MOVIE THEATRES REVENUE MANAGEMENT

**2012**

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# OVERVIEW

PVR Cinemas are the leading cinemas in the country with an emphasis on design, technology and service. It was the first to introduce the multiplex business model in India. There are three major sources of revenues:

1. Revenue stream from box-office movie collections from the sale of tickets
2. Royalty from sale of food and beverages
3. Advertisements during film screening

The project focuses mainly on the revenues from sale of tickets. Movie theatres can be viewed as providing services that are ***perishable***. The objective is to maximise revenues for different classes of tickets if revenue management techniques are used. The focus is on getting incremental revenues. Proper revenue management can reduce costs from spillage and spoilage. The following points will be examined in detail:

1. The revenue variable that is the key determinant of revenue and the constraints
2. Factors that affect the demand for tickets
3. Forecasting demand for different movies and classes
4. Pricing strategy currently used and how using variable pricing with effective revenue maximisation can improve the overall collections from movie
5. Analysis of peripheral facilities such as food and beverages, use of loyalty programmes, tie ups with other industries such as financial services etc.
6. Use of other revenue maximisation techniques such as the use of overbooking and upgrade decisions

# BACKGROUND OF THE COMPANY

Priya Village Roadshow (PVR) Cinemas is one of the largest cinema chains in India. The company, which began as a joint venture agreement between Priya Exhibitors Private Limited and Village Roadshow Limited in 1995 with 60:40 ratio, began its commercial operations in June 1997 with the launch of PVR Anupam in Saket, Delhi, India's first multiplex. . The Cinema can boast of the highest box office collections in India for five consecutive years since its opening. Located around the Cinema in the same complex are a number of up-market restaurants, pubs and fast-food eateries that make it a popular youth hangout place and indeed an entertainment experience for the entire family.

By introducing the multiplex concept in India, PVR Cinemas brought in a whole new paradigm shift to the cinema viewing experience: high class seating, state-of-the-art screens and audio-visual systems. Modern amenities such as wall-to-wall screens, state-of-the-art audio and projection, multi-station food and beverage stands, computerized ticketing systems, stadium seating and movie-themed interiors and exteriors.

Currently, our geographically diverse cinema circuit in India consists of 38 Cinemas with 166 screens spread over 22 different cities covering major markets across the length and breadth of the country: Delhi, Faridabad, Gurgaon, Ludhiana, Ghaziabad, Mumbai, Kolkata, Bangalore, Hyderabad, Chennai, Lucknow, Indore, Aurangabad, Baroda, Allahabad, , Ahmedabad, Udaipur, Chandigarh, Surat, Latur, Nanded and Raipur

## PVR IN BANGALORE

PVR Cinemas has opened India's biggest multiplex (11 screens) in Bangalore. Built over 1,20,000 sq ft of space, this state-of-the-art multiplex is located in the heart of Bangalore at the Forum Mall in Koramangla with a seating capacity of 2019 seats. This multiplex includes two ultra premium cinemas known as the Gold Class and two luxurious auditoriums called Cinema Europa in addition to seven Classic auditoriums.

# REVENUE OBJECTIVES OF THE COMPANY

‘PVR Multiplex Cinemas aims to increase profitability by optimizing revenues per square foot and reducing the cost per square foot of operation.’

## Revenue from Ticket Sales

* Currently done by varying cinema seating capacities within the same multiplex, allowing them to exhibit films on a more cost effective basis for a longer period of time by shifting films to smaller cinemas to meet changing attendance levels
* Opening of new cinemas in upcoming areas and overall adding 70 – 80 screens per year
* The company strives to increase the number of patrons by increasing the occupancy rate at existing cinemas through
  + The use of flexible ticket pricing
  + Marketing initiatives to increase the profile of films played at the cinemas
  + Through other initiatives such as bulk ticket sales

## Other Revenues

* Increasing Advertisement Revenue by focus on the on-screen advertisement presentation sequence prior to the screening of a feature film and during intervals in order to enhance the saleability of this airtime; develop and exploit off-screen media spaces; and develop and exploit cinema experience association opportunities.
* Increasing Food Revenues by undertaking innovative promotions

# IMPORTANT FACTORS THAT CONTRIBUTE TO REVENUE

**REVENUES**

**DEMAND**

**PRICING**

**COMPETITORS**

**GOVT POLICY**

**Day of Week**

**Show Timing**

**Revenue Class**

**Time of Booking**

**Movie**

**Type of Movie**

**Release Date**

**Price Elasticity**

**Location**

**Cinema Features**

**Special Events**

**Pricing Strategy**

**Pricing Restrictions**

**Location of Cinema**

**Facilities Offered**

**Alliances**

**Right to Ban**

**Entertainment Tax**

Other long term risks to revenues include:

