Original Article

Metamedia, or, *How I gave up control and learned to love the sandbox*

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ABSTRACT When speed to market is the top priority in most businesses, the luxury of deep research and fully flushed methodologies are usually compromised. In fact, content architecture strategies are more akin to laying the tracks down in front of a fast moving train. By the time businesses concede that some kind of cohesive plan is needed for managing digital assets, the train has usually long since left the station. Adding to this complexity is the ever shifting digital landscape. When brands spawn a plethora of consumables from a single intellectual property how can this be tracked at a level meaningful for executive reporting? When teachers choose lesson components to create customized learning, how do you compensate creators for royalty payments? How can this avalanche of formats and mash-ups be successfully managed and tracked? In this article, we'll explore the proliferation of metadata, its many roles, and how to approach a transformative digital asset management strategy.

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INTRODUCTION

With the collapse of boundaries in the digital world, content is no longer defined by its container. Photographs can be a 4×5 transparency, a hi-res JPEG200 or a thumbnail; video may be a streaming proxy, a DVD or a downloadable MPEG file. A book can be in print, electronic, audio or an interactive environment on a tablet reader such as the iPad.

Moreover, customers are no longer passive consumers eager to engage, but rather

sophisticated profiles that must be artfully targeted. Demographics, personal preferences, and social contacts are all data that can be carefully mined to detect spending patterns that can then be catered to or shaped.

In the education sector, content can be compiled according to a student's specific needs and delivered via print or on-screen; teachers can choose lesson components that speak to their pedagogy and create customized learning objects that incorporate a medley of rich media.

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How can this proliferation of formats and mash-ups be successfully managed and tracked? One way to begin is by identifying an easily adoptable metadata model that defines the businesses products and competencies. Back in the day it was enough to simply manage a relational database of objects and report on their current state of health on a quarterly basis. Today, however, metadata is not only the first step in laying the foundation for a complex net of relationships between objects and concepts, it also paves the way for future business models that will incorporate the monitoring of data usage and customer behaviour. In this world, a constantly changing data landscape will be referenced in real time like the stock market ticker on your favourite newsite.

We are entering the world of Metamedia, a term coined by Marshall McLuhan in his seminal work *Understanding Media: The Extensions of Man* (1964),¹ which refers to the new relationships between *content and form* in the development of new technologies and new media. And in this world, metadata plays many roles. In this article, we explore how metadata has evolved and how it can help transform your approach to digital asset management (DAM).

METADATA: BEYOND FINDABILITY

Metadata are elements of information that enhance our understanding of an object, text, media or data and are the only clues we receive when searching via a monitor screen. Without the explicit knowledge of walking into a bookstore and skimming over shelves, or browsing through CDs in the Bebop bin in the jazz section, or looking for a document in a weathered file folder labelled 'brilliant ideas', there are no such clues when examining the results of a single query search on a computer. Instead, we rely on implicit knowledge to guide us on our quest for content and hope that the information is trustworthy.

Metadata has evolved from its simple definition of 'data about data' and is now considered the semantic backbone for DAM. Descriptors guide our perceptions, semantic relationships enhance our experience and query logs provide business intelligence that informs

product development. This holistic view of using metadata for tracking the journey of content from creation to delivery to archive provides a means for measuring metrics that extends beyond the repository. It positions the business for the unknown.

Designing metadata models at the beginning of any DAM strategy is critical for success but in the real world where an increased speed to market trumps all, it is difficult to pause and design a metadata acquisition plan that isn't perceived as slowing down production deadlines. In the long run, however, the effort will be well worth the DAM investment. When content and form collide, metadata is the axis that grounds the asset.

Metadata models or schemas need not be comprehensive. In fact, the more complicated the more cumbersome; the more cumbersome, the less likely any of the metadata will be populated. As one Senior Vice President said to me recently, 'We are in a time of transformation and austerity. Good enough is golden'. A simple and minimal set of elements are enough to provide enormous returns as long as they are used consistently and can manage the relationships between content and form. This frees the metadata to accommodate new platforms or delivery methods without locking down a system to a static table. Today, less is more and I am constantly asked to limit my metadata to its bare essentials.

