

## White Paper



### DVD Supply Chain

#### The Emerging Challenge to Media Profitability

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The motion picture industry today is facing a challenge that is traditionally associated with the consumer goods sector - management of its finished product supply chain. For an industry, which always has concentrated all its effort on content creation and of late Television broadcasting, this is certainly a phenomenon. And all of this is the result of an unprecedented rise of DVD as the primary revenue earning medium. It may just be the right time for media companies to tighten their supply chain technology and processes to successfully manage this emerging medium.

Even by any pessimistic estimate, by the year 2007, the United States sell-through DVD market is going to be nearly two times that of the theatrical release market and will be the primary revenue earning medium by far.

In volume terms, recent analysis by Adam's market research suggests that in 2003, DVD sales to US households has reached 1 billion units, and by 2008, this figure will surpass 8 billion units globally.

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*Approximately 50% of the total sales of a DVD title occur in the very first week from street date. This incredibly small sales window coupled with a difficult to forecast demand makes this supply chain a challenge to optimize.*

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## Why the sudden rise in DVD sales?

DVD player sales have reached critical mass from since manufacturing companies have gone on overdrive in price reduction. Today, a DVD player sells for a little as \$30 at discount stores, a little more than the price of a new DVD title. The fundamentals of DVD were always strong - it produces a great picture, it is durable and is easy to store.

However, unlike music, movies were not previously considered to be a multi-use object. DVDs today have become collector's objects, just like books. This is particularly true for Classics & popular Television serials. Kids helped to establish the trend of viewing animated movies multiple times and it is no wonder these titles top DVD sales charts. In hindsight, one might also see that while screening the same movie in a theatre for multiple engagements is not practical, it is easily seen many times when they are available at home.

## Analyzing the problem in detail

The DVD sales pattern closely follows the theatrical release sales pattern – anywhere between 30%-50% of sales is contemplated in the 1st week. Another 30% of sales may take place in next 3-4 weeks and the remaining 20%-25% of sales happen following the first month. The new release sales pattern in many ways is influenced by focused advertising, release of competing movies and availability of retail shelf space.

Moreover, the newness of DVD market, relatively low prices and predominantly young (20-35) primary customer base is eager to make best use of the player they have purchased. This sales pattern also means that DVDs can be as perishable as a fresh vegetable. Managing such small sales window across multiple sales channels with thousands of outlets all over the world is a challenge by any standard.

Demand forecasting for movie titles is a complex process. While the theatrical release box office gross may give an indication on how well the movie will perform in DVD, it by no means a perfect indicator. There are many examples where a flopped box office movie has done wonderful business in DVD format.

Release of competing DVD titles or even new theatrical releases can also impact demand patterns. Sometimes the impact is positive - the theatrical release of a sequel often spurs sales of the original DVD. The sales pattern may also vary based on the timing of the release. For instance, romantic movies sell better during Valentine's week. Given their low sales prices, DVDs have become quite an impulse purchase. Demand estimation can be further complicated by promos launched by retail chains, which normally attract more customers. With all these uncertainties, DVD sales forecasts can go abysmally wrong.

In years to come, DVD demand may become more predictable owing to stabilization of the number of households owning DVD players. But by then, DVD product categories will have flourished to accommodate more bonus features (e.g. alternate endings, director's cut, and other such value adds) thus compensating for the stability of the market. Complexity will most likely increase due to growth in new video formats like Video on Demand, Blue-Ray and the adoption rate of large screen HDTV in the mass market since they may divert more consumers from multiplexes to home entertainment. This prediction could also be proven incorrect – just as the prediction that the launch of VCRs would kill off movie theatres back in the 1980's. Overproduction; can it be the answer?

## Overproduction; can it be the answer?

Over-production is often the accepted norm to tackle uncertainty in sales forecasts in order to avoid the risk of lost sales. While acknowledging the fact that higher importance on lost sales is more justified than inventory (given the DVD production and distribution cost of roughly \$1 per media), it must be understood that producing even double quantity of what is required may not necessarily ensure supply of right quantity in right outlet.

Conversely, Hollywood studios' warehouses brimming with unsold titles are testaments to optimistic sales forecasts.

Furthermore, if we take just a rough estimate of 20% forecast inaccuracy on 8 billion units in 2008, it will be a drag of \$1.6 billion on the industry, a huge number by any standard. This cost is understated because it excludes the costs associated with returning and storing excess inventory. Competition within the same format, as well as, alternate means of distribution (e.g. downloadable movie formats) is also likely to reduce the price of new title. These factors will also increase pressure on good inventory management practices.

