authentication technology, delivered with a HCD driven approach, MiLogin .Next has provided a secure, phishing proof credential to users, enhanced their access to digital government services, and improved the experience for users, and will continue to do so in the future, aiming to increase overall customer satisfaction while improving end user experience, security, and infrastructure.

2022	 <p>2.2/5</p>
2024	 <p>4.1/5</p>

Overall satisfaction of MiLogin as indicated in results obtained from usability studies conducted in 2022 and 2024.

Conclusion – What is Next?

The successful launch of passwordless authentication, and the HCD approach to deliver it is foundational to the state’s overall MiLogin .Next program, as well as state’s digital services with in flight or planned initiatives to:

- Increase passwordless adoption by running campaigns, and offering is a recourse in traditional password recovery.
- Improve constituent experience by issuing identity and other artifacts like licenses and certificates to a constituent owned digital wallet.
- Create trusted digital identities with identity assurance level commensurate with the digital transaction.
- Drive further cost savings with AI chatbots.