

Digital Asset Management in Academia

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Abstract. This paper is intended to assist those who wish to incorporate Digital Asset Management (DAM) into undergraduate and graduate Digital Media curricula. The paper describes four years of research and curricular development in DAM at the University of Central Florida (UCF). Project goals, successes, failures, lessons learned and course designs are discussed.

A Digital Asset Management System is a software system designed to manage the workflow and archiving of media production elements, to maximize ease of access and reuse. DAM systems assist business leaders in evaluating and managing their intellectual property, in understanding its worth and the cost breakdown of production.

DAM systems can be contrasted with Content Management Systems (CMS), which term refers to a range of technologies including portal systems, wiki systems and web-based groupware. A close synonym to CMS is Document Management (DM). These software tools facilitate the collaborative creation of digital content (Wiki 2006a). Some consider Digital Asset Management systems to be a subset of CMS that are focused on managing the lifecycle of media production assets, whereas CMS may incorporate a larger proportion of delivery to the users. Web portals, for instance, handle the entire process from creation to display to the public.(Wiki 2006b).

The DAM Industry is approximately ten years old. Large media companies have long understood the need for systematic management of media assets. Since 2001, a DAM Symposium (Stewart 2006) has served as a central meeting place for vendors, users and potential customers. There is, as yet, relatively little academic participation in these symposia.

What Needs does DAM meet? The media industry has mature segments (e. g. the television, movie and print industries) and young, rapidly evolving segments (e. g. games, Internet.) We will refer to firms in these segments as *new media businesses*. The older disciplines have well established work flows and archival practices, and thus have proven to be the early adopters of DAM. They understand how much money they are already spending on archiving, and on managing their productive processes. The younger segments are so busy making products and fighting for market share that their processes are usually *ad hoc* and their archives chaotic.

The software industry, which falls somewhere between these two extremes of maturity, has taken a serious look at the maturation process. The Software Engineering Institute (SEI) at Carnegie-Mellon University has established a Capability Maturity Model (CMM) identifying five levels of process maturity for software development organizations (Chrissis 2003).

1. *Initial* (chaotic, ad hoc, heroic) the starting point for use of a new process.
2. *Repeatable* (project management, process discipline) the process is used repeatedly.
3. *Defined* (institutionalized) the process is defined/confirmed as a standard business process.
4. *Managed* (quantified) process management and measurement takes place.
5. *Optimising* (process improvement) process management includes deliberate process optimization/improvement

If an analogous scale were developed for media production businesses, most small new-media businesses are at level one or two. It may require many years or decades before their production cultures mature toward levels 3, 4 or 5, as they import work processes from the senior disciplines and invent and institutionalize their own.

The promise of DAM is that it may become possible, at an acceptable cost, for businesses of any size to acquire and learn to use software that brings "state of the art" production and archiving practices into a business, shortcutting a long development process and *greatly improving productivity and profitability*.

The academic mission is to find out if this is indeed possible, and if so, to help it happen. If not, we need to find out why, and get the emperor out of his new suit.

DAM at UCF. Digital Media was established as an undergraduate major at UCF in 2000. From the outset we knew that students needed to understand the problems of storing and managing complex collections of assets. The main problem was that we didn't understand the problem or available solutions ourselves. Like most academics and indeed most media professionals, we stored our files in hierarchical directories, perhaps using RAIDs if we were lucky. Most or all the metadata was crammed into the names of the files and folders in which they were stored.

To get our feet wet, we sought and won a grant from the Florida State Division of Historic Preservation, to digitize portions of a fascinating private collection of African-American documents. belonging to Ms. Carol Mundy. Author Ian Gibson, with a background in library science, worked with archivists and applied the Dublin Core Metadata Initiative (Dublin 2006) to the development of the data schema for the project. Student volunteers then assisted as approximately 1000 objects were scanned or photographed and cataloged.

In 2003, Dr. Gibson attended a DAM conference and met John Costa of Quebecor World Premedia (QWP). This firm sells DAM services. Costa offered QWP's assistance with

the use of the North Plains *Telescope* (NPS 2006) DAM system housed at QWP. He guided a student intern in the construction of a Telescope-based DAM to support the Mundy collection, and collaborated in developing several grant proposals to continue the digitization work. (To date, none of these have been funded.)

Gibson spent the summer of 2004 as a visiting researcher at Electronic Arts' Orlando studio, and brought back substantial knowledge of DAM issues and techniques in the game industry. During the spring semester of 2005, Gibson worked with two UCF faculty members who were teaching a game development course to develop a workflow analysis and schema for creating and storing game assets. He then worked with QWP to implement a prototypical Telescope DAM system for game development. Strong analogies between the animation and game design industries were found and exploited.

Building the Digital Asset Laboratory. In 2005 a grant proposal was written to North Plains Software for a Telescope system, to serve as the basis for a Digital Asset Laboratory. With the strong support of local Telescope service provider QWP, this would have provided an excellent basis for research and coursework. After protracted negotiations, however, NPS declined to provide the software. We also wrote a trio of concept papers/pre-proposals to Federal agencies, but were unsuccessful.

We therefore began to investigate the open-source movement. Flex-db (Sourceforge 2006) is a Java based DAM (that was released to the open source community after its commercial development stalled. We spent the spring of 2006 creating a linux/Java environment to bring up flex-DB. At the time of writing, we have not yet succeeded. The last posts to the Flex-DB forum were in mid-2005, a good sign that the project has no life.

In the meanwhile, commercial products have developed apace. The Cumulus DAM has emerged as an affordable solution for small work-groups, and a single-user version (titled "MediaDex") has become available for less than \$100. We plan to use MediaDex in our graduate DAM course in the spring of 2007.

Advice for Academics

We recommend the following five steps to becoming involved with DAM.

1. Start with a project that really needs DAM. Select a task that involves a non-trivial collection of data with a rich metadata structure. If possible, this should be a task with a constituency willing to pay the initial expenses. In our case, the historically significant Carol Mundy collection made it possible to secure funding from the State of Florida.

2. Get DAM tools at the outset. This step proved quite difficult for us. We used our industrial partner's *Telescope* system and worked diligently but unsuccessfully to get a license donated. We worked to install a public domain system, but found its lack of support to be a serious barrier. Now it has become possible to purchase a DAM system at moderate cost, so this arduous pathway does not need repeating.

3. Get an industrial partner if you can. The assistance of Quebecor World Premedia has been essential in our learning process. Contact your local media professionals and ask them if any are using DAM systems. Get their advice; place your students as interns with them.

4. Study and understand the Dublin Core. Properly structured metadata is the key to successful archive creation and management. The Dublin Core standards provide essential guidance so that your collection systems will be rationally structured.

5. Talk to your librarians. University librarians represent the oldest and most mature archival culture of all. They can inform you of digitization standards and practices already in use on your campus (e. g. for the archiving of graduate theses and dissertations containing digital elements.) They can help you critique potential DAM systems, and help you teach your students about metadata. They may be willing to co-author grant proposals with you. And they are doubtless among the most user-oriented information professionals you will ever encounter.

We hope that you will contact us to let us know about your work in bringing DAM into your academic environment.

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