

2023 – The Modern Enterprise

To: Chair and Members of the Board of Health

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Recommendations

It is recommended that the Board of Health receive this report for information.

Key Points

- WDG Public Health employs digital transformation initiatives to create or modify business processes and client experiences to meet changing organizational requirements.
- An Enterprise Resource Planning (ERP) system was implemented to enhance efficiency by automating routine tasks, streamlining workflows, identifying and eliminating redundancies, and providing centralized access to information.
- The new Collaborative Health Record (CHR) system, called Input Health by Telus, replaced the former Electronic Medical Record (EMR) system.
- An Artificial Intelligence (AI) Powered Customer Service Chatbot is being implemented to respond to community concerns efficiently and effectively across

different demographics and increase the understanding of the electronic communication needs of the community post-pandemic.¹

- Advances in Artificial Intelligence, such as ChatGPT can be utilized to enhance organizational effectiveness.²
- A centralized Learning Management System is being implemented to provide online course development to enhance training and development at the Agency.
- Two major cybersecurity projects are being undertaken in 2023 to improve the organization's cybersecurity posture, including IT asset management and Security Information and Event Management (SIEM) systems.³

Background

WDG Public Health recognizes the importance of IT project initiatives to continuously enhance its people, processes, and technology. These initiatives are critical for the Agency to stay competitive in the ever-evolving digital and cybersecurity threat landscape.

From a people perspective, WDG Public Health's digitization initiatives aim to improve efficiencies, increase uptime, boost productivity and enhance customer satisfaction for internal and external clients. In terms of processes, the focus is optimizing existing workflows by re-engineering internal processes, implementing new software tools and integrating different systems. This approach ensures a seamless and efficient workflow, resulting in improved efficiency, reduced costs, and enhanced quality.

Regarding technology, WDG Public Health evaluates and implements new technologies to drive innovation and enhance overall organizational performance. This includes upgrading existing infrastructure, adopting cloud-based solutions and investing in emerging technologies such as artificial intelligence-powered applications. By embracing these advancements, WDG Public Health stays up to date with the latest trends and maintains a competitive edge in the digital landscape.

Discussion

WDG Public Health employs several digital transformation initiatives to position itself as a modern enterprise. Digital transformation is integral for any organization aiming to create new or modify business processes, culture, and client experience to meet changing organizational requirements.

ChatGPT can offer all-around synergistic gains to the Agency. However, the application's ability to quickly analyze and process large amounts of data related to security threats can offer malicious actors a platform to create malicious code to evade an organization's threat intelligence systems. Therefore, it is crucial to have a comprehensive cybersecurity strategy that includes multiple layers of defense to counter these threats.

As WDG Public Health staff and client expectations continue to shape the definition of the modern enterprise, it is also essential that the organization stay up to date with emerging technologies that can enable services within the healthcare sector to evolve and adapt as requirements change. Offering a resilient IT infrastructure, adopting Artificial Intelligence driven technologies, effective information management and constantly staying abreast with the cyberthreat landscape are key enablers for a successful outcome.

Data Centre Equipment Upgrade

One of the strategic directions at WDG Public Health is the need to implement and maintain a comprehensive and reliable information technology infrastructure. In an integrated systems approach, WDG Public Health has invested in and implemented IT infrastructure to set the stage for emerging technologies and applications. With this in mind, WDG Public Health has pushed the bar even higher by migrating its on-premises data centre to a local Tier IV data centre.

The data centre is a 230,000 ft, enterprise-level, Tier IV highly redundant, and highly secure facility intended to support high availability and security informational needs. The primary objective of the facility is to improve overall data centre service quality, enabling organizations to provide client-focused, integrated, accessible and cost-effective services. The Tier 4 data centre is built to be completely fault-tolerant and has redundancy for every component. It has an expected uptime of 99.995%, and 26.3 minutes of downtime annually. Also, the data centre is owned by the Province of Ontario, and therefore any costs associated with its use stay in the public domain.

In April 2022, WDG Public Health migrated its data center at Chancellors Way with all critical servers, networking and telephony equipment into the Tier 4 Data Centre. This step was considered Phase 1 in the journey to provide maximum efficiency for WDG Public Health's critical business applications. Phase 2 hinged on upgrading the equipment hosting the applications and essential services based on the internal equipment refresh cycle. In Oct of 2022, the IT department, alongside the Agency's procurement and finance teams, secured new and enhanced equipment to replace the ageing devices. This new equipment was successfully installed and tested in the first quarter of 2023. The systems are designed to provide performance, simplicity, capacity, security, and high availability for WDG Public Health and its clients.

