



A Look at Major Healthcare IT Trends in the Public Sector for 2024

How Lumen can help public health agencies achieve their missions everyday



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Public health agencies are facing unprecedented challenges today. Healthcare providers are struggling to manage and exchange data using outdated technology and disparate, legacy systems that hinder performance. As they work to improve patient and clinician experiences while addressing financial difficulties, staffing shortages, equity disparities, and clinician burnout, public agencies are turning to modernization efforts and the adoption of new technologies for help.

Modern platforms and new technologies can help facilitate many of these challenges such as broad-based data exchange, managing immunization registries, syndromic disease surveillance, and electronic case reporting. But the data must be relevant and actionable at the federal, state and local levels. This requires strategic planning and forethought often with an IT expert who has the expertise across technology concerns. When executed correctly, these new technologies can allow public health agencies to respond to healthcare needs and events, quickly, securely and effectively.

Optimizing resources, streamlining processes, developing a skilled public health informatics workforce, and using cross-sector data analytics are all strategies Chief Financial and Technical Officers can deploy to make informed decision-making for their healthcare systems, enabling efficient resource allocation for maximum impact.

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Ensuring compliance and security for patient data presents another critical challenge within public health systems. Adherence to the Health Insurance Portability and Accountability Act (HIPAA) is necessary to safeguard sensitive patient information. Robust security measures are essential to protect patient privacy while sharing vital health data and prevent unauthorized access. The recent global health crisis has highlighted the need for robust surveillance systems to detect and manage emerging health threats. Chief Security Officers across public agencies have recognized the increasing evidence of security gaps and the need for new, secure measures to be put in place.

With each new challenge, it has become increasingly clear that innovative solutions and collaborative efforts are needed to strengthen public healthcare systems and ensure their mission of delivering high-quality care to their communities.

What are the challenges

Investments in IT healthcare can unlock the door to a better future

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Everyday, healthcare systems face increasing demands and challenges in delivering quality care to their patients. To meet the growing demands of healthcare today, leaders recognize the need to invest in modernizing their infrastructure. This includes supporting applications and collaboration tools that maximize impact on clinician performance and enhance the patient-clinician experience. Implementing solutions and tools that enhance performance can maximize productivity and help ensure innovation that supports optimal patient care while also maintaining business resiliency, continuity, and security measures.

Strategic IT investments enable healthcare agencies to:

-  Maximize & broaden treatment options
-  Enhance accuracy and note-taking
-  Accelerate drug and treatment trials without compromising safety
-  Easily share critical information and insights from readily available digital records between patients and providers

Digital connected care ecosystems

Designed for secure, scalable experiences for communities big and small

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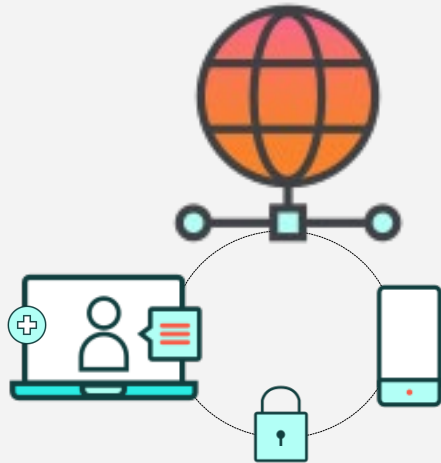
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Key IT investment trends that revolutionize the way healthcare providers operate to change patient and clinician experiences for the better

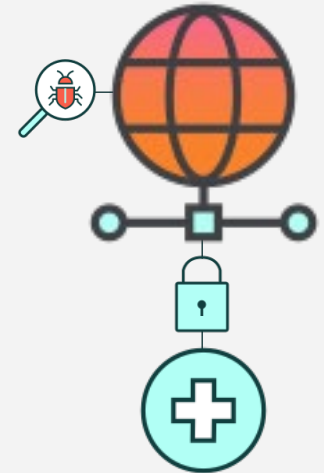
A seamless, collaborative infrastructure through a connected ecosystem



