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What is intelligent content?

Content has often been managed as documents. Metadata for search and retrieval has become more and more important as the amount of content has increased. In recent years with the increased interest in the use of XML for content and the rising popularity of the DITA XML standard, content has begun to move from unstructured documents to XML-based component-based content. And with the advent of XQuery, an XML query language that searches on the structure of content, then manipulates and renders content, we can do so much more than just full-text searching. We've gone from documents which are "black boxes" to content which is *"structurally rich and semantically aware, and is therefore automatically discoverable, reusable, reconfigurable and adaptable"*.

Lets look at the definition for intelligent content in more detail.

Structurally rich

This means that the content is structured content and more importantly it is semantically structured content, content where the structure has meaning. We could look at something as simple as a whitepaper which could include a structure like (executive summary, introduction, discussion and conclusion) or a marketing brochure that could include a structure like (positioning statement, value proposition, features and benefits). Or we could have content which follows a standard like DITA or DocBook. But each of these structures enable us to understand what content we have so that we could search within positioning statements only, or pull out that statement and use it in another type of content.

If we have a structure in our content we can manipulate it. For example we can automatically determine how to publish it to multiple channels (print, web, mobile) or we can filter out some content (e.g., tables may not work as well in the mobile environment). Also if it is structurally rich we can perform searches or narrow our search to the particular type of information we are interested in (e.g., look for all occurrences of the word like high definition in positioning statements).

When it is structurally rich we can do so much more.

Semantically aware

The word semantic means "meaning". Semantically aware content is content which has been tagged with metadata to identify the kind of content within it. For example, you might tag your content with industry, role or audience, and product. If it is tagged with semantic metadata it is possible to automatically build customized information sets based on audience or industry for example. As more organizations start to create personalized content (content which is dynamically assembled upon user request that specifically matches a users need or user profile) this type of metadata becomes really important.

In addition, as content is pushed to wikis, integrated through "mashups" or "pipes" it becomes even more important to ensure that our content is semantically tagged. Without semantic metadata it is very difficult to automatically, let alone manually, find the content we need.

Discoverable

If the content has semantic tags and is structurally rich it is a whole lot easier to find exactly what we are looking for. And when it is structurally rich, and assuming our content is in XML, we can use XQuery to query the structure of the content to find specific information. Then when we add semantic tagging to the content we have a great deal of information that will allow us to zero in on exactly the content we are looking for. You've heard of data mining? Well now we can do content mining! Sure we could have done this regular old unstructured content, but we would have to develop highly complex algorithms to interpret the content, with intelligent content it is much much easier.

Reusable

Reusable content, content which is created once and used many times throughout an information set, has been used for years in technical documentation, but its popularity is quickly moving into business documents like marketing materials, proposals, contracts, and policies and procedures. We can create modular structured content that can either be easily retrieve for manual reuse or automatically retrieved for systematic reuse (automatic reuse).

Reconfigurable

Structured content is content separate from format, in other words the look and feel of the content is not embedded in the content. That makes it very powerful. Knowing the structure of the content we can output it to multiple channels reconfiguring it to best meet the needs of the channel, or we can automatically mix and match content to provide us with the information the customers needs. We can even transform content (reconfigure it) from one structure to another, but only if we know what the structure is in the first place.

Adaptable

We frequently create our content for a particular need or audience, but content can be adapted (used in a different way), often without our knowledge, to meet a new need. Think of mashups, we don't know how our content is being aggregated, but it can be because we have structured and tagged it intelligently.

A few scenarios

The following are a few scenarios that illustrate intelligent content.

Customization

A major cell phone manufacturer and distributor produces over 100 phones. They range from simple handsets to highly capable models designed to support email, video, and conferencing applications. While each handset has a unique market position, there are numerous features that are common across handsets, for example, texting. The description of texting is the same, but each handset requires different key sequences, images, key names, and so on. In addition to handset configurations, there are regional differences that determine the features a particular handset will support and region specific safety standards, not to mention language requirements. Some of the handsets are OEM'd through specific carriers requiring different contact information and branding. One component of information could have as many as 500 variations!

To reach their goal they make the content intelligent to facilitate automatic builds and content filtering by:

- Creating structured component-based content
- Creating semantic metadata to clearly identify what piece of content is appropriate in which situation
- Creating rules which identify how each product configuration is to be built
- Using variables for key sequences so that they can be automatically populated with the correct content at the time of publication
- Using a component content management system to publish the content on demand based on the configuration rules

With this new intelligent content they are saving through reduced translation costs, and optimized processes. And they are actually making more money because they can now personalize content and customers are purchasing customized content at an increasing rate.

Personalization

People have been talking about personalized content for years, but often back off because creating personalized content is a lot of work with traditional content. Not so with intelligent content. A Health Maintenance Organization (HMO) provides health insurance for 100's of companies with thousands of policyholders. The HMO builds a self-serve site to enable employees to review coverage, submit claims and get customized health and wellness information. Personalization is supported by intelligent content through:

- Development of personas to identify the key characteristics of customers
- Policyholder login profiles that match the customer profiles
- Structured component-based content
- Semantic metadata used to tag content based on personas
- Personalization rules to be applied based on profile and policyholder requests

Dynamic delivery

A financial services company has been producing content for its investors for both the web and print. There are daily News & Notes to keep investors informed of key breaking news, weekly reports to summarize a an area of particular interest, monthly reports and annual reports. The reports have always been produced as PDF while the News & Notes are web-based. There is more than a decades worth of content squirreled away on the web and in file servers throughout the organization. This pattern of content delivery has been pretty effective until now, with the economic melt down, investors are clamoring for content daily and even hourly and they want more than just the information the financial services company can provide.

To calm investors and to provide as broad a swath of high quality content as possible for investors who have decided to stay in for the long haul, they decide to change their paradigm and offer personalized dynamic content delivered automatically to their investors. They already have much of their content in XML and what they don't they decide to convert to XML. They also set up RSS and other feeds to ensure that content can be gathered from multiple sources, incorporated with their own information, and automatically delivered to investors.

They built a set of profiles of their investors and provide a simple way for investors to indicate the types of information they would like to receive. Some investors choose to see an historical perspective to see what has happened in previous market instability, and all have asked for hourly updates. Investors can search based on specific criteria and assemble customized views of the information. New information coming into the investment services company is captured, converted to XML, searched and retrieved based on specific criteria, assembled and transformed then pushed to investors.

Dynamic delivery is supported by intelligent content through:

- Customer personas
- Customer login Structured content
- Semantic metadata



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- XQuery and full text search for retrieval
- Dynamic multichannel publishing
- RSS

Who is using intelligent content?

There are a number of industries that are making use of intelligent content. Companies whose product is content, e.g., publishing and media companies have begun to adopt intelligent content as a methodology for moving away from their traditional print to a truly multichannel, and often personalized content offering. Companies who produce huge volumes of content such as life sciences and financial companies use intelligent content to optimize access and retrieval. The high technology industry has been moving towards intelligent content for a number of years, but are not yet making a lot of use of metadata and personalization. Government is starting to use intelligent content to manage and deliver legislative content.

Benefits of intelligent content

There are many benefits of intelligent content. We can:

- More easily find it
- Deliver it
- Customize it
- Personalize it
- Automatically deliver it to multiple channels Simultaneously release content in multiple languages

And

- Reduce costs
- Speed up delivery time
- Optimize resources
- Do more with the same resources
- Increase customer satisfaction