* Piracy and home-viewing may reduce the number of cinema patrons: On account of inadequate enforcement of anti-piracy laws in India which may have a material adverse effect on the company’s revenues and results of operations. Television is expected to grow at a faster pace than cinema.
* Costs of setting up a multiplex in India are coming down: It can takes around Rs 40-50 crores to set up a premium five-screen multiplex in a metro while the same in a smaller town costs between Rs 10- 15 crores.
* For hiring a film, the distributor’s share is normally a percentage of ticket receipts (net of entertainment taxes) and the applicable percentage is negotiated on a film to film basis in respect of movies produced in India. Distributors work on a non-exclusive basis and there is competition between exhibitors to acquire films.

# REVENUE VARIABLE AND CONSTRAINTS

## Revenue Variable:

Number of seats in a movie theatre

## Constraints:

1. Number of Seats per Screening:
   1. Classic Cinemas has 172 seats
   2. Gold Cinemas has 32 seats
2. Number of Screens in Multiplex

PVR Cinemas, Bangalore has 11 screens including 7 Classic Screens, 2 Cinema Europa and 2 Gold Class Screens.

1. Number of Shows per Day: In Bangalore, movies cannot be run beyond city close down time of midnight. In addition shows are run from 7 am. The slots available for screening become limited.



# AUXILLARIES

**Food and Beverages:** This includes popcorn, soft drinks, confectionary and sandwiches. Different food and beverage varieties are offered at our cinemas based on preferences in that particular geographic region. ‘Combo-deals’ have been implemented for patrons, which offer a pre-selected assortment of concessions products and offer co-branded products that are unique to PVR. When pricing products, analysis as to the affordability of the products is done and compared to the prices of competitors. The strategy emphasizes prominent and appealing food and beverage counters designed for rapid service and efficiency. Strategic placement of large food and beverages stands within the cinemas heightens their visibility, aids in reducing the length of lines, allows flexibility to introduce new concepts and improves traffic flow around the food and beverages stands. There are also started value added services like service on seats to increase our revenue from food and beverages.

**Gift Cards**

PVR gift card is an innovative concept of gifting an experience at PVR cinemas across the country. This is a pre-paid card which can be redeemed against purchase of tickets, and for food & beverages at the PVR cinemas.

# THE NEED TO FORECAST AND LEVEL OF FORECAST

## NEED TO FORECAST

Movies at theatres have evolved a big way from being single screen, few hours of reel show to an “experience”. It is necessary to capture this change in terms of revenue for a theatre and the same is enabled by demand forecasting. However, forecasting also serves in:

* **Pricing:** Forecasts are most critical in pricing the tickets of movies. It is especially relevant in India where price variation is observed across show times as well as the next upcoming movie. It helps in riding the tide when it is high, if we forecast in a timely and accurate fashion.
* **Operations:** Also, it is important in planning the operations of theatres in terms of negotiating the kind of movies (which producers, directors) and the number of movies that the theatre shall distribute to achieve its revenue and organizational objective.
* **Expansion plans:** Forecasting also guides in planning future expansion plans. It sets the terms of setting up new theatres, the number of screens and the commensurate investment required.
* **Investor relationship:** Also, it is an important input to justifying to the investors why they should keep their money locked in the company.

## LEVEL OF FORECAST

Demand forecasting for a movie is subject to many conditions like, the time of show, the nature of movie, external contingencies like popular sports, key political events etc. All forecasts are based on assumptions regarding such contingencies. The forecast may be made in terms of occupancy for show-times (across weekdays) or in terms of occupancy expected for a new release (across its show-times). However, the ultimate accuracy of the same depends again on the underlying model and external circumstances.

# FACTORS THAT INFLUENCE FORECAST

The business of movie theatres has its own jargon and it is worthwhile to clarify some of these at the outset.

* Showtime refers to the time slots in a day available for playing a movie.
* Occupancy refers to the fraction of total capacity of the movie hall that is occupied during the screening of the movie, expressed as a percentage.
* Screening refers to the playing of a single movie on one screen during a show-time.

## Factors in Forecasting:

### Seasonality:

Reflects the time a sizeable chunk of the target market will be free. Christmas New year fortnight also sees fuller movie halls. Historically, revenues have been higher during the first half of the fiscal year due to summer vacations and release of big budget Indian movies during this period.