Optimizing resources for maximum benefit



Compliant safeguarding of healthcare data



LUMEN®

Digitally Connected Healthcare Communities

How aging technology inhibits performance

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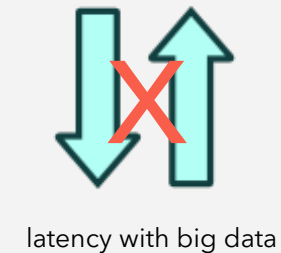
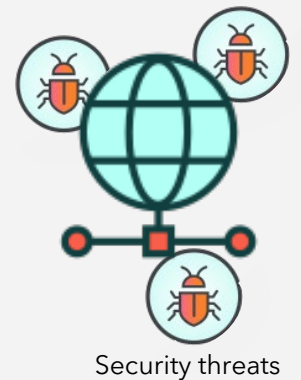
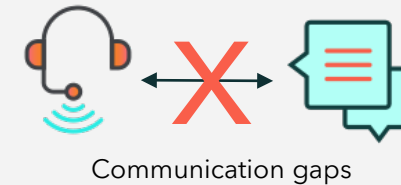
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When public sector healthcare agencies aim to modernize their infrastructure and enhance performance, they face several key challenges. These include dealing with outdated systems and infrastructure, insufficient automation, communication gaps between agencies, and underinvestment in organizational development. Addressing these hurdles is crucial in creating a more agile, data-driven, and responsive healthcare system. This helps improve overall performance and enhances public health outcomes, ultimately benefiting both agencies and the communities they serve.

Everyday Challenges



The Lumen approach and the benefits gained

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Lumen helps public health agencies update their digital infrastructure by combining modernization, connectivity, and security. This approach empowers clinicians, enhances patient experiences, and helps ensure uninterrupted healthcare services.

By investing in upgrading or replacing legacy systems with modern, interoperable technology, agencies can implement cloud-based solutions, adopt open standards, and migrate to newer platforms. Automation of routine tasks using RPA, AI, and ML, as well as the implementation of EHR systems, can further streamline processes, enhancing performance.

Lumen can help establish cross-agency collaboration platforms, enabling secure data sharing and the creation of standardized protocols.

Through these strategies, healthcare agencies can prioritize talent development, training, and capacity building, helping build a culture of innovation. The result is a resilient digital infrastructure that balances performance and protection, ultimately benefiting both healthcare providers and patients.

A modern infrastructure



Empowers clinicians



Enhances patient experiences



Expands business resiliency



Balances security and performance

Use cases for digitally connected care

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Managed Services for Core Network Upgrade

Lumen collaborates with healthcare systems to modernize their core networks. Lumen worked with the Interior Department to upgrade their core network infrastructure and implemented managed services to provide seamless connectivity, reduced latency, and improved data transmission. Lumen can extend connectivity to the edge, enabling data collection and transmission closer to the point of care, such as a rural clinic using edge computing to monitor patient vitals remotely. The Lumen infrastructure facilitates real-time data exchange, which can enhance patient outcomes.

Clinician & Patient Experiences

Lumen offers a suite of connected applications capable of handling big data and virtual collaboration enabling clinicians to securely review patient records, order tests, and collaborate with specialists and patients within a connected healthcare network. This is designed to streamline workflows, reduce administrative burden, and improve patient care. **Accolade, a provider of personalized health and benefits solutions for employers, has ~ 75% of their network traffic as real-time data.** After examining their needs and desired outcomes in a working session, the Lumen team proposed a solution that included upgrading their network to DIA from MPLS, implementing SD-WAN, and using Lumen Managed Solutions for monitoring and performance. **As a result, Accolade has experienced increased speed in handling calls and improved customer satisfaction, as tracked through analytics.**

Business Resiliency

Lumen prioritizes security while maintaining performance by deploying robust cybersecurity measures such as intrusion detection systems, firewalls, and encryption to protect patient data from cyber threats without compromising network speed. In unforeseen events such as natural disasters or cyberattacks, Lumen provides business continuity, for instance, during a power outage, Lumen's backup systems kick in seamlessly, allowing clinicians to access critical patient information without disruption.

