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A Frost & Sullivan White Paper

Leveraging a Healthcare Content Services Platform to Improve Performance and Outcomes

Enable a holistic patient view and future-proof your content and imaging strategy

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Healthcare Landscape Changes Require Right Infrastructure to Succeed

Healthcare organizations are currently experiencing a time of dynamic change, requiring adjustments to strategy and operations to ensure survival. The COVID-19 pandemic has shed light on the importance of infrastructure to enable organizations to be agile to change and scale with demand. This has driven investments related to virtualization, cloud-services and enterprise access. The need to reduce costs and provide for improved population and enterprise management have also changed IT requirements. As a result, we are seeing greater provider consolidation, digitization and growth in cloud services and personalized communications to drive the optimization of clinical, financial and operational outcomes.

While digitization of healthcare data is essential to providers and health plans for optimal business performance, organizing, normalizing and aggregating data to make them useful remain difficult due to exponential growth in data sets and unstructured content that is not integrated in electronic medical records (EMRs) or other core enterprise systems. The COVID-19 pandemic has demonstrated that cloud adoption is an important tipping point in the ability for healthcare organizations to rapidly and cost-effectively respond to change. Cloud is an enabler to help drive healthcare transformation, given its many advantages as compared to on-premises models, ranging from operational to cost factors. According to Frost & Sullivan research, we are currently in an acceleration phase for adoption of cloud-based anything-as-a-service (XaaS) models and imaging informatics[1]. The desire to expand market share to enhance population health management and achieve cost-saving efficiencies is driving more mergers and acquisitions. Healthcare organizations that have not made appropriate investments in staff, information technology and facilities to improve operations and quality of care have become easy targets for acquisition. Personalization in healthcare touches on changing demands from patients, providers and other stakeholders for a more targeted, curated and individualized experience. Driven from people's experiences in other industries, it is an area where healthcare continues to strive to catch up in approach, value and return.

> **Cloud-based imaging and content management solutions are growing by over 20% annually.**
>
> – *Frost & Sullivan*

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Current Demands on Healthcare Organizations Regarding Data, Content and Images

Unstructured data provides a wealth of informational power to healthcare organizations. The challenge is designing a strategy for and sourcing the right solution to unlock stakeholder access and value for a variety of evolving needs. Changing regulatory requirements can cause healthcare organizations to struggle with multiple formats and versions of their information and compliant lifecycle management of records.

Unstructured data is growing at 55–65% annually[2], and more than 75% of overall patient data is unstructured or semi-structured[3], potentially resulting in important information lost in the workflow and in silos tethered to individual imaging archives or other disparate systems. New technology and innovations are producing larger and more complex imaging datasets including both DICOM and non-DICOM data, making it more complex and difficult to store and distribute imaging content across the enterprise as well as exchange that information with other organizations.

> "With more than 75% of patient data unstructured and growing by more than 50% annually, healthcare organizations need better ways to unlock that value and maximize its potential."
>
> – Frost & Sullivan

Optimal interoperability and easier data integration are challenging. For example, 38% of providers do not use information received electronically from outside their health system for reasons such as it was not timely, in a useful format, integrated with the EMR, easy to find or integrated with clinician workflow.[4]

System usability is an important focus point for healthcare end-users. Reducing the need to switch platforms and automating manual processes are two ways to make their jobs easier. Healthcare providers need centralized medical imaging applications and viewers to support care decisions and prevent unnecessary costs. Lack of a unified information approach can complicate provider process and workflow improvement objectives.

The explosive progression and scaled use of virtual/remote work and care delivery (e.g., telehealth, remote patient monitoring) is forever changing the way healthcare is experienced and practiced. Going forward, healthcare consumers will experience a mix of virtual and in-person healthcare approaches depending on where they are in terms of the continuum of care (e.g., primary care, pharmacy, specialist care, home health, etc.). Healthcare workers today require the ability to access enterprise systems both within and outside the brick-and-mortar setting—including both structured and unstructured sources. This is important for clinical purposes such as reading and reporting, access to images and other forms of content and provider collaboration. It is also required for non-clinical functions that relate to revenue cycle management and areas such as HR and legal to enable workers across a range of organizational functions to do their jobs effectively.