A recent study examining the behaviours of young researchers revealed that most 'exhibit a strong tendency towards shallow, horizontal, "flicking" behaviour in digital libraries. Power browsing and viewing appear to be the norm for all.'² With the proliferation of information at our fingertips, most of us have learned to scan and absorb as many clues as possible to optimize our time to content. Comprehension and selection have accelerated to the point that we skim through text like Ironman examining the horizon. We don't need things spelled out for us.

STANDARDS

Metamedia has influenced data standards to better aid the management of relationships between a work and its many forms or manifestations. Below are a few updates on the latest developments.

Functional Requirements for Bibliographic Records (FRBR)

The FRBR, published in 1998, anticipated the evolution from the library catalogue to the world of information retrieval. Its main theory involves the cataloging of a conceptual idea or intellectual property to all the various manifestations it may inspire or generate. Through the framework of *Work* (a creative idea), *Expression* (how it is expressed, that is a book, a film, an interactive game), *Manifestation* (a paperback, hardback, video or photograph) to *Item* (the object at hand: the autographed first edition, the boxed anthology), the conceptual model maintains links between the hierarchy of relationships. Although not a standard but more of a conceptual model, it has inspired changes in cataloging practices.

Two significant standards published in 2010 have incorporated the FRBR principles: the Resource Description and Access (RDA) standard and the International Standard Text Cord (ISTC).

RDA

The RDA, developed over 13 years, now replaces the stalwart Anglo America Cataloguing Rules that held its ground as the leading library standard for the last 30 years. In an effort to move past the traditional paradigm of managing objects on a shelf, the Joint Steering Committee for the development of RDA sponsored a consortium of international library representatives to help bring their standards to embrace the digital landscape. This has not been without controversy in the library community. I remember conferences that dissolved into highly charged debates that matched the passions of the participants. Some thought it went too far, others not far enough. Interestingly, those who think the latter now outnumber the traditionalists where only a few years ago the opposite was true. Libraries now contend with downloads of 'borrowed' digital media in tandem with the management of its physical inventory and RDA is a significant step towards providing a means to track and monitor multiple formats of a single property.

ISTC

The ISTC is an ISO Standard that was published in 2009 after 15 years of

development. It identifies underlying creative textual works that can be abstracted from its delivery method. Whether a poem is in a collection in a hardback book, a journal, or online magazine, the work retains its ISTC identifier regardless of its distribution format. This identifier provides a mechanism for clustering products with ISBNs that share the same intellectual property. Again, we see the separation of content and its form, but ISTC takes it one step further.

The extensible standard hinges on some basic metadata that requires the designation of whether a registered work is an *original work* or a *derived work*. This is where the FRBR principle has been stretched to accommodate a specific domain. Not only is it important for the publishing industry to be able to account for multiple formats (paperback, large print, Kindle e-book, Sony e-book, iPad version and so on), they also need to relate derived works to their source. When translations, abridged versions, revisions and adaptations, just to name a few derivatives, each represent a new 'work' with its own unique ISBN, imagine the volume of identifiers that might be related to a single intellectual property of *Sense and Sensibility*, for example. The FRBR principle recognizes derivatives as just another manifestation of a work, but the publishing world sees them as unique entities that are closely related equivalents.

The most important point about derivatives is the legal obligation requiring permission from the source copyright holders to proceed with a new work. Content, form, AND originality are all rights protected.

Resource Description Framework (RDF)

The RDF is a W3C standard from the semantic web consortium. It started life as a metadata schema but soon grew up to become a web language that solely expresses relationships between content and concepts. It ignores form completely. The subject-predicate-object expressions, or triples, are statements about content that can be read through the single format of a browser. By abstracting concepts into triples, automated software can read, exchange and use other machine-readable information on the web to create relationships.