Balancing Security and Performance

Lumen enables secure data exchange among healthcare providers, ensuring compliance with privacy regulations such as HIPAA while maintaining high-speed data transfer, for instance, a regional health network sharing patient records across hospitals. Lumen also enhances performance through network optimization techniques, prioritizing Quality of Service (QoS) for real-time applications such as telemedicine and video consultations, enabling minimal latency and efficient care delivery.

Optimize resources for taxpayer value

The inherent challenges of balancing resource allocation for maximum benefit

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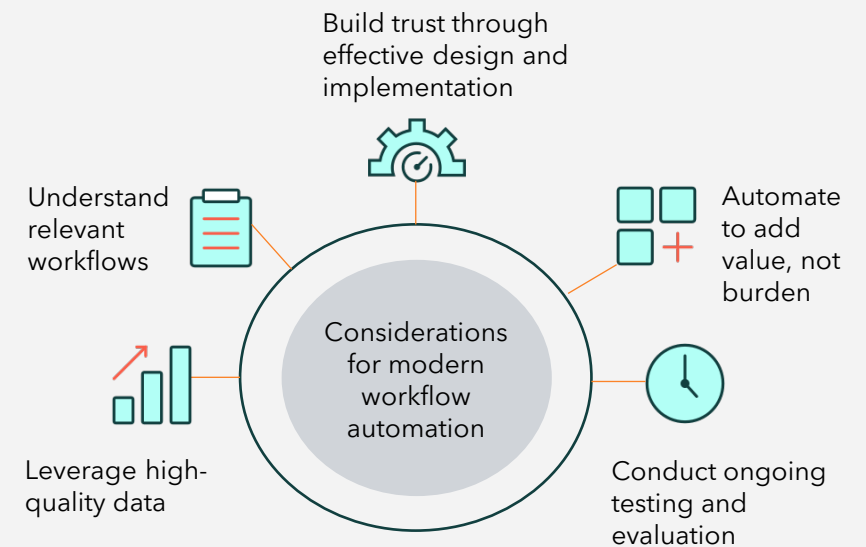
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Public health systems face multiple challenges as they strive to enhance efficiency and effectiveness within budget constraints and funding challenges. Healthcare IT leaders must balance digital and physical experiences for their patients and clinicians. New technologies and applications can streamline and automate processes, such as improving workflows for reporting, data collection, and analysis, thereby maximizing the benefit of the budget investment. These types of optimizations help decrease human error, increase performance, and allow public agencies to provide expanded, simplified patient services, maximizing the benefit of taxpayer funds.



Automation can improve efficiency in health care delivery across several domains, leading to cost savings and better resource utilization¹

1. Journal of the American Medical Informatics Association, [Priorities to accelerate workflow automation in health care](#), January 2023

Achieving mission objectives through optimization

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Lumen provides public health agencies with the tools to help effectively allocate resources, reduce waste, and prioritize patient well-being. By utilizing technology and data, agencies can maximize taxpayer funds and deliver high-quality care.

When supporting public health agencies in their IT transformation journey Lumen offers multiple IT solutions that optimize resources. With a robust partner ecosystem and skilled expertise, Lumen helps ensure efficient modernization allowing already constricted budgets to go further.

Lumen can architect connected IoT, cloud, and edge computing resources, enabling public sector entities to acquire, analyze, and act on massive data securely, cost-effectively, and with low latency.

With integrated voice, video, and web solutions that support efficient communication Lumen helps empower teams and sites to achieve their mission of collaborative and accessible patient care through strategically allocated funds.

- 
- Streamline reporting workflows
 - Data-driven decision-making
 - Telehealth optimization
 - Reduce duplication and waste
 - Patient-centric services

Use cases supporting optimization

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Streamline reporting workflows:

Public health agencies often deal with extensive reporting requirements, from disease surveillance to program outcomes. Lumen can streamline these workflows by automating data collection, aggregation, and reporting. For example, Lumen can automate the compilation of epidemiological data reducing manual effort and ensuring timely reporting to health authorities and simplify the capture of quality metrics (e.g., vaccination rates, cancer screenings) by integrating with electronic health records. This data can then inform funding decisions and resource allocation.