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Accelerating to a New Normal

The challenges we have discussed are not new, but the healthcare market pre-pandemic had been moving at an agonizingly slow pace to address these issues. Multiple proprietary or custom built systems with integration and interoperability issues have been a characteristic of the market and healthcare workers have constantly complained about the myriad systems they have to sign-on to and the different views each system gives, with no standardized way of collaborating with stakeholders such as doctors, nurses, specialists, researchers, dieticians, technicians, bed management, or environmental services, among others.

Information curation has also been extremely poor, with storage systems bloated with duplicates or files still kept long after their expiration. Many files have been lost, as they have been filed deep within a badly organized folder structure, requiring needless re-creation of existing information. All of this costs time and money – and a lot of it.

To transform, at the heart of any healthcare workflow, what is needed is a holistic and highly interoperable information management system that leverages content metadata to provide contextual intelligence that learns as it is used and provides highly targeted discovery and enables a unified view of all relevant information based on the user's defined role. Imagine implementing such a robust interoperable enterprise-grade information management system that can save a healthcare worker one hour a day in information discovery. Assuming this employee works for 250 days a year and his/her fully burdened cost is $200/hour, you are looking at the following annual savings:

You have not just saved $50,000 on this one employee but this employee has now also saved 250 hours in a year that can be spent on more productive tasks than just content discovery - so, it's not just the bottom-line that gets affected but also the top-line. Further, this example only takes into account just one task (information discovery) for one worker. When you start scaling these up across a healthcare organization, the cost savings and productivity gains become very difficult to ignore.

Now factor in having this sort of system in the cloud, freeing up your IT assets, and the numbers just keep becoming more attractive. It is this sort of economic impact that has forced healthcare organizations to re-evaluate their information management strategy, especially as digital content becomes even more pervasive as digitized data continues to accumulate.

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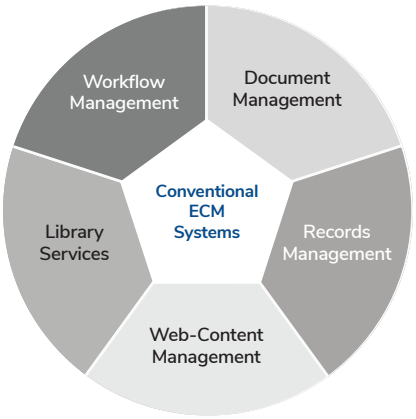
Moving from Conventional Enterprise Content Management to Next Generation

Conventional, on-premises enterprise content management (ECM) systems (Figure 1) focus on capabilities including document management and scanning, library services, centralized storage, web-content management, records management and workflow management, making information available through a web-based platform. Legacy core ECM value included a main focus on non-clinical use areas such as integrating content with enterprise resource planning (ERP) or customer relationship management (CRM) systems. However, from a healthcare perspective, where process and context is very important, what is still missing is context aware processes and process agnostic content.

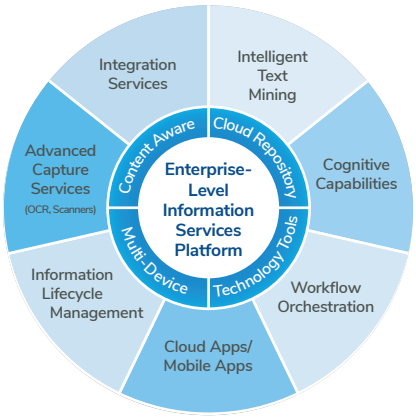
Figure 1: Conventional ECM with Core Capabilities



There has been a significant evolution in terms of the demands and needs in healthcare organizations including how and where information is stored, accessed, processed and leveraged. Demands related to content management today are about enabling organizations to become intelligent enterprises across the board, requiring ECM platform capabilities to evolve in terms of a next generation approach, supporting a range of clinical and non-clinical needs and embracing innovations such as artificial intelligence, mobile, vendor neutral archives (VNAs), point-of-care image capture and the cloud.

