UNLEASHING THE POTENTIAL OF DIGITAL TRANSFORMATION WITH CONTENT SERVICES

- The New Paradigm for legacy Enterprise Content Management

Abstract

In the past, enterprises felt the need to better manage all their digital content. This led to the evolution of enterprise content management (ECM) systems. ECM systems worked well and served the purpose they were designed for at that time. Since then, the world has made rapid strides in the nature and consumption of content. Today, content is no longer limited to PDF files, Excel sheets, and MS Word documents. Videos, audio files, and social media assets – generated within as well as beyond the organization – are all considered content. With such an unprecedented content explosion, organizations need to manage disparate chunks of content by bringing them together in a flexible and consumable manner.

This paper discusses ECM systems and why they cannot scale in today's landscape. It further explains the concept of Content Services and recommends transforming legacy ECM implementations to Content Services.

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What is Content?

Content in the context of ECM is both structured and unstructured information. In the past, content referred to documents in different formats (MS Word, PDF, MS Excel and so on) and scanned or captured images (jpg, tiff, png, etc.). Examples of content include banks storing ID documents of a customer or collateral documents for a mortgage. Insurance companies capture and store the health records of a patient, medical bills and treatment details for an insurance claim. In today's digital savvy world, content includes rich media assets such as audio and video files, emails, social media messages, and much more.

Content Across Industries

Figure 1 lists sample content across healthcare, finance and insurance industries, manufacturing and energy and utilities industries

FINANCE

CONTENT
- ID documents
- Payslips
- IT returns
- Loan proposal, loan sanction
- Agreements (loan, payment, indemnity, vendor)
- Invoices
- Bill of lading
- Purchase orders
- Account statements
- Certificate of origin
- Leases and contracts

USE CASES
- Customer onboarding
- Account management
- Lending process
- Payment automation
- Cheque management system
- Investment reports
- Wealth management

INSURANCE

CONTENT
- ID documents
- Insurance proposal forms
- Insurance policy documents
- Income proof
- Medical reports
- Prescription and diagnosis reports
- Payment receipts
- Investigation reports
- Claim request forms
- Claim settlement forms
- Personal accident forms
- Bill of repair
- Registration certificate

USE CASES
- Policy enrollment
- Claims processing
- Policy underwriting
- Policy servicing
- Investigations
- Risk assessment
- Fraud detection

HEALTH CARE

CONTENT
- Patient information form
- Patient health reports
- Diagnosis reports
- Prescription reports
- Medical journals
- Medical bills
- Laboratory manuals
- Consent and assent forms
- Patient instructions
- Quality assurance document
- Medical device information
- Pharmaceutical documents
- Clinical trials and reports
- Study protocols

USE CASES
- Patient onboarding
- Disease diagnostics
- Personalized medication
- Drug discovery and development
- Clinical trials and processing
- Laboratory tests
- Medical supply order processing

ENERGY AND UTILITIES

CONTENT
- Contract documents
- Procurement documents
- Resource documents
- Supplier agreements
- Usage and utilization documents
- Billing and receipts
- Engineering drawings
- Plan documents
- Geospatial information
- Standards and specifications

USE CASES
- Asset management
- Energy management
- Device maintenance
- Customer onboarding
- Utilization metering and billing
- Outage detection

MANUFACTURING

CONTENT
- Engineering documents
- Vendor supplier document
- Standards and specifications
- Production process documents
- Assembly documents and instructions
- Audit reports
- Production reports
- Equipment details
- Material details
- Quality control documents

USE CASES
- Contract management
- Invoice processing
- Supply chain management
- Production management
- Production and operation maintenance
- Quality assessment

Figure 1 – Content in finance, insurance, healthcare, energy & utilities, manufacturing industries

What is Enterprise Content Management?

The Association for Information and Image Management (AIIM) defines ECM[1] as follows:

Enterprise content management is the systematic collection and organization of information that is to be used by a designated audience – business executives, customers, etc. Neither a single technology nor a methodology nor a process, it is a dynamic combination of strategies, methods, and tools used to capture, manage, store, preserve, and deliver information supporting key organizational processes through its entire lifecycle.