Telehealth optimization:

Telehealth has grown in usage after its necessity during the pandemic. Lumen can provide the networking and solutions needed to support virtual visits, allowing agencies to optimize funding by expanding telehealth services, tracking virtual visits, monitoring patient satisfaction, and monitoring reimbursement compliance. Lumen can also implement solutions that can integrate with remote monitoring devices (e.g. wearable sensors), allowing agencies to allocate funds to support patients at home and reduce hospitalizations. **Accolade, the Lumen customer** mentioned earlier, has seen an increase in call quality, reliability, and customer satisfaction since implementing their new Lumen DIA, Lumen SD-WAN, and Lumen Managed Solutions for monitoring and performance. Additionally, **they have experienced a 40% monthly cost reduction** compared to their previous solution. By **implementing Lumen Solutions, public sector agencies could see similar cost savings, allowing their budgets to extend further** and potentially fund new or upgraded technology, **providing more value for tax funds.**

Reduce duplication and waste :

Lumen can identify areas of inefficiency, leading to cost savings to maximize budgets. By implementing solutions to track test orders and results, Lumen can help prevent unnecessary duplicate tests, allowing funding to be redirected to more impactful interventions. Lumen provides solutions to help monitor inventory levels, preventing overstocking or shortages, and allowing agencies to allocate funds strategically for essential supplies.

Patient-centric services: Lumen enhances patient experiences while optimizing funding. Lumen can help facilitate communication among providers, to help reduce redundant services and allow more funding to be allocated to care coordination teams. Investments can be made to IT infrastructures to support patient portals allowing patients to access their health information independently to help reduce administrative costs, and in a timely manner, improve engagement and the patient experience.

Safeguarding Healthcare Data

Secure Compliance: Safeguarding Healthcare Data

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In today's digital-first landscape, securing patient data within public health systems remains a critical challenge. With a wide variety of stakeholders, there are different security priorities to manage, such as implementing access controls and conducting regular security training. Further complicating the path to secure connectivity is the number of medical devices operating on legacy systems. As more organizations move to IoT devices, networks require more secure scalability.

In addition, these healthcare organizations need to adhere to the Health Insurance Portability and Accountability Act (HIPAA) to ensure the protection of sensitive patient information. As digital footprints expand with hybrid work environments and virtual access to clinicians, robust security measures are essential to safeguard patient privacy during data sharing and prevent unauthorized access. At the same time, organizations need to recognize their fiduciary responsibility to wisely allocate funds to help ensure a holistic approach to both security and financial stewardship.



Of cybersecurity attacks

Are rooted in IoT devices making healthcare organizations more vulnerable as they seek to be more technology forward.



Of all healthcare data

Has been compromised in a data breach, proving how patient and healthcare data is vulnerable if not protected against attacks.

1. **ACL Digital**, [Impact of Cybersecurity in Shaping the Healthcare Ecosystem in 2024](#). Jan. 2024
2. **SafetyDetectives** [Healthcare Cybersecurity: The Biggest Stats and Trends in 2023](#)

Mission critical strategies for securing data

How Lumen can help you achieve your healthcare missions

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Lumen's comprehensive approach—combining IT security expertise, proactive threat management, and compliance guidance – can position healthcare organizations to thrive in an increasingly digital and secure landscape. Lumen offers a robust security solution for healthcare organizations seeking to bolster their digital infrastructure.

By partnering with Lumen, organizations can build a resilient system that not only safeguards against cyber threats but also aligns with the latest government security standards. Lumen expertise helps ensure that their security posture is enhanced effectively.

Lumen security experts can provide guidance and expertise, assessing an IT ecosystem and recommending strategies to maintain compliance while enhancing security.

Additionally, Lumen's proactive approach helps protect critical data by swiftly addressing cyber threats and helps ensure the safety of mission-critical healthcare information through comprehensive threat detection and support.