Digitization Initiatives

Enterprise Resource Planning

Disparate information systems can lead to significant inefficiencies in today's fast-paced work environment, adversely impacting overall performance. To address this issue and embrace complete digitization at the Agency, an Enterprise Resource Planning (ERP) system was fully implemented by the end of last year. This comprehensive project encompassed the integration of critical functions such as Finance and Human Resources.

By automating routine tasks, the system significantly reduced the time and effort previously spent on manual processes. Additionally, the streamlined workflows facilitated seamless communication and collaboration between departments, leading to smoother and more effective operations. For example, the consolidation of information has also improved the creation of Ministry reports from both a Finance and HR perspective.

In summary, the ERP implementation at WDG Public Health has proven to be a transformative initiative, as it has successfully achieved its primary goal of enhancing efficiency. The organization has experienced tangible benefits, including process automation, streamlined workflows, cost reduction and increased productivity, setting a solid foundation for future growth and innovation.

Collaborative Health Record

The Agency always strives to be at the forefront of empowering internal healthcare teams to deliver high-quality care through leading-edge technology. Through focused research and analysis, a new Collaborative Health Record (CHR) system known as Input Health, a Telus Health product, was selected to replace the former Electronic Medical Record (EMR) system.

Since shifting to a new CHR system, several WDG Public Health teams transitioned to Input Health in 2021/2022. Client and Community Support led the way at the end of 2021, using the system to record client interactions. The online booking feature also supported COVID-19 vaccine clinics.

Additional teams were brought on board during Q1-Q2 of 2022, including Clinical Services, Vaccine Preventable Disease and School Health. The system has been customized to meet documentation needs. It allows for many public health operations, including outbreak investigations, case management, appointment scheduling and booking, prescribing medications, referring to other teams or services, billing, data tracking and export, reporting dashboards and more.

Input Health is constantly improving, with a roadmap that includes features of interest such as video consultation and lab integration. Most program areas completed onboarding and content creation by the end of September 2022. As the system evolves and new functions are implemented, designated staff remain involved with refining the processes and maintaining efficient workflows.

AI-Powered Customer Service Chatbot

Organizations increasingly utilize AI-powered systems to drive innovation and technology in today's digital landscape. The pandemic has further demonstrated the need for new and scalable modes of communication. As such, the Agency has embarked upon implementing an AI-Powered Chatbot for the public website. In speaking about AI-Powered, the technology within the product will assist internal subject matter experts in crafting questions and answers for the public.

This Chatbot will enhance communication with the public through known questions and answers with the opportunity to speak to a live chat agent within the Client and Community Support team if desired. Currently, the application is envisioned to be an additional arm to providing health care services with the possibility of additional program use.

The anticipated benefits are as follows but not limited to:

- The ability to respond to community concerns efficiently and effectively across different demographics.
- An increase in the understanding of the electronic communication needs of the community post-pandemic.
- Further informatics regarding the quality of information on the public website, staff training and further program collaboration opportunities.

Advances in Artificial Intelligence

Generative AI, such as ChatGPT, is a cutting-edge technology that can autonomously create content by understanding and predicting various patterns.⁴ This innovative tool can be used in numerous ways to enhance efficiency and productivity when applied responsibly. Recognizing its capabilities and limitations is essential to harnessing its full potential. At WDG Public Health, ChatGPT could be utilized to help in various ways, including:

- Content Creation: Streamline marketing efforts by generating creative materials.
- Overcoming Language Barriers: Translate communications for diverse audiences.
- Email and Communication: Craft well-structured emails and messages.
- Presentation Development: Draft engaging and informative presentations.
- Employee Training: Create customized training materials.
- Data Exploration: Analyze and interpret data patterns.
- Client Surveys: Generate insightful questions for feedback collection.
- Idea Generation and Brainstorming: Foster innovative thinking within the organization.

In summary, the Agency recognizes the potential of ChatGPT to enhance its operations. It has identified several potential use cases, including customer service automation, data analysis, knowledge management and training and development. By leveraging the positive capabilities of ChatGPT, the organization's goal is to improve its efficiency, effectiveness and overall performance.

Learning Management System (LMS)

As part of the ongoing digital transformation journey, the Agency recognizes the importance of a centralized learning management system. This system plays a vital role in facilitating the efficient training and development of internal and external stakeholders. An LMS becomes a key enabler of the Agency's operations by integrating with various program functions such as human resource management, information security, workflow management and customer relationship management.