Traditional ECM systems involve different stages of the content lifecycle in any organization.

- Capture
- Manage
- Store
- Preserve
- Deliver

Capture – Capture is about ingesting content into the system as a first step towards digitalization. Digital content and scanned copies of physical content are ingested in the system. The capture process includes converting images into text, classification of content, and identifying metadata. For example, ID proof of a customer can be classified as "Passport" and the corresponding metadata such as "First name, Last name, Expiry date, and Nationality" can be identified from the document for KYC processing. After the documents are classified and information is extracted from the document, different business processes and applications can consume it for automated or assisted decision-making.

Manage – Manage is about organizing the content and performing basic document handling functionalities such as check-out/check-in, version management, and navigation. This helps in collaborative processing and handling of business workflow processes. From the business point of view, ECM provides an effective and efficient way to manage information, share information between multiple business users, and store information for long term needs.

Store – Store is about storing content in an organized format in dedicated repositories. This helps access documents easily and provides administrative functionalities to handle the content. ECM systems provide a secure storage functionality where all business-related documents are safely stored and protected by access control. The content can be accessed anytime providing an institutional memory of content for the organization.

Preserve – Preserve is about the long-term safe storage of content in archives to be used in the organization whenever needed. This involves the complete record-keeping lifecycle from creation or reception of record, retention, legal hold, to disposition of the record. For certain businesses, record-keeping is a crucial area for adherence to regulatory and legal standards.

Deliver – Deliver is about providing content from repositories to the preferred people or systems at the preferred time in the preferred format. Any content is useful only when it is created, located, and delivered as needed to end users. ECM helps improve the user experience, thereby enhancing the business.

Industry Offerings

Depending on specific business needs, companies have a range of ECM systems to choose from in the market. Figure 2 lists the solutions and products in the market with the core focus area of each ECM.

CAPTURE	STORE AND MANAGE	PRESERVE	DELIVER
Capture and Imaging	**Content Management and Collaboration**	**Compliance and Risk Management**	**Customer Communication**

Intelligent capture	Data capture OCR/ ICR	Document management	Case management	Records management	Content analytics	Document generation	Template management
Mailroom processing	Invoice processing	Knowledge management	Document collaboration	eDiscovery	Long term archival	Output management	Preference management

Distributed and centralized mailroom operations involving multiple outsourced providers, enabling multiple channels and different forms of content capture	Enabling content management and collaboration promoting efficient search and reuse of content among employees, customers, and partners	To address risk, litigation and standards alignment, solutions for records, eDiscovery, retention and legal holds help organizations stay compliant	Generation of customized and personalized multichannel customer communications that enhance customer experience, reduce costs, and streamline processes
Abbyy Flexicapture Ephesoft IBM Datacap Kofax KTA Newgen OmniScan OpenText Enterprise Scan OpenText Intelligent Capture	Hyland Onbase IBM FileNet Newgen OmniDocs Nuxeo OpenText Content Server OpenText Documentum Oracle Webcenter	Hyland Onbase IBM Enterprise Records Newgen OmniDocs OpenText Archive Center OpenText Infoarchive Oracle Webcenter	Newgen OmniOMS OpenText Exstream Pitneybowes Quadient Inspire Scriputra EngageOne Smart Communications

Figure 2 – View of solutions and ECM products available in the market

What are the Challenges for Traditional ECM systems?

The industry has witnessed massive disruption in recent years in terms of technology modernization, user adoption, customer experience, and business process optimization. ECM systems have also been impacted by these advancements. Some of the challenges faced by ECM systems are as follows:

Underutilized content – Traditional ECM systems serve as repositories to store content. They have no intelligence to help utilize the content from a business perspective. This renders ECM systems as a technology solution rather than a business-oriented solution.

Disengaged systems – ECM systems are not aligned, designed, or implemented to accommodate business use cases and processes. ECM systems have not been designed for flexibility and integration. This makes integration with other industry-specific platforms and business applications challenging and involves a huge reengineering effort. Enterprise systems remain disengaged making federated content delivery impossible.