Pic1- A few factors that can affect DVD forecast

### Known and controllable Factors

- Movie Genre
- Talent featured
- Box Office Performance
- Sales Promotion
- Pricing
- Time of Release
- Bonus Materials/ Special Editions
- Comparative Title Performance

### External Factors

- New Theatrical Releases
- New DVD releases
- Growth in DVD owning households

### Store Level

- Store Plan-o-gram
- Store Location
- Store Promotion

## Setting the Objective

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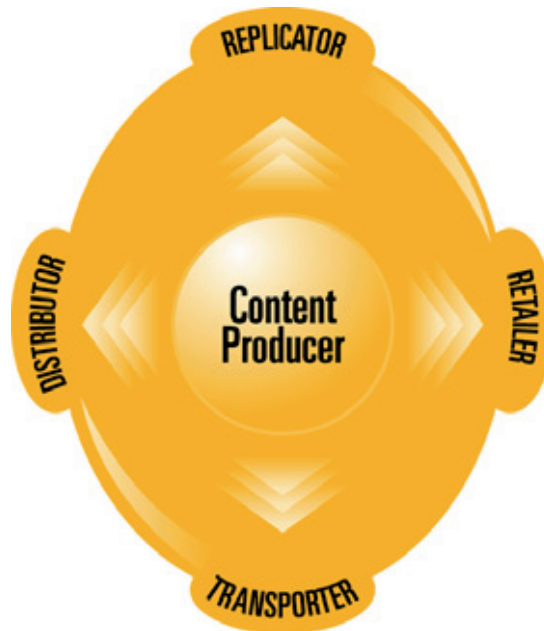
*In order to be successful delivering the correct number of DVDs to thousands of retailers globally at the right time as well as managing all other emerging distribution channels, requires a combination of highly agile supply chain and a highly accurate demand forecasting model.*

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We will first take a closer look at the DVD supply chain, looking for ways to maximize value creation.

## The DVD Supply Chain

The DVD supply chain consists of the media company (the owner of the content), the Replicators, Transporter, Distributors & Retailers.



In most cases, the Home Entertainment division of a large media company works as its own distributor of DVDs. However, smaller studios usually need to go to a third party distributor. In this paper, we will consider large media companies and will not elaborate in detail about the integration requirements between content producer and distributor.

### Tackling the Problem

The business problem can be approached with the following six methods. Each of which is detailed in the subsequent chapters:

- Promote customer advance booking to flatten the demand curve
- Include the Sales function in the entire forecasting cycle
- Enhance forecasting accuracy
- Improve responsiveness of the production system.
- Improve the agility of the distribution system.
- Explore usage of emerging technologies

#### *A. Promote customer advance booking to flatten the demand curve*

General wisdom may question that tackling marketplace behavior with a company specific strategy is not a feasible option. While it may be difficult to change customer behavior in a retail store, media companies certainly can flatten the demand curve more by introducing advance DVD booking through Web. This can confirm demand from committed buyers, while providing a good indication about potential sales once the product is physically launched. Today, retail chains have introduced advanced DVD booking through their own websites. This could be augmented with promos and if strategy permits, the media companies themselves can indulge into web retailing. This strategy alone will not solve forecasting issues, as many DVD sales are impulse buys.

## B. Include the Sales function in the entire forecasting cycle

*Tie advance bookings and overall sales to the Sales organizations' overall compensation scheme.*

Although most studio salespeople provide customer advance booking information as a major input into the overall sales forecast process, salespeople are paid based on gross video sales, not net sales (net of returns). As a result, salespeople are biased towards padding forecasts. Another performance measure to consider is overall customer profitability % – which would also take into account special deals and promotional expenses.

## C. Enhance forecasting accuracy

*Establish an evolving Category Management strategy*

Another step to improve forecasting accuracy is to deploy a solid category management foundation. The sheer volume of DVD titles available, from Anime to Westerns, has created a real need for category management. It may not be good enough to define movies just by genre (e.g. action or thriller). For example, there may be specific preference to certain actors/actress or age group or geography.

Determining category behaviors like pace of sales, choice of distribution network, impact of price/product based promotion, effect of store promotion, seasonality, day/week, release of sequel will eventually form the foundation of a solid forecasting model.

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*The evolution of such category management will require a strong Data Warehouse and Data mining solutions in the forefront.*

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*Incorporate store customer profile (traits) in the demand model*

Each store has its own profile of customers. Stores usually share these profiles with the vendors. Storing customer profiles could help determine sales performance for each category of movie. Forecasting accuracy can be greatly enhanced if store level customer profiles are factored in the overall forecast.

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*The forecasting engine needs to have the ability to incorporate store customer profile and forecasting at the store level to ensure correct production and distribution strategy.*

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*Identify emerging factors affecting forecast*

To prevent forecasting patterns going haywire, it would be imperative to put an organizational structure, which continuously monitors and evaluates all emerging factors affecting forecast accuracy. Until the market becomes somewhat stable, companies need to approach this issue in a systemic and not a reactive manner.

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*Emerging factors can be traced from the organization's data warehouse or data mining models as well as structured market research.*

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*Enhance forecasting engine capability*

Typically forecasting engines are either inward or outward looking. In this case where both internal and external factors contribute substantially to forecast accuracy, the forecasting engine's capability is required to be enhanced substantially to accommodate all factors.

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*If companies are using standard tools like Manugistics, they will require continuous dialog with the software vendor to enhance its capability.*

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### *Estimate correct sales loss figures*

In most cases, lost sales are never factored when replenishing inventory, resulting in a perpetually inaccurate model. If lost sales are not factored, stores will not receive a full allocation of product.

