

# The Digital Content Supply Chain

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WHITE PAPER

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By 2005, mankind will play with more than 100 billion gigabytes of content in the form of images, text, audio, video, graphics or a combination of all these. The task of managing this content and making sure it reaches the right customers at the right time will be a great challenge. This paper looks at this issue of Digital Content Asset Management from a supply chain perspective. It tries to apply some of the commonly used supply chain practices like Inventory Management to the content assets created by Media and Entertainment companies.

If content assets are treated as SKUs (Stock Keeping Units) in supply chain parlance, and technology applications like Digital Assets Management are applied from an Inventory Optimization perspective, Media content managers will be able to handle the digital onslaught better.

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## Introduction

57 billion gigabytes of content is available for the consumption of mankind in 2002 and this volume is expected to double in the next two years. Moore’s law states that computing power doubles every eighteen months. With more and more content flowing through the microprocessor, content will soon have to grow even faster just to keep pace with the plethora of media choices available. While the per capita consumption of content has grown dramatically, more choices have meant content supply should always outsmart demand by a factor of ten. One can envisage a scenario where billions of terabytes of content in various formats; text, audio, graphics, video; and across multiple platforms being delivered to millions of people simultaneously- a content manager’s nightmare. Not necessarily if content companies get their basics right when they take the digital plunge. It’s all about managing the content supply chain well.

Manufacturing and retail organizations have been singing the supply chain mantra for quite some time now and with quantifiable results. Streamlined procurement processes, optimal inventory levels, speedy delivery mechanisms and robust business intelligence at the point of customer contact has helped many an organization increase productivity, offer better value to the customer and most importantly, give a substantial boost to the bottomline.

Let us extend the same logic to Media and Entertainment companies, which are into the business of content. They produce, buy, repurpose and/or sell content. If we recognize every content asset for a media company to be an SKU, what we find is that the problems of content companies are quite similar to those faced by, say an automobile manufacturer or a retail chain. And increasingly so, as the number of SKUs increase, the number of distribution outlets for these SKUs also increase. Lets take a broadcasting network, CVS(concurrent versions system), comprising of six channels. Each of these caters to a unique genre and depending on the genre, there is original content and repeats.

Genre	Average Original Content/day
Sports	26%
News	31%
Drama	28%
Infotainment	25%
Movies	5%

Apart from these there are commercials and interstitials. By a conservative estimate, assuming that each commercial is 30 seconds long and that it takes 15% of total airtime for commercials and interstitials, CVS approximately handles 2736 content items every day. While today there are only six delivery channels, tomorrow CVS might use the Internet, PDA or in some cases even wrist watches as delivery channels with 2736 SKUs reaching multi-million customers every day.

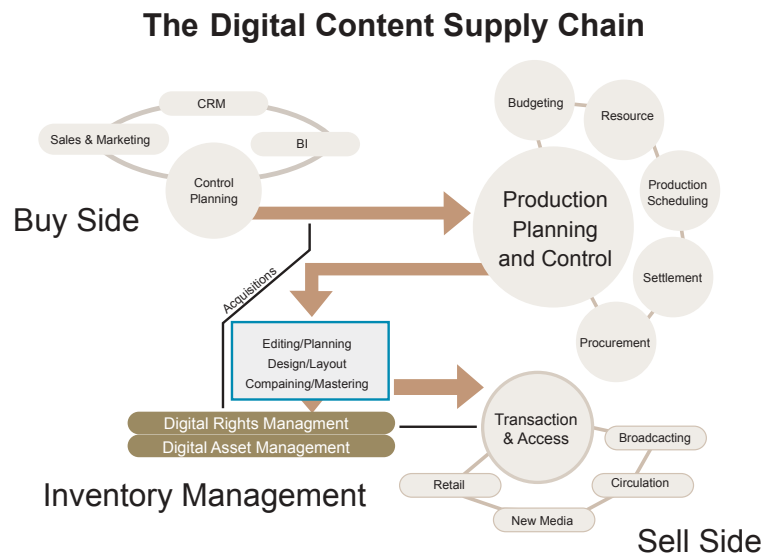
The task might not seem as daunting as managing the supply chain of, say, Wal-Mart. However it’s tomorrow which is worrisome. We are still living in an era where content is pushed at customers by most media vehicles. Internet is an exception and due to the setbacks of the last few years, will take some time to be recognized as mass media. But when that happens, when the customers start interacting with content and start exercising a right to demand content tailored to their specific requirements, will the true gravity of the situation be known. Imagine a customer walking into Wal-Mart and asking for a purple