Content invisibility – Traditional ECM systems are mostly implemented as systems of records. Therefore, content is almost invisible making discovery and reuse for business needs challenging.

Operational inefficiency – Scattered content, siloed systems, and lack of a common view of content, result in operational inefficiency due to increased turnaround time to complete business activities.

Expensive implementations – Legacy ECM systems do not offer feature-based implementations. Leveraging modern architecture to extend content as a service for consumption by multiple services or applications is a challenge.

Current Trends in the Content Management Landscape

Innovative technological advancements have paved the way for a new range of requirements around the treatment and consumption of content. Based on the specific needs of various industry segments, emerging content solutions need to cater to the following requirements:

- **Content usage** – Focus on using content to enable user productivity, improve process efficiency, and drive business outcomes with better decision-making

- **Prebuilt vertical solutions** – Custom-built solutions to address business vertical requirements such as contract management, customer onboarding, employee onboarding, policy underwriting systems, and invoice management

- **Regulatory compliance** – Ability to keep up with and adhere to new regulations and standards with minimal effort and increased security

- **Business process automation** – Automate business processes by serving relevant content to aid faster decision-making

- **Cognitive capabilities** – Provide intelligent content capture, auto-classification, and information extraction as an essential part of the digital journey

- **Cognitive search** – Intelligent and context-based search to provide content at the right place and in the right format based on the business context

- **Cloud adoption** – Increased demand for SaaS-based and cloud-native offerings to leverage the capabilities of cloud deployments

- **Connected Enterprises** – A need for seamless integration with business front-end applications for hassle-free communication and collaboration

- **Digital workplace** – Promotion of digital dexterity at the workplace by serving content based on the business context

With new digital trends and corresponding demands from digital-savvy customers, analysts and industries need to broaden their horizons and look for innovative content solutions. There is ample scope for improvement in the ECM landscape. Content services is emerging as the solution to address the gaps identified in ECM systems.

What are Content Services?

Gartner® defines Content Services Platform (CSP)[2] as "a set of services and microservices, embodied as an integrated product suite and applications that share common APIs and repositories. A CSP exploits diverse content types and serves multiple constituencies and numerous use cases across an organization."

Content services replace the monolithic architecture of ECM systems with a microservice architecture. This enables integration with multiple repositories storing diverse content types and serves several business use cases in an organization.

Categories of Content Services

Content Services can be broken down into three categories:

- Content Services platforms
- Content Services applications
- Content Services components

Content Services platforms

This is the core platform that has its own repositories and connects with external repositories through APIs or inbuilt integrations providing a seamless business experience. The main purpose of the platform is to enable common content-related use cases such as capture, documents and records management, controlled content access, versioning, search and indexing, and business workflow processing. The platform also supports various deployment models for cloud adoption strategies (private, public, hybrid, or on-premises models) as per market dynamics.

Content Services applications

These applications are pre-built to address the business needs of various industry verticals. For example, ready-to-use claims management for the insurance industry or ready-to-use patient records management for the life-sciences industry. Applications may also be built to address specific business use cases. All Content Services applications are built on top of Content Services platforms.

Content Services components

Components are designed to solve a particular business problem and will be available as an individual service. For example, standalone services can be designed to create new content, classify content, tag content, or translate content. The component-based approach decouples the service from the rest of the platform or application thereby reducing dependency on vendor platforms. This leads to a flexible architecture that caters seamlessly to the growing needs of the business.
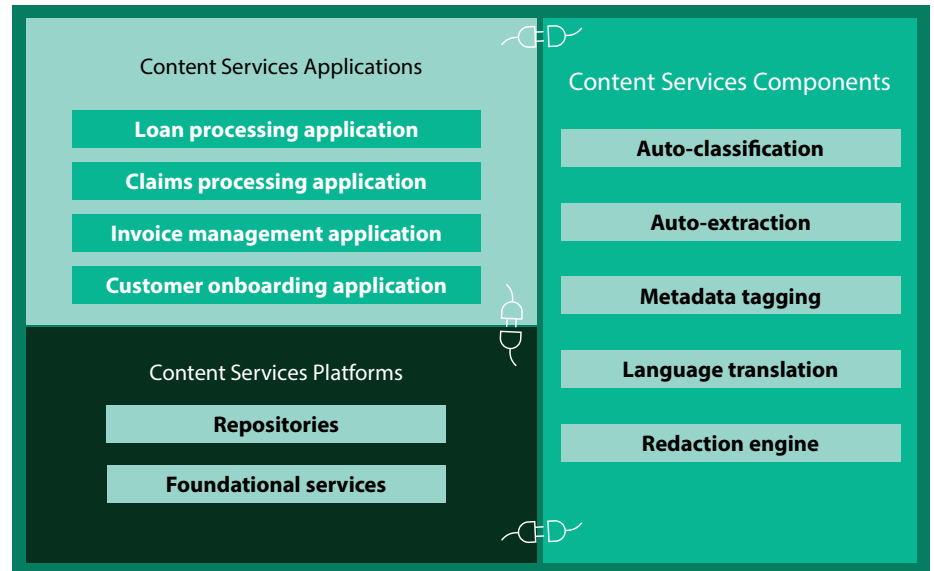
Figure 3 – Content Services