One of the most intriguing functions of RDF is not only can it relate a single concept to many others, it can also identify things that it *is not* related to: *Paris <not Hilton>* for example, thereby improving accuracy.

This machine-process functionality is best at identifying things, people and organizations. Its main purpose is to provide information in a way that a particular software can understand it so that it can link to other resources. Linked resources tend to be represented by Unique Resource Identifiers that are found on the internet, but RDF statements are not limited to the web.

This semantic technology is becoming more main stream as companies and industries begin to leverage this language to relate the content in disparate database systems through a web-based browser. In May 2010, the UK Government re-launched their main *data.gov.uk* site using RDF to link agency information that would have otherwise been too complicated to manage. The BBC has succeeded in using Linked Data to exploit vocabularies already in existence in Wikipedia to relate news, sports and music information online.

METADATA AS PERSPECTIVE

If metadata are the frontline indicators to content, then their first impression is a mighty one and should be designed with that impact in mind. In this information-rich attention-scarce world, metadata provides a window into content and must communicate as much as possible in as little time.

In my professional experience, I have straddled three different (but related) worlds: cultural heritage, mass entertainment and publishing. Each of these domains use metadata to help guide people to quickly discern their environment.

At the Getty Research Institute, the Art & Architecture Thesaurus is a monolithic catalogue of terms that are structured in a complex taxonomy with extensive references. This structure communicates a scholarly endeavour on cultural heritage and art history. With facet headings of *Styles and Periods* and *Materials*, we can quickly infer that this might have something to do with history and stuff.

At The Walt Disney Company, their core metadata model included an element entitled

Characters. In this world, the intellectual property of their personalities and their depiction are considered assets in themselves. Think of the Disney gang of Mickey, Donald, Goofy, Minnie and Daisy and you soon understand the brand associations of their entertainment world.

At Pearson, the publishing firm that owns Penguin, Pearson Education and *The Financial Times*, *Authors and Titles* take main stage along with *Subjects*. It's all about publications and news.

When metadata is paired with a taxonomy further intelligence is added by providing a context to the asset. If metadata describes the asset, then a taxonomy describes the whole in which it resides. Therefore, with Disney we notice that Mickey lives in a world of main titles by medium such as *animated shorts*, *live-action films*, *animated films*, *television serials* and *theme park* titles that communicate a multimedia conglomerate. This world is very different from the Pearson Education taxonomy that holds *learning objectives*, *educational standards* and *disciplines* as its facet headings.

METADATA AS DESCRIPTOR

Rich media relies on metadata to describe its intellectual content. Using metadata as descriptors for audio/video or image-based assets is still extremely important in conveying the information about the content of the resource. This usually requires a human eye or ear to help interpret the content and choose meaningful metadata to help describe it. To date, there is no standard to help guide the interpretation of rich media assets at an industry level. Instead, independent endeavours have inspired the way.

One of my favourite examples of meaningful metadata for media assets is the Music Genome Project that is responsible for the Pandora Internet Radio. Founded in 2000, the project's intention was to capture the essence of music through an elaborate metadata model of over 400 attributes or 'vectors' that began as a faceted classification of music genres. This has evolved into a complex set of varying number of genes per vector. Jazz for instance has 400 genes describing nuances of the genre.

These vectors and genes describe the tone, style, mood, texture, vocals, instrumentation,

dynamic and more, of any given song. It might describe 'breathy female vocals' with 'syncopated electronic rhythms' as works that sound like the music of Sade. Often, more than one 'technician' is used to analyse a song to ensure quality data and accuracy.

The descriptions themselves are not the point of the project, however. Although they do have an impressive glossary of musical terms and a fluid team of professional musicians as cataloguers, the primary use of their data is not to enhance search but to build complex mathematical algorithms that create relationships with other songs. This results in a better recommendations service to their listeners who subscribe to their radio.