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*Lost sales measurement can be performed using stock-out data for a given time period by store, then extrapolating sales loss on that count. Each subsequent forecast must have capacity to factor sales loss numbers.*

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### *Involve retailers in the forecasting process.*

With many store level factors affecting forecasts, it will be imperative that companies indulge into collaborative forecast model along with the retailer. There is already a growing trend of retailers creating collaborative forecasts on new release titles with major studios.

## *D. Improve responsiveness of the production system*

### *Integrate Forecasting and Order Management system in real time*

Integration of Forecasting and Order Management systems are critical in fine tuning change in real time demand. Even a day's delay in such estimation can result in losses than can run into couple of million dollars. With thousands of retail stores sending inventory status throughout the day, manual interfaces are just not suitable in such environment.

### *Make replicators your strategic partner and tightly integrate systems and processes*

It is imperative that media companies develop strategic relationship with their replicators. That will ensure that the replicators are committed to the long term vision of the company and build idle capacity to take care of demand peaks.

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*As a strategic partner, it will be imperative that the media company's forecasting system is tightly integrated with the replicator's production planning system by allowing replicators real time access to the planning horizon.*

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### *Simplify product packaging to reduce lead times and associated costs*

Major retailers are putting increased pressure on studios to reduce DVD prices. To date, studios have taken small steps to simplify packaging to reduce costs, but other opportunities remain like packaging titles in slim cases that take half the space as conventional packaging, remove extraneous packaging (except for collectors editions), package full screen and widescreen versions on the same disc to avoid having to ship two separate varieties.

## *E. Improve the agility of the distribution system*

### *Enhance Vendor Managed Inventory*

Most of media companies today are offering their largest customers Vendor Managed Inventory services in some capacity. However the level of integration between the media's distributing company and the retail outlets may vary significantly.

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*In order to make this supply chain truly responsive, integration is required in real time with each store at the SKU level. This apart from assuring correct replenishment will help in demand forecasting, setting up correct buffer stock and deploying the correct distribution strategy for each store.*

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### *Consider all significant Distribution Channels*

Though mass market outlets, like Wal-Mart, and electronic stores, like Best Buy, today contribute most DVD sales, not every available title in a studio's catalog can be sold at every retailer. It is quite probable that based on the category of movie, the rental market or the Internet outlets perform better. In that scenario, the entire production and distribution mechanism will suddenly lean towards a less automated environment.

DVD Sales Channels	
Video specialists	Blockbuster, Movie Gallery
Mass merchants	Wal-Mart, Target
Warehouse clubs	Sam's Club, Costco
Electronic stores	Best Buy, Circuit City
Online retailers	Amazon
Music Specialists	Musicland, Transworld
Supermarkets	Safeway, Kroger
Mail order clubs	Columbia House

The alternate sales outlets usually also act as buffer to the main channels in case of stock outs. Hence keeping them in scope for seamless integration may help companies avoid sales loss.

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*Though the media company needs to integrate effectively with all sales channels of any significance, the extent of integration may vary with importance of the distribution chain.*

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#### *Develop Transport Service Providers as a logistics partner*

Transport service companies are integral part of the supply chain. To make this supply chain agile, companies need to form strong strategic alliances along with tight application integration with transport companies.

An integrated distribution plan involving the Transporter may mean faster response time, reduced inventory holding and reduced cost in reverse logistics.

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*Transporter warehouses can be used to manage overall distribution plan. In such situations, visibility of in transit/warehoused stocks within Media Company's application environment as well as, making such inventory part of the distribution strategy can be extremely useful.*

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## **F. Explore emerging technologies**

### *RFID labeling for DVDs*

RFID labeling for DVDs can ensure absolute correctness of data as the DVD moves around through the supply chain. RFID enabled DVDs is also a value add for retail chains since this can effectively reduce shrink in outlet. DVD theft is a common menace in retail outlet.

There are many other ways RFID enabled DVDs can help in this supply chain. For example if a lot of DVD is found to be defective, the entire LOT can be traced back through the supply chain in no time thus easily detecting the source of the problem.

Of course, RFID tag costs will have to be reduced to a few cents in order for them to be economically feasible.

### *Use Kiosks in retail stores*

Kiosks can be used in retail stores to accept feedback or to take instant orders in case the store is stocked out, helping to recapture lost sales.

### *Vending Machines with replication facility*

Future distribution patterns may change dramatically with emergence of retail level DVD vending kiosks. After all, every technology element for such equipment is already available in the market. If the cost of such kiosk is shared among all studios, all of whom will gain from such arrangement, the future of DVD distribution can change all together.

## Conclusion

Though emergence of the DVD format is a recent phenomenon, most media companies have taken positive steps towards managing their overall supply chain. Business processes however are still evolving, so is the technology infrastructure surrounding the processes. In order to successfully manage this supply chain, organizations need to keep a close look at the changing market dynamics and evolve quickly so as to maintain profitability of this business.

The evolving media distribution space will see many changes including the emergence of on demand content as a serious competition to physical distribution of media. However as of now, physical media seems to be ruling the domain, and it does seem likely that in coming few years, on demand distribution and physical media is going to coexist and grow at their own space.

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