What is the Future of Content Services?

The new normal has made digitalization an inherent part of every business. Challenging times have created accelerated focus on digital content. Content services need to expand capabilities to meet the following requirements:

- Context-centric content management – The focus needs to shift from utilizing content to the context. This means abstracting the storage of content and focusing on providing content as needed by the business across federated repositories

- Content intelligence – Content intelligence is necessary to understand content, perform auto-classification, extract information from the content and use it for business workflow automation, data enrichment, decision-making, and straight-through processing

- Digitalization – Eliminate physical records and move towards a paperless journey paving the way for end-to-end digitalization

- Cloud adoption - Cloud-ready architecture facilitating scalability, elasticity, easier usage, and business agility with higher ROI

- Modular architecture – Modular microservices-based architecture to enable purpose-built solutions, customization, reuse, and repurposing of services as needed

Digital Transformation Powered by Content Services

The Content Services industry is poised to reshape businesses on their digital transformation journey. Organizations must view content services as an enabler for business process optimization. To leverage the capabilities of content to the fullest, organizations must consider the following aspects during their Content Services transformation journey.

- **Content strategy** – Content should not be considered as a stand-alone asset.

Businesses must formulate a content strategy by understanding content types, uses, content flow between enterprise systems and how content can benefit the business to increase operational efficiency and enhance customer experience

- **Modernization** – Modernize digital platforms and systems to be coherent with each other. Ensure that content is not just a system of records but a platform that can be easily interconnected and extended to enrich business decision-making and customer experience

- **Digitalization** – Envision a paperless journey through digitalization of paper-based business processes. Focus on converting all existing physical content into digital assets

- **Content utilization** – Use natural language processing (NLP) to unlock the deep relevance of content in business operations. Leverage artificial intelligence to understand content contextually and assist in decision making

- **Adherence to regulatory standards** – Implement intelligent systems that can provide data enrichment, metadata extraction, and personal identification to adhere to regulatory governance identification, and legal and compliance requirements

- **Cloud Content Services** – Leverage the benefits of cloud computing through containerized deployments on a cloud or native cloud platforms of content services. Access content in real time for effective business transactions

- **Storage strategy** – Evaluate and identify storage options that suit your unique needs. Content can also be stored in a content lake with hot and cold archival eliminating duplication and redundancy for cost optimization

- **Innovative solutions** – With purpose-built components, microservices, and open APIs, strategize an effective implementation based on business needs. Reduce the heavy footprint of monolithic systems by implementing a scalable and extensible solution that serves content contextually

Conclusion

The pandemic has sent the world on a digital journey, accelerating the creation of huge volumes of digital content that is growing exponentially. It is estimated that hundreds of zettabytes of content will be created by 2025. This is the time to build a strategy to utilize all the digital content available to make the right business decisions. The evolution from ECM to Content Services is not just a technology change but a change in mindset to make content work for the business.

About the Author

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1. https://www.aiim.org/Resources/Glossary/Enterprise-Content-Management

2. Gartner IT Glossary, Content Services Platform (CSP), as on 19th October 2021

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