### Special Events:

Forecasting must take into account any major political or people’s events that directly impact demand. For example: an IPL match in Bengaluru definitely impacts the demand in the movie halls. Similarly, if there are elections planned during a week it must be accounted for.

### Day of Week:

Typically Friday evenings and weekends have higher demand as compared to other days of the week.

### Time Slot of Movie:

On weekdays, the evening slots have higher demand than morning slots. It can be noted that most morning shows are thus reserved for special screening or screening regular shows at lower prices to stimulate demand

### Movie:

There are a large number of different movies that the theatre wants to show in a typical week. This number is typically larger than the number of screens. Thus choice of movie becomes important to the cinema theatre.

* There are different genres of movies, and this also has implications for their demand. For example, children's movies should preferably be shown at times when children are free from school and will not be shown during evenings.
* The date of release of the movie is a factor to be considered. When the movie is premiered, the demand is significantly higher than when few weeks have passed. PVR addresses this by moving the movie to smaller screens after the initial rush
* The initial reviews and collections have an impact on the demand. Movies rated well have a higher demand. Factors in this include star casts, promotions and visibility.

### Logistics:

There are many constraints posed by the logistics of a movie theatre. An obvious limitation is the time that the theatre is open. The closing time is often determined in part by schedule of public transit. Non-drivers attending the last show need to be able to get home. Other logistical constraints are the time needed for cleaning after a showing (which depends on the size of the room), and capacity limitations of the ticket office, corridors, staircases, and concession sales counters. To provide high consumer satisfaction with the theatrical experience, crowding should be avoided as much as possible and major movies with many visitors should not start at the same time, especially if they are on the same floor.

# FORECASTING METHODS

The forecasting models incorporate both qualitative and quantitative models to forecast demand. However, estimating demand in such a multi variable sensitive scenario is not an easy job.

## MATHEMATICAL MODELS

Using a mathematical model that codifies assumptions and constraints, the expected demand can be forecast. For this a rich data set is assembled, enabling PVR to estimate a detailed characteristics-based demand system. In particular, control for film characteristics (e.g. genre, budget, advertising, reviews, cast appeal), theatre characteristics (e.g. location, number of screens, number of seats), the day of observation (e.g. day of week, public/school holidays, weather), and the demographics of the local population (e.g. age, income). Then, random coefficients discrete choice model of demand can be adopted to forecast demand. A product is taken as a combination of a film, a theatre and day of screening. There are a large number of such products in our sample, making a characteristic-based estimation strategy possible.

## EXPONENTIAL DECAY MODEL

To forecast weekly attendance for a movie at the individual movie theatre level, an exponential decay model can be used. To a first degree of approximation, most mass-market movies follow an exponentially decaying pattern once it has been widely released. For a given movie, the exponential model, stated in logarithmic form, is the following:

**Ln (Attendencew) = α – βw** where w= 0,1,2... is the week since the movie is first shown

The values of the two parameters α and β vary, of course, by movie. They may also vary by movie theatres. In addition, there could be other effects on demand such as holidays and seasonal factors. A suitable window of weekly attendance data was then chosen to apply the model to.

The overall approach towards demand forecasting involved the following three phases: (i) before opening — use manager's judgments for each of the first three weeks data and fit an exponential curve to these data, (ii) after the first week — use actual attendance to estimate parameter α, and use manager's judgments for weeks 2 and 3 to fit an exponential curve to these data, and (iii) second week onwards—fit an exponential curve to as many weeks of actual data as possible.

While a reasonable forecasting procedure, this demand system with its high reliance on detailed managerial inputs for new movies faced many challenges. Thus, a new procedure was developed where in management only had to classify each movie in one of sixteen categories according to the expected opening strength and decay rate of the movie to trigger the forecast model.

# PRICING STRATEGIES

## PRIMARY OBJECTIVE:

Pricing a movie ticket is a complex issue. PVR believes in providing high quality movie experience at an affordable price. Its objectives:

1. Increase profits.
2. Attract new customers.
3. Maintain current customers.
4. Increase profit per customer.
5. Generate cash.
6. Improve ROI.

## PRICING STRATEGIES

***Skimming Pricing Method & Penetrating Pricing Method:***

The pricing strategy adopted here is a skimming price strategy. PVR had a clear cut picture of what kind of services to be provided to customers. Since they had a unique way of interaction with their customers, they had to incur heavy costs in implementing this strategy of high price. So, it’s worth paying such price for tickets in PVR. The pricing strategy adopted by PVR is skimming the market on weekends and penetrating the market on weekdays. The prices also depends the movie and the time of the day it is being screened.