Holistic Patient View Enabled by Combining Enterprise Content and Enterprise Imaging as a Platform

Figure 2: Next Generation Healthcare Content Services Platform



Today, it is imperative for hospitals and health systems to consolidate departmental silos into a unified enterprise strategy—one that includes **both clinical content and medical imaging**. This seamless integration is paramount for delivering efficient and quality care and to support end-to-end digitization. The importance of securely accessing, analyzing and integrating patient and member data into core business systems is driving the need for a new generation of content management solutions that can consolidate unstructured data from multiple IT systems and archives and incorporate both non-DICOM and DICOM images. This new enterprise content management approach is commonly referred to as the healthcare content services (HCS) platform (Figure 2), which helps improve information flow, data governance and operational efficiency among other benefits. Healthcare digitization initiatives, paperless drives, government incentives and key initiatives to streamline the care process—particularly in public-private partnerships—are key adoption drivers for HCS systems.

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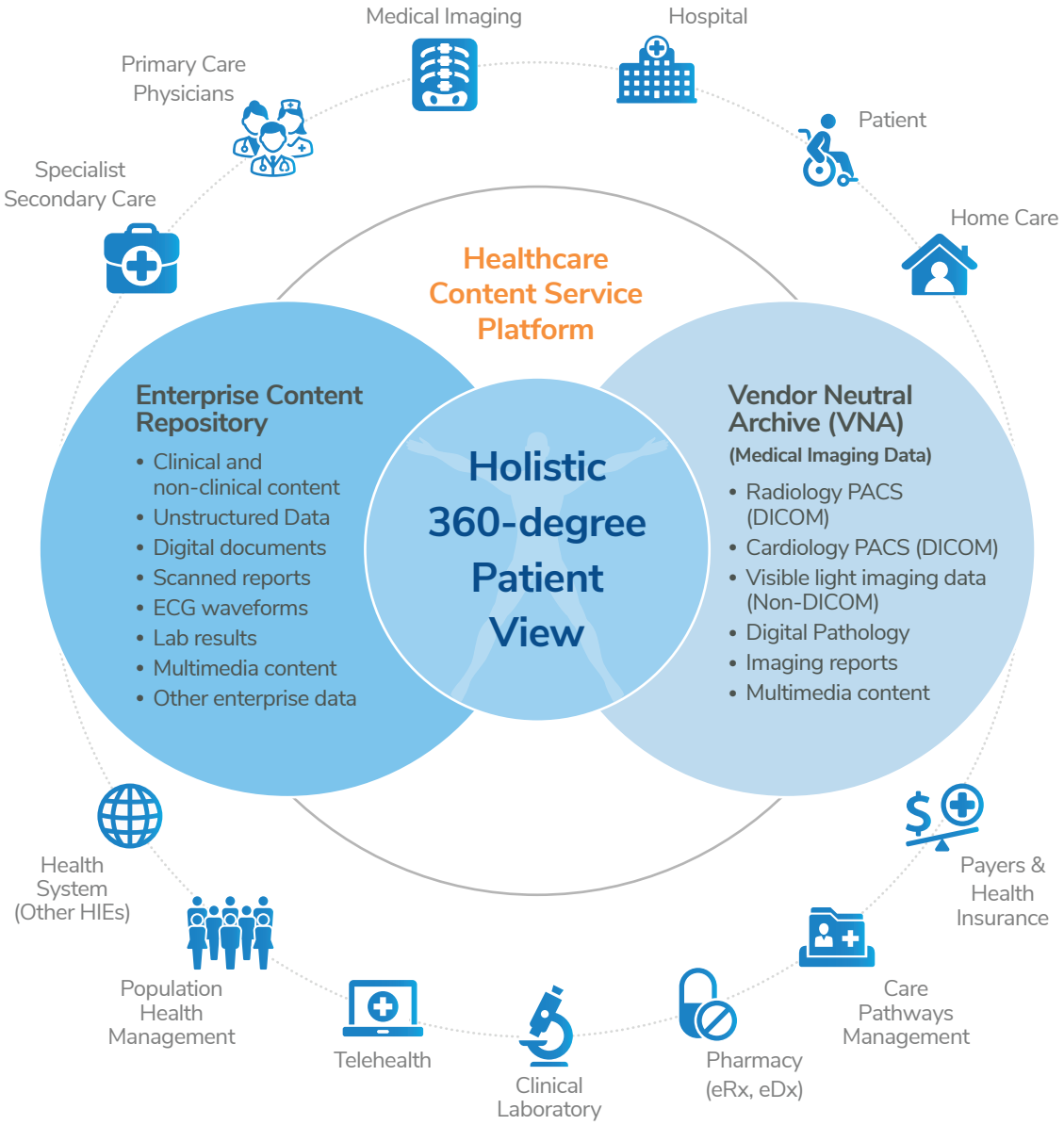
Enabling the Total Patient Picture