colored toothpaste with orange flavor and yellow packaging. If we are a Wal-Mart of today, we might end up returning the customer. But if we are the CVS of tomorrow, we will have to produce that toothpaste because there will always be someone else who will comply and you end up losing a customer, maybe forever. So if there are subscribers on the CVS network who want to learn how to cook ravioli tonight rather than cannelloni on their favorite cooking show, so be it.

Does that mean tomorrow’s media companies should produce and maintain huge repositories of content, which will completely map customer choices? Certainly not. Some companies tried that and are nowhere to be seen. Content repositories are assets but only when they are performing.

This is where the supply chain mantra works. Media companies which survive this digital onslaught will be those which maintain optimal levels of inventory and yet meet customer demands. Let us examine the components of this supply chain and figure out what companies can do to ensure that these components sing from the same songbook. The digital content supply chain can be divided into:

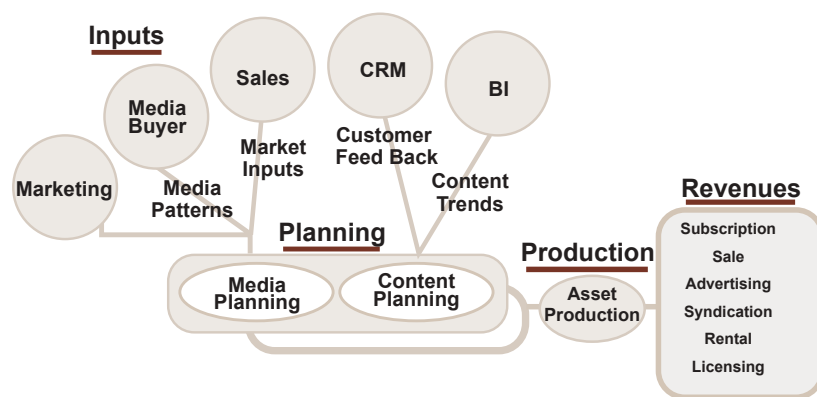
- The Buy Side (includes content procurement and production)
- Inventory Management (media asset management)
- Sell Side (content distribution)



## The Buy Side

For most media companies the procurement process is fairly simple. Customer analytics give pointers on which genre is working at what space. Based on these inputs content is commissioned, either from in-house production/editorial pool or is outsourced. The content planning process is illustrated in the figure below.

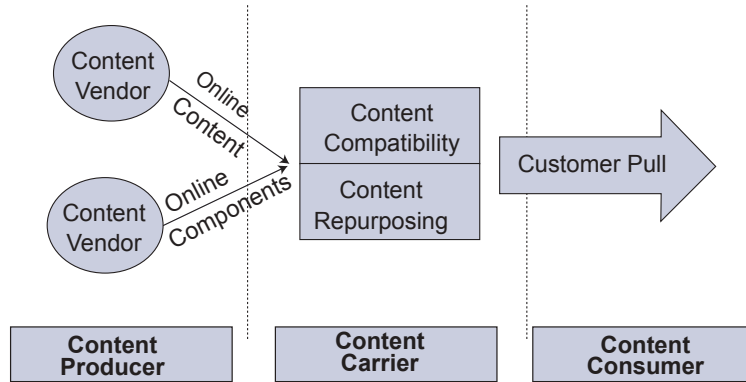
### The Buy Side Components



Content managers can keep the following in mind when they look at procuring content, be it in-house or outsourced.