The Agency envisions enhancing several areas through the implementation of this learning management system, including the following:

- Online course development: The system will support creating and delivering online courses, enabling flexible and accessible learning opportunities for stakeholders.
- Competency-based training and management: The system will provide a framework for identifying, tracking, and managing the competencies required for different roles within the Agency. This approach ensures that training aligns with specific job requirements and promotes professional growth.
- Onboarding training: The system will streamline the onboarding process for new employees, providing them with the necessary resources and training materials to quickly integrate into their roles and become productive members of the organization.
- Workplace safety training: The system will offer modules and resources to educate and train employees on workplace safety practices and protocols, fostering a culture of safety and well-being.
- Information Technology Training: Given the significance of technology in today's landscape, the system will provide training modules to enhance the IT skills of employees, enabling them to adapt to emerging technologies and effectively utilize digital tools.

By focusing on these areas and leveraging a centralized learning management system, the Agency aims to enhance its training and development initiatives, ultimately driving organizational effectiveness and meeting the evolving needs of its stakeholders.

Cybersecurity Improvements

Cybersecurity is a critical element of any organization's operations. Various tools and techniques can be used to enhance cybersecurity. In 2023, the Agency is undertaking two major projects to improve its cybersecurity posture.

The first project focuses on asset management, a core aspect of cybersecurity. One technique to achieve this is managing and securing the organization's devices. This includes monitoring and controlling device access, ensuring they are updated with the latest security patches, and securing lost or stolen devices. The organization can minimize the risk of unauthorized access and data breaches by implementing these measures.

Another technique that can be employed is using Security Information and Event Management (SIEM) systems. These systems enable organizations to collect and analyze security-related data from various sources to detect and respond to real-time security incidents. By leveraging these tools, the organization can quickly identify and mitigate security threats before they cause significant damage.

IT will stay vigilant and continually ensure that IT security is top of mind for all staff. Threats revolving around IT security governance will never be eradicated and will only become more prevalent as we move into the future. A more comprehensive cybersecurity report is set to be delivered to WDG Public Health's Board of Health in November 2023.

Health Equity Implications

Employment of digital transformation initiatives by WDG Public Health can have positive health equity implications in the following ways:

- The implementation of an AI-Powered Customer Service Chatbot can provide efficient and effective responses to community concerns across different demographics, improving accessibility and reducing barriers to healthcare services such as supporting multiple languages, which can lead to better health outcomes for all clients.
- The implementation of a new Collaborative Health Record system can lead to increased collaboration between healthcare teams and more efficient and effective case management, ultimately improving health outcomes for all clients.

- Upgrades to the WDGPH data center can improve overall service quality, ensuring that sensitive health information is protected and increasing trust between clients and healthcare providers.
- The two major cybersecurity projects undertaken in 2023 can help protect sensitive health information from cyber threats, which can prevent breaches of personal health information that could negatively impact clients' health outcomes.

Conclusion

The Agency has been undertaking digital transformation initiatives to consistently improve its people, processes, and technology. These initiatives aim to enhance efficiency, reduce costs, and improve the quality of services for both internal and external clients. From a technology perspective, WDG Public Health has implemented various projects, such as upgrading its data center, implementing an ERP system, introducing a collaborative health record system and planning to deploy an AI-powered chatbot to improve communication with the public.

The Agency also recognizes the potential of ChatGPT to enhance its operations. In summary, it has identified several potential use cases, including customer service automation, data analysis, knowledge management, and training and development. However, the potential downsides of using ChatGPT from cybersecurity and privacy perspectives must also be considered.

WDG Public Health's past and current digital transformation initiatives have successfully enhanced efficiency and improved the quality of services for internal and external clients. In summary, continuing digital transformation initiatives are crucial for organizations to maintain their competitive edge, improve efficiency, enhance customer experience, adapt to market changes, make data-driven decisions, empower employees and foster innovation and growth.

Ontario Public Health Standards

Foundational Standards

- ☐ Population Health Assessment
- ☒ Health Equity
- ☒ Effective Public Health Practice
- ☒ Emergency Management

Program Standards

- ☐ Chronic Disease Prevention and Well-Being
- ☐ Food Safety
- ☐ Healthy Environments
- ☐ Healthy Growth and Development
- ☐ Immunization
- ☐ Infectious and Communicable Diseases Prevention and Control
- ☐ Safe Water
- ☐ School Health
- ☐ Substance Use and Injury Prevention

2023 WDGP Strategic Directions

- ☒ **People & Culture:** WDGP has an organizational culture of engagement, inclusion and agility.
- ☒ **Partner Relations:** WDGP collaborates with partners to address priority health issues in the community.
- ☒ **Health System Change:** WDGP is positioned to be an agent of change within the broader health sector.

References

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