INTRODUCTION

Purpose

This paper discusses the benefits of managing digital content (business documents and Web content) within the context of an integrative information systems architecture. This architecture incorporates database management, document and Web content management, integrated scanning/imaging, workflow, and data warehousing technologies.

Business Context

The ubiquitous use of digital content (such as office documents, e-mail, and Web content) for business decision-making makes it imperative that adequate systems are in place to implement management controls over digital content repositories. The traditional approach to managing digital content has been for enterprises to store it in folder structures on file or Web servers. The content files stored within folders are relatively unmanaged, as there are often inadequate classification and indexing structures (taxonomies and metadata), no adequate version control capabilities, and no mechanisms for managing the complex relationships between digital content. These types of relationships include embedded or linked content, content renditions, or control over authored digital documents and published Web content.

In some cases enterprises have achieved a form of management control over hard-copy documents that are records of business transactions by using database applications to register, track, and manage the disposal of physical files and documents. These types of file or document “registers” do not provide adequate controls over the capture, retrieval, and accessibility to digital content.

This deficiency has led to many organizations seeking solutions, such as document management systems, to manage digital business content. Document management systems have generally been implemented to meet regulatory compliance within the context of document record-keeping requirements or management of digital archive collections. Otherwise, they have been implemented as solutions for managing specific types of content objects, such as ISO9001 quality management system documentation, engineering drawings, safety documents, and similar.

More recently, organizations have sought to acquire Web content management systems with the view to providing controls over digital content that is published to Web sites. The imperative for such a solution may be a commercial one, motivated by product-to-market visibility, customer service, and profitability. There may also be a response to compliance needs, motivated by managing Web content in the context of “record keeping” to satisfy regulatory or governance requirements.

The methodology of implementing document or Web content management systems has often been based on a silo approach, with more emphasis on tactical business imperatives than support for strategic enterprise information architecture initiatives. For example, organizations may attempt a Web content management solution without taking into full account digital documents that may be used to create content outside the constraints of Web-compatible formats such as XML-defined, but which are subsequently required for publication. Thus, document and Web content management may be viewed as discrete solutions, and business applications may be implemented without an integrative approach using workflow and systems for managing both business documentation and Web content.

Another example of a silo approach is the deployment of database solutions without cognizance of document or Web content management requirements. For example, organizations may deploy a solution for man-
Integrative Document and Content Management Systems’ Architecture

Managing contracts, including database application capa-
bilities for establishing the contract, recording pay-
ments and variations, and managing contract closure.
However, the management of contract documents may
not be viewed as an integral part of the application
design, or the workflow review and approval, or manag-
ing the published contract materials on Web sites. The
result is that users often miss vital information rather
than manually relate data retrieved through a number of
separate applications.

There are compelling reasons for organizations, as
they address the constructs of enterprise information
architecture, to consider the management of digital
content within the context of an integrative approach to
managing business documents and Web content. The
strategic rationale for such an approach encompasses
the following types of business imperatives:

- Customer satisfaction is a key commercial driver
  for both business and government: in the case of
  the commercial sector, the need to attract and
  retain customers, and in the public sector, the
  need to support government initiatives directed at
taxpayer benefits. Organizations are adopting stra-
tegic approaches such as single view of customer
and one-source solution for customer information,
invoking the use of information knowledge
management tools.
- Speed and quality of product to market is another
  major business driver. The rapid adaptation of the
WWW and e-commerce systems to support online
business transactions opens markets to global com-
petition. Commercial enterprises are not only re-
quired to deliver product to market rapidly, but
also within quality management constraints, to
attract and retain customers.
- Regulatory imperatives, such as Sarbanes-Oxley
  in the United States (U.S. Congress, 2002) have
introduced new measures for creating greater trans-
parency within organizations, which impact cor-
porate governance and require disclosure with
real-time reporting requirements.

The enterprise information architecture would in-
clude information policy, standards and governance for
the management of information within an organization,
and provide supporting tools in the form of an integra-
tive information systems architecture as the platform
for managing information. An integrative systems ar-
chitecture would provide a platform that enables busi-
nesses to meet the challenges of both commercial and
regulatory imperatives, benefit from reusable informa-
tion, and provide a coherent view of relevant informa-
tion enterprise-wide to authorized users.

In respect to document and Web content manage-
ment, an integrative document and content management
(IDCIM) model (Asprey & Middleton, 2003) offers a
framework for unification of these components into an
enterprise information architecture. The model fea-
tures the management of both documents and Web con-
tent within an integrative business and technology frame-
work that manages designated documents and their con-
tent throughout the document/content continuum and
supports record-keeping requirements.

SCOPE

The core IDCM elements that address document and
Web content management requirements (capturing con-
tent, reviewing/authorizing content, publishing content,
and archival/disposal) comprise:

- Integrated document and Web publishing/content
  management capabilities.
- Integration of document-imaging capabilities.
- Recognition technologies, such as bar codes, to
  assist with capturing document information or
conversion of image data to text as a by-product of
scanning/imaging.
- Enterprise data management capabilities.
- Workflow.

However, when determining requirements within the
context of process improvement initiatives that help to
address business imperatives (such as customer satis-
faction, product to market, and regulatory compliance),
these capabilities might be supported by other tech-
nologies. This technology support may help businesses
to achieve an integrative systems architecture for de-
ployment of innovative and integrated solutions.

- Universal access/portal, which allows users to
  invoke functions and view information (including
digital content) via a Web-based interface.
- Integration with business systems, such as enter-
prise resource planning (ERP) systems, human
resource systems, financial systems, and vertical
line of business systems.

These types of capabilities, when combined, aug-
ment an integrative systems architecture to support the
development of solutions that take advantage of digital
content in managed repositories. Users that access busi-
ness information then have the confidence that they are
accessing, retrieving, and printing the most current
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