As a side note to business leads who remain wary of the time and cost commitment of populating metadata, a trained professional at Pandora usually takes about 20 min to index a single track of music. To date, they have analysed over 750 000 songs with thousands more being indexed daily. After 10 years of overcoming obstacles like the March 2007 Copyright Royalty Board's decision to raise royalty rates and its struggle for a sustainable business model, Pandora is finally making million dollar profits with 60 million registered users. Their iPhone app attracts over 20 000 new users each day.³ Ten years ago, the iPhone did not exist, but because their data were already in structured form, they were able to react to changes in the digital landscape and quickly meet market demand.

METADATA AS NARRATIVE

When multiple metadata models converge, as they do in customized content, multimedia objects or social networks, a new narrative is created. In the world of social networks, for instance, you are more than just a set of interests and information about yourself but the combination of all the profiles of all your friends. This amalgamation of structured and unstructured data creates a broader 'story' that can be extracted into a narrative that has a beginning, middle and end.

Normally, metadata is an iterative process within a relational database where the sequence of rows (of information) is inconsequential and the object static. But once that object begins to interact with or merge with other data sets, new

content is created. Just as taxonomy provides a contextual view, a narrative offers the totality of the sum of its parts and places it in succession or progression. Metadata becomes a narrative once it reaches a critical mass where data analysis can relate *instances* not just to the *same classes*, but to *many classes* and can begin detecting patterns.

In the education realm, the ability for instructors to customize their course reading material is a good example of an agreed-on collaboration to form new metadata narratives. When instructors choose to combine different media types to illustrate their key learning points they do so with a specific objective in mind. This may take the form of different chapters from different books, streaming video, an online PowerPoint presentation combined with user-generated keywords. While this creative act may destroy the narrative of a previous data set (chapters taken out of context of their book) it forms new connecting points between the content that may be navigated subjectively. Each individual, on entering this learning object, navigates his or her way creating yet another narrative based on the actions of their mouse clicks. In time, these sequences can be examined and reported on.

METADATA AS BUSINESS INTELLIGENCE

How our user community interacts with our content is invaluable information that no company or organization has the luxury to dismiss. Data analysis of search queries, downloads, clicks, visits, even sequences of access requires a common syntax and metadata to enable accurate analysis.

In *The Economist's* cover story 'The Data Deluge' (27 February – 5 March 2010), Kenneth Cukier recounts the story of how Wal-Mart analysed sales data and discovered that right before an anticipated hurricane there was the expected surge in flashlights and batteries sales, but they also found a high run on Pop-Tarts. This American breakfast snack would not have made the revised inventory list if it were not for the resulting analysis. Other companies have used these same techniques to discover ways of reducing customer defection, or increasing revenue by catering to top buyers, or by shifting marketing campaigns to better target

audiences. The positive effects on revenue are very compelling.

The IT industry is heavily invested in providing business intelligence. Technology vendors such IBM, Accenture, Pricewaterhouse Coopers, SAP see data analytics centres as the new twenty-first century service equivalent to what accountancy was in the twentieth.

CONCLUSION

As analytical technologies continue to mature, so do our businesses. Companies are realizing that business decisions will increasingly be based on computer algorithms and by those who can interpret statistical data. Organizations that have invested in getting their digital house in order are already reaping the benefits of business intelligence by transforming workflows, predicting trends and delivering services in real time. Mammoth data centres currently being built by Microsoft and Google/IBM only confirm the inevitable data avalanche coming our way.

The days of stable environments where tightly controlled information is pushed by products in neat packages is coming to an end. Dynamic ecologies, collaboration, and scalable peer sharing supporting new knowledge flows are the challenges of today and they resist

control. They can, however, be contained in a trusted free-range playground with a golden sandbox, if you will. In this sandbox, interactions can be scrutinized and evaluated to inform better business decisions.

Clean metadata is the keystone to DAM, and its journey begins at content creation (some might argue inception, when the signature on the contract dries, but that's another esoteric discussion). If *metamedia* describes the relationships between content and form in new technologies, then our role as content managers is to broker those connections through metadata. Whether it is a physical book, a downloadable animated film, or a holograph of an ancient Chinese urn, it's all data and its golden.

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