- **Shelf life:** Content should cater to the needs of the consumer now. The shelf life of the content asset should be in direct proportion to customer demand patterns.
- **Componentization:** Media content assets should be planned in a way whereby they can be split into components. This will not work for the motion picture industry. However for television and printed media, componentization not only enables content managers to schedule productions better, it also increases the chances of reusability (see box 1 for illustration).
- **Interoperability:** Content assets have to be more and more platform independent and carrier independent. Tomorrow's content should essentially be delivered in all types of media. The customer is not bothered whether one file format works with another operating system or not. The customer would want to view the same content at home on his TV, at office on his PC, on his PDA or mobile phone when he is on the move.
- **Vendor Managed Content:** When some manufacturers and retailers pushed the concept of vendor managed inventory, the idea shocked the world. However with time, companies have seen value in the concept. The same idea can be extended to content assets. Content producers produce content and keep them in their repositories rather than pushing it to carriers. As and when carriers see an opportunity for any content asset, they pick it from the producer's repository and distribute it. In this case carriers do not have to bother about unnecessary inventory levels with unutilized content. And with multiple producers supplying content to the carriers, the content inventory gets spread.

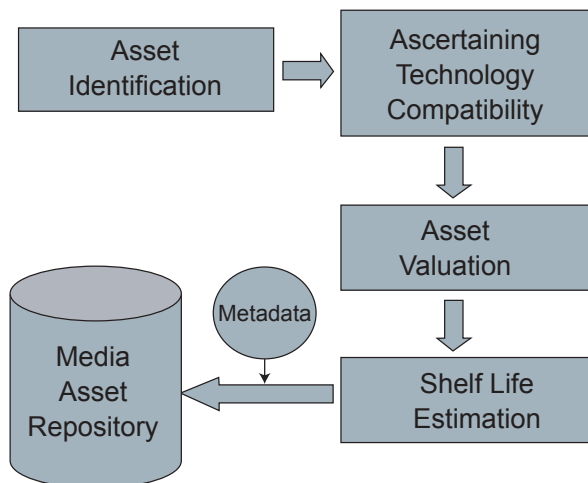
### Vendor Managed Content



### Inventory Management (Media Asset Management)

Managing Media Assets has become a critical activity for content managers. But managing media assets involve a lot more than converting assets into digital format and creating metadata for search and indexing. Each media asset needs to be treated as an inventory item, its productivity needs to be ascertained and then depending on its value and the requirement schedules, it needs to be, if possible, componentized, and stored. The media asset process can be illustrated as:

### The Media Asset Management Cycle



## Identifying assets

Based on market dynamics, companies need to sort their content into:

- Performing content assets
- Non performing content assets
- Reusable content assets
- Reusable content asset components

Performing content assets are those which have a ready acceptance in the market. Non-performing are those which do not have an acceptance and are not expected to have any relevance in the future. Content managers need to be really choosy when they decide non-performing assets. A hitherto unknown asset can become a best seller in the future if it gets associated with an event. However the call is purely in terms of ROI. If the cost of maintaining an asset is going to be higher than the expected return, there is no point in keeping it.

## Estimating Asset Shelf Life

Each content item has a shelf life. Content managers need to segregate content according to when and for how long it will be useful. The categorization can be done based on:

- Present Acceptability
- Linkage to a an event (e.g. a 20 year old non descript movie can become a hot seller if the director who was an unknown entity then has just got an academy award)
- Future trends and the asset's adaptability to those trends

## Content Asset Valuation

Content Managers' need to value every content asset in their repository. This valuation is the sum total of:

- Present market value determined by
- Present sale value
- Aggregation of all licensing opportunities
- Aggregation of all syndication opportunities
- Aggregation of all opportunities from componentization
- NPV of future projected sales
- Strategic importance of the asset

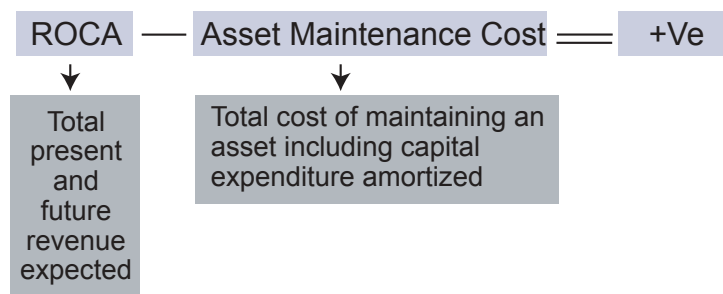
## Asset Management Costs

Asset maintenance cost is the per mega byte cost of maintaining a content asset in a digital repository. This cost includes the cost of building or procuring an asset management solution, storage cost, hardware cost, cost of software interfaces with legacy systems and the personnel and administration charges attached with the maintenance of the asset management system calculated for every megabyte of content which will be stored in the repository.