A leading issue in the healthcare market today is the need to deliver a holistic view of the patient for care decisions. HCS platforms strive to enable healthcare organizations to do exactly that by bringing the increasing range of disparate unstructured sources of information together across enterprise content and enterprise imaging, so a full view of the patient can be truly seen (Figure 3). A single HCS platform with those capabilities can enable enterprise-level consolidation of patient data, images, lab results, multimedia content, reports and more. In addition, such a platform can collate and present information in the appropriate context integrated within the core business system, enabling healthcare stakeholders to curate and leverage a longitudinal health record that creates a complete 360-degree view of the patient.

Figure 3



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Benefits of an Enterprise Platform Approach to Content Services and Imaging

Empowering Healthcare Organizations with a Holistic Approach to Information Management

Often, when content or information management is discussed, conversations lead immediately to storage. A progressive, next-generation enterprise HCS approach enables organizations to leverage the platform to gain immense value beyond storage. Important capability examples include:

- Secure collaboration for end-users on processes, documents and content
- Simplified tools enabling rapid development of low-code apps
- Personalized patient/member communications and engagement
- Automated multi-channel capture of physical and electronic information
- Efficient enterprise search
- Secure retention and records management and automated destruction of documents and records within organization compliance standards

> **Healthcare content services platforms enable healthcare organizations to bring the increasing range of disparate content sources together, so a full view of the patient can be truly seen.**
>
> – Frost & Sullivan

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Adding Value Through a Content Services Platform

Medical Mutual utilizes content services to facilitate health system collection of medical records for claims that require further review. Elimination of handling for mailed documents and task automation accelerated processing of these claims by 82%. Health systems also reduced their costs and benefited from faster payment.

BETTER INSIGHTS FOR MORE INFORMED DECISIONS

- Improved information interoperability for the enterprise by breaking down departmental silos and enabling multi-ology image management
- Expanded access to unstructured content
- Comprehensive approach to analytics, yielding better insights for single patient care and population health

MetroHealth System reduced paper and optimized processes enterprise-wide by integrating content within existing application workflow. They freed 80 hours monthly for HR, cut requisition turnaround by 86% and reduced chart filing by 93% to boost administrative and clinical performance.

IMPROVED EFFICIENCY

- Revenue process improvement
- EMR optimization
- Visualize to improve inventory management
- HR info sharing and access
- Better data management practices
- Increased collaboration via HCS platform
- Streamlined and auditable workflow
- Enterprise-first approach to medical imaging

Healthcare Content Services Platform

REDUCED IT COSTS

- Eliminates the need to source multiple departmental applications
- Deliver integration to speed business processes and improve service via a single vendor that supports all unstructured content and imaging needs
- Platform attributes such as capabilities to support development of low code applications, or OEM toolkits also reduce IT costs and improve time to value

UNC Health Care wanted to provide physicians with system-wide access to imaging assets as well as EMR integration. The health system was able to leverage a healthcare content services platform to eliminate 9 PACS systems, 3 reporting systems, and select 6 additional PACS to be decommissioned, resulting in reduced redundant imaging, faster consultations, and elimination of the need for physical image sharing within the enterprise.