PVR lowers ticket prices charged on Monday, Tuesday, Wednesday and Thursday, where demand is less, compared with Friday, Saturday and Sunday, where demand is greater. We believe that demand for going to the cinema is relatively price elastic on Mondays, Tuesdays, Wednesdays and Thursdays and relatively price inelastic on Fridays, Saturdays and Sundays. Thiers goal in offering tickets at lower prices is to attract more customers (thereby increasing the occupancy rate) and increase box office revenue.

Their ability to increase the ticket prices at each of the cinemas is restricted by competition from other cinema operators in the catchment area and the price sensitivity of the population in the catchment area. In addition, certain states require us to obtain approval before we may increase ticket prices.

# TYPES OF PRICING

PVR lifestyle has concepts like Gold Class where tickets are priced at Rs. 500 and above because benefits include ultra-reclining seats in addition to exclusive butler services. The price quoted by PVR on weekends and on weekdays clearly depicts that it is targeting high earning people as they can afford such prices on weekends. On the other hand that is on weekdays it is targeting students, low income people, retired people.

PVR offers a variety of services for all segments of consumers

* PVR General screens - The Classic
* PVR Premiere screens - The Europa
* PVR Gold class - The Gold Class

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Screens | Features | Price | Cancellation | Seats |
| Classic | Ordinary seats, Food and Beverages can be ordered while booking. Spot booking not available | 90 to 300 | A nominal charge is charged on cancellation. Online tickets are not cancelled | 172 |
| Europa | Special Reclining Seat, Luxury Lounge, Waiting time for movies is less. Complimentary drink, Meals served inside the hall. Better lighting, sound and projection systems. Spot booking available | 250 to 500 | Cancellation Charges apply when booked with counter. Online tickets are not cancelled | 172 |
| Gold | Recliner Seats with additional plush and comfort. Blanket and pillows provided. Special premium lounge with Indian and International cuisine. Private viewing is also possible. Legroom and space between seats are more. Best quality projection and screening. Spot booking available | 500 to 1000 + | Cancellation of online tickets not available. Special charges for corporate and private bookings | 32 |

# PRICE REVISION AND FREQUENCY

Price variation is carried out by PVR according to the segments they serve. The revision is mainly done during weekends as per the demand generated. They practice a price variation majorly for the Classic and Europa cinemas where the price elasticity is high. PVR also adopts only rack pricing for the Gold segment where customers book only the day prior to the show or on the day of the show. PVR also provides for discount on group bookings for the corporates and others. They provide loyalty services like redeem your miles by getting a free movie ticket. PVR Bangalore doesn’t follow any particular price revision methodology. The variation in pricing is based on factors like Governmental Regulations, Competitors and price of DVD’s etc.

# PRICE ELASTICITY AND IMPACT

## CLASSIC & EUROPA

Price elasticity is highly visible in the Classic and Europa classes of the PVR Bangalore. The major target audience of these 2 segments is Middle class and Lower Upper class segment. For this target audience a movie tickets is a commodity and does not have a huge variation if it PVR Bangalore or INOX Bangalore. PVR has clearly understood this element that is why they have a wider price range both the segments combined (Rs.90 to almost Rs.350). Elasticity is also affected by the day of week where the sensitivity coefficient is not as high as it is during the week days. Research studies have shown that the elasticity factor movie ticket is 0.67.

Movie tickets are elastic also due to the fact that new release movie in pirated DVD’s. Thus if the consumers feel the price is too high for the movie they either prefer to watch it with a competitor or on pirated DVD.

## GOLD

The Gold class customer in Bangalore is mostly the corporates and the VIP population. The tickets sale from this segment is not as high as metros like Delhi. These customers are indifferent to the variation in pricing. Thus PVR adopts only 2 slabs Rs 300 & Rs 500 which is mostly based on the variables time of show and day of week. The Gold class cinemas are generally offered for group booking for corporates where again price revision does not play a major role.