Based on this the Content Manager will arrive at the ROCA or the Return on Content Asset. Estimating ROCA is extremely important when deciding on asset management systems. If the ROCA (present and expected) for a content item is more than the cost of maintaining it in a repository, only then does it make sense for content manager to keep it. The cost of maintaining content will include:

- Content formatting costs
- Asset maintenance cost X content size
- Asset repurposing cost

### The Asset Management Equation

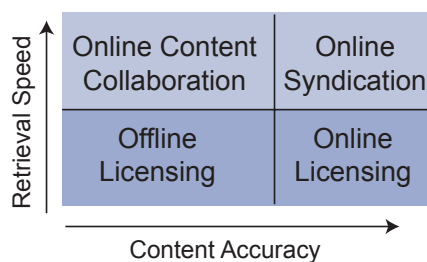


Once the Content Manager decides what content assets to keep, the important decision is on how the assets should be arranged.

### FIFO, LIFO and now DIFO

When content supply was limited and media vehicles few and far, whatever content got generated was consumed. As media companies became more customer savvy, there is always a horde to push the latest versions. In the melee there are volumes and volumes of content in every possible format which never saw the light of the day or got shortchanged. But the rules of inventory management have changed now. Gone are the days when customers used to wait for days to see their favorite shows or read their favorite authors. Today's customer wants it right then and there and tomorrow's customer will expect more. For Content Managers the inventory management technique will be DIFO (Demand In Fast Out). The content assets have to be sorted and stored in a fashion where retrieval will be quick and accurate. And this has more to do with proper indexing than the speed of the microprocessor or the storage capability of the server. Content managers will be happier if they get accurate search results when they look for content or content components rather than getting multiple choices extremely quick.

### Content Speed-Retrieval Matrix



**The important points to note here are:**

- The future value of content is directly proportional to the efficiency of metadata about that content
- Planning the Digital Asset Management indexing specifications is more important than configuring robust hardware architectures

## Sell Side

We have covered the procurement process and the asset management process. But the digital content supply chain has another important facet. Selling right. While we are not getting into the nuances of marketing techniques and sales tools, what the digital content supply chain will ensure is that the right product reaches the right customer in the fastest possible time. On the sell side the most important element for Content Managers is “know your customer”. While this is true for most product sales, its more true for media and entertainment companies as the product is not tangible. The final product does not have a touch and feel to it. It’s all about senses and understanding senses is difficult. Components to optimize the content sell side are:

- **A robust subscriber management system:** A subscription management system helps by:
  - o Helping retain the current customer by better service
  - o Provide useful customer billing and related information back which further helps in developing content which is closer to customer requirement
  - o Provide data on content shelf life
  - o Enable Content Managers to make the point of sale contact with the customer an important mode of getting psychographic and demographic data
- **Interoperability of content:** The content repository carries disparate formats of content. On the sell side there has to be a process in place to make sure the content delivery is specific to the device requirement of the customer.
- **Content Collaboration:** It is impossible for content companies to produce and maintain content to suit all genres, languages and tastes. Content Managers need to create collaboration mechanisms, increasingly online, which can help them search and distribute content from networks which are outside the organization.
- **Global content – Local needs:** Last but not least, customers are looking for content which has a local flavor. Even global content needs to be dubbed, captioned or translated in order to meet local requirements. From a technology perspective this means delivering the same content to two different regions in two different languages. Distribution systems on the sell side should be able to meet this challenge in an online environment.

## Conclusion

Traditionally the content business has been governed more by creatives than processes. However with the amount of content increasing dramatically and the Internet providing a point-to-point access between the customer and the media and entertainment companies, processes will play an important role. While creatives will still be important, what will also become increasingly important is the ability to reach the customer with the right content within no time.

## About the Author

Ashish Chawla is a domain consultant with the Media and Entertainment practice of Wipro Technologies. Ashish started his career in print media on the editorial side and later moved into television. In the 6+ years in television Ashish moved from production to business development and then new media. His experience spans from actual production processes to media distribution. Ashish has been in the Information Technology industry for the past three years and is involved in configuring and providing technology solutions to Media and Entertainment companies. Ashish is an MBA in Marketing.



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