Build digital resiliency



Align with security standards



Swift threat response



Guidance for compliance

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Build digital resiliency:

Imagine a large hospital network that relies on interconnected systems for patient records, diagnostics, and communication. Lumen's expertise helps them build a robust digital infrastructure that withstands cyber threats. For instance, Lumen can deploy intrusion detection systems that monitor network traffic, promptly identifying any unauthorized access attempts. By doing so, this helps the hospital's critical services to continue uninterrupted.

Align with Security Standards:

Consider a public health agency responsible for managing sensitive health data. Lumen assists them in aligning their IT practices with the latest security standards, such as HIPAA (Health Insurance Portability and Accountability Act). Through regular security assessments, Lumen identifies gaps and recommends necessary adjustments. For instance, they might suggest implementing encryption protocols for data at rest and in transit, to help compliance and safeguarding patient privacy.

Swift Threat Response:

Picture a regional healthcare provider facing a sudden surge in cyberattacks. Lumen's security team can swiftly detect a ransomware attempt targeting their electronic health records. They can isolate the affected systems, prevent data encryption, and restore services from secure backups. By acting promptly, Lumen can help prevent potential disruptions to patient care and maintain the integrity of critical medical information.

Guidance for Compliance:

A community clinic wants to expand telehealth services. Lumen's experts can review their telemedicine platform, assessing its security controls. They could recommend implementing access controls to restrict unauthorized user access and regular vulnerability scans to identify potential weaknesses. This guidance will help the clinic remain compliant with regulations while offering secure virtual consultations.

Accolade – a customer case study in healthcare ([read the full study](#))



Challenges

- High bandwidth to handle large volumes of real-time data
- Secure access to cloud-based data and applications
- Support fully remote workforce



Solutions

- Lumen® Dedicated Internet Access (DIA) provides connectivity for all applications
- Lumen® SD-WAN with Versa Networks handles optimal routing for real-time data
- Lumen® Managed Solutions for monitoring performance and traffic



Results

- Improved call quality and reliability
- Improved customer satisfaction
- 40% monthly cost reduction vs. previous solution

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Healthcare organizations face challenges in modernization, optimization, and security. To tackle these challenges, agencies must consider investing in infrastructure modernization, resource optimization, and robust security measures. As society embraces technological advancements, expecting their interactions with healthcare agencies to perform much the way they do in other areas of life, the demand for high-performing, cost-efficient, and secure technology ecosystems grows. Lumen offers solutions that combine modernization, connectivity, and security.

By partnering with Lumen, healthcare agencies can build resilient systems that protect against cyber threats, adhere to government security standards, and empower clinicians. Consider these examples demonstrating the value of partnering with Lumen: Regarding modernization, Lumen collaborates with healthcare systems to modernize their core networks, for instance, by working with the Interior Department to upgrade their core network infrastructure. By supporting modern applications and collaboration tools agencies can enable enhanced clinician performance and the patient-clinician experience. These tools can also help ensure business resiliency, continuity, and security during times of crisis.

In terms of optimization, Lumen can help agencies streamline reporting workflows by automating data collection, aggregation, and reporting. For instance, Lumen can offer solutions to help automate the compilation of epidemiological data to help reduce manual effort and support timely reporting to health authorities.

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For security challenges, Lumen can deploy intrusion detection systems that monitor network traffic, promptly identifying any unauthorized access attempts. This helps ensure the hospital's critical services remain uninterrupted.

When empowering public health agencies with the right tools and services, public health agencies can better allocate resources, reduce waste, and prioritize patient well-being. By leveraging technology and data, agencies maximize taxpayer funds while delivering high-quality care.

By partnering with Lumen, public health agencies can build a resilient system that not only safeguards against cyber threats but also aligns with the latest government security standards. Lumen's expertise helps ensure that an organization's security posture can be enhanced effectively.

With this holistic approach towards assisting public health agencies, Lumen offers a balance of performance and protection, with opportunities to maximize resource allocations. Lumen offers robust solutions for healthcare organizations seeking to bolster their digital infrastructure designed to help empower clinicians, enhance patient experiences, and help provide uninterrupted healthcare services allowing healthcare agencies to strike the balance they need to achieve their missions.

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