# REVENUE CLASS

Currently PVR doesn’t follow a strict revenue class for its ticketing. The major parameters based on which they currently seem to adopt are:

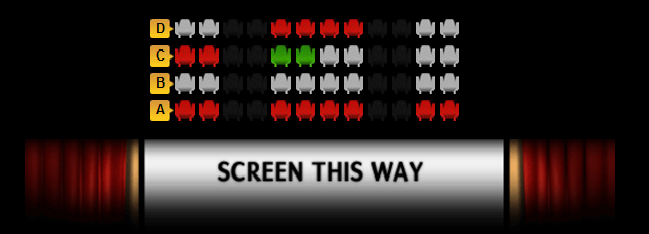
* Time of booking
* Mode of booking

## Recommended Revenue Class Strategy

The matrix is an example for how the fare class can be divided for various products in the Gold Class Cinemas. This similar strategy can be adopted for the Europa and Classic Cinemas also.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sn | Features | Fare Class1 | Fare Class 2 | Fare Class 3 |
| 1 | Price | High (1000 +) | Average (700 to 1000) | Low (500 -700) |
| 2 | Food & Beverages | Special Chef (Available on Demand), Complimentary snacks & drinks, access to international cuisine, Kids special on demand | Food served at seat, Access to International cuisine, Special kids food also provided on demand | Food can be ordered prior and served at seat, Access to international cuisine on additional payment of Rs100 |
| 3 | Seats | Preference High | Preference Low | Given on Fare class 1 & 2 fill up |
| 4 | Booking | Tickets available always (Rack Booking). | Closes 2 hrs. prior to Showtime | Can be booked only online. Closes 4hrs prior Showtime |
| 5 | Pre Booking | First Priority | Second | Third |
| 6 | Cancellation | If booked online only convenience fee is deducted | 10% deduction on cancellation prior to 2hrs to Showtime else Full deduction | 20% Cancellation fee till 4hrs prior Showtime. Else full charge. |

The gold screens have 32 seats. The opening and closing can be based on how much prior the tickets are booked; the demand and so on.



## PROTECTIONS

PVR Cinemas does not seem to have any system for protection of seats it only based on availability and fill.

We recommend PVR to allow a reservation (Example taken here is Gold Class) of capacity – 32 Seats

* Fare class 1: 7 seats
* Fare class 2: 10 Seats
* Fare class 3: 15 Seats

This is an approximate figure recommended based on the demand and forecast these numbers can be varied.

## MAXIMIZATION OF REVENUES

By adopting an optimization pattern PVR can maximize their revenues better. This allows them to charge higher when they have a higher demand for certain movies like “Kahani” which was a box office hit. Adoptions of revenue class and optimization will help them sell tickets even for those customers who prefer lower cost for the same product and customers who are ready to pay a high amount for watching the movie at any cost. Currently PVR follows a standard price policy from the time they open the tickets. They should try opening and closing so as to push the demand and also skim the market better. Optimization would help them maximizing the revenues from the producing an optimum mix of fare classes in the tickets so that they don’t lose out on customer due to over pricing at the same time they do not under-price their tickets which would lead to revenue loss.

# OPTIMISATION

## OBJECTIVE FUNCTION AND DEFINING THE PROBLEM

The objective function must be considered separately for a revenue class (ex. Economy) for a particular show (timing, date and movie). The ***specific objective*** is to maximise revenue

Revenue = Ʃ (Si x Pi)

where Si is the number of seats at a price point

and Pi is the price at that point

subject to constraints

Gold Cinema has one type of seat and Ʃ Si  <= 32

Classic Cinema has 2 different partitions Ʃ Si  <= 90 for Economy Class and 52 for Premium Seats

The challenge is to decide the price points to prevent both spillage and spoilage.

## SOLVING THE PROBLEM AND EMSR

Based on the class, in the case below, the demand for economy class at classic cinemas is taken for the movie ‘Kahani’ is taken. Taking the 12:40 am show on 18 Mar 2012, the total expected revenue is considered.

***Without Revenue Management***

Price on date = Rs 140

Occupancy = 70%

Number of seats = 90

Thus, Revenue = 0.7 \* 90 \* 140 = Rs. 8820. But spoilage is 27 seats.

***With Revenue Management***

|  |  |  |  |
| --- | --- | --- | --- |
| Class | Prices | Forecast | Error |
| A | 200 | 10 | 3 |
| B | 160 | 25 | 6 |
| C | 120 | 45 | 8 |
| D | 80 | 60 | 11 |