AGILITY IN RESPONDING TO CHANGE

- Healthcare organizations need to be increasingly nimble in terms of their business and digital strategy.
- Address data and content governance faster, in response to regulatory changes
- Respond to operational, staff and patient needs quickly
- Enable online services such as data sharing, including images

Foundations Health Solutions was able to use content services technology to automate referral management, medical records management and discharge planning processes to save $6.5 million annually across their enterprise. An 81% reduction in referral processing time will also allow them to win more business in their community.

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Next Steps on Your Path in Connected Healthcare

Healthcare organizations will continue to face a dynamic environment of change, driving the need to have the right IT strategy and solutions to support connected healthcare in place. While digital transformation in healthcare has brought with it many challenges, new practices, capabilities, knowledge and innovations from that transformation have demonstrably changed healthcare delivery and will progressively do so moving forward.

As seen in this paper, the healthcare landscape is fast evolving. COVID-19 has laid bare the many deficiencies this sector was dealing with when it came to information management and decision makers cannot kick the can further down the road anymore. There has to be a more secure, holistic and contextual approach to the healthcare information ecosystem that spans the entire content lifecycle spanning content creation, ingestion, archival, discovery, collaboration and delivery.

When it comes to thinking about healthcare content in the enterprise and how best to deal with it, three recommendations from Frost & Sullivan are:

1. **Embrace the cloud**—this is the best way to help support integration of new IT innovations (e.g., AI/ML) and deal with security, uptime and lower TCO, as well as allow providers and health plans to focus more on supporting patients and members versus IT.

2. **Adopt enterprise imaging**—if you have not yet begun this journey, now is the time. A great resource to help think about your imaging strategy is the HIMSS Analytics digital imaging adoption model (DIAM). The DIAM can help create a pathway to higher digital maturity including factors that have been exacerbated by COVID-19 such as the need for related to comprehensive access to content, reports, images and notes throughout the enterprise, interoperability, enterprise imaging, virtual collaboration and enabling anytime/anywhere access.

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3. **Look for an end-to-end solution for your enterprise content needs**—The market has come a long way since the adoption of basic document management systems for enterprise content management. A progressive HCS platform—that integrates and connects enterprise content and medical imaging—will directly enable healthcare organizations to address the needs and challenges they are facing today and future-proof their organizations to thrive and deliver better healthcare in uncertain times ahead.

> **Healthcare organizations will continue to face a dynamic environment of change, driving the need to have the right IT strategy and solutions to support connected healthcare in place.**
>
> – Frost & Sullivan

Call To Action

Before you set this paper aside ask yourself the following simple yes or no questions:

	Yes	No
I don't have full visibility into the information I need because it resides in different systems	☐	☐
Content silos and a lack of policy execution regarding content retention create compliance challenges	☐	☐
Collaboration between necessary stakeholders in a timely way is challenging, due to multiple non interoperable systems	☐	☐
Providing necessary stakeholders on-demand remote access to healthcare information at scale has been challenging, especially through the pandemic	☐	☐

If you answered yes to any of these, you owe it to yourself and your organization to investigate the potential of a healthcare content services platform for your organization.

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Endnotes

1 “Global Cloud Imaging Informatics Market,” Report K135, Frost & Sullivan, October 2017.

2 “What is unstructured data and why is it so important to businesses?”, Forbes, October 16, 2019.

3 “Global Enterprise Content Management Market for Healthcare, Forecast to 2023,” Report MD0E, Frost and Sullivan, April 2019.

4 State of Interoperability among U.S. Non-Federal Acute Care Hospitals, ONC Data Brief, No. 51, March 2020.

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