For the same case as above, demand is arrived at for various price points for tickets of the same movie. Taking into consideration the Expected Marginal Seat Revenue, the different fare classes can be arrived at as below:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | A | 200 |  | 31 | C | 120 |  | 61 | C | 115 |
| 2 | A | 199 |  | 32 | C | 120 |  | 62 | C | 114 |
| 3 | A | 198 |  | 33 | C | 120 |  | 63 | C | 112 |
| 4 | A | 195 |  | 34 | C | 120 |  | 64 | B | 111 |
| 5 | A | 190 |  | 35 | C | 120 |  | 65 | C | 110 |
| 6 | A | 182 |  | 36 | C | 120 |  | 66 | C | 107 |
| 7 | A | 168 |  | 37 | C | 120 |  | 67 | C | 104 |
| 8 | B | 160 |  | 38 | C | 120 |  | 68 | C | 101 |
| 9 | B | 160 |  | 39 | C | 120 |  | 69 | B | 101 |
| 10 | B | 160 |  | 40 | C | 120 |  | 70 | A | 100 |
| 11 | B | 160 |  | 41 | C | 120 |  | 71 | C | 97 |
| 12 | B | 160 |  | 42 | C | 120 |  | 72 | C | 93 |
| 13 | B | 160 |  | 43 | C | 120 |  | 73 | B | 91 |
| 14 | B | 160 |  | 44 | C | 120 |  | 74 | C | 88 |
| 15 | B | 160 |  | 45 | C | 120 |  | 75 | C | 83 |
| 16 | B | 159 |  | 46 | C | 120 |  | 76 | B | 80 |
| 17 | B | 159 |  | 47 | C | 120 |  | 77 | D | 80 |
| 18 | B | 158 |  | 48 | C | 120 |  | 78 | D | 80 |
| 19 | B | 158 |  | 49 | C | 120 |  | 79 | D | 80 |
| 20 | B | 156 |  | 50 | C | 120 |  | 80 | D | 80 |
| 21 | B | 155 |  | 51 | C | 120 |  | 81 | D | 80 |
| 22 | B | 152 |  | 52 | C | 120 |  | 82 | D | 80 |
| 23 | A | 150 |  | 53 | B | 120 |  | 83 | D | 80 |
| 24 | B | 149 |  | 54 | C | 119 |  | 84 | D | 80 |
| 25 | B | 145 |  | 55 | C | 119 |  | 85 | D | 80 |
| 26 | B | 141 |  | 56 | C | 119 |  | 86 | D | 80 |
| 27 | B | 135 |  | 57 | C | 119 |  | 87 | D | 80 |
| 28 | B | 128 |  | 58 | C | 118 |  | 88 | D | 80 |
| 29 | A | 126 |  | 59 | C | 117 |  | 89 | D | 80 |
| 30 | C | 120 |  | 60 | C | 116 |  | 90 | D | 80 |

The corresponding protections and authorised units are arrived at as shown below:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class | Prices | Forecast | Error | Protection | Auth. Units |
| A | 200 | 10 | 3 | 10 | 90 |
| B | 160 | 25 | 6 | 25 | 80 |
| C | 120 | 45 | 8 | 41 | 55 |
| D | 80 | 60 | 11 | 14 | 14 |

Here, EMSR = Rs 11116

Based on the authorised units and the level of bookings, the fare classes can be open or closed. This shows that they can earn more per screening if revenue management principles are used.

## ASSUMPTIONS

1. If the demand far exceeds supply, the movie is not screened in other halls of the same multiplex. In other words, the capacity is deemed to be limited.
2. Concessional sales play an important role in revenue. It is assumed that concessional sales are not given unless the demand is very low or at the prices which are fixed through revenue management.
3. The above does not include free seats which are given for various loyalty programmes.
4. Cross-subsidisation is not included. Ex. Combo offers for food and tickets do not reduce the ticket prices.

## OPTIMAL DEMAND THAT MAXIMISES REVENUE

Revenue is maximised if the demand is greater than the capacity at the price point when unconstrained. If the demand is far higher or too low, the pricing is not optimal. Ex. In the case above consider the aggregate demand:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class | Cap | Fare Class | Forecast | Error | Square of Errors | Forecast X Sq Err | Compartment Error | Compartment Forecast |
|
|  |  |  |  |  |  |  |  |  |
| **Economy** | 90 | A | 10 | 3 | 9 | 90 | 80 | 140 |
| B | 25 | 6 | 36 | 900 |
| C | 45 | 8 | 64 | 2880 |
| D | 60 | 11 | 121 | 7260 |

This can now be considered for upgrade decisions.

# OTHER REVENUE MAXIMISATION METHODS

## OVERBOOKING

Overbooking can be done to an extent of 3-4% but subject to certain conditions:

1. Groups (>=3 members) cannot be members in overbooking. Cancellations can cause usually few people to drop out (1 or max 2). Accommodating the entire group together may be an issue.
2. Seat selections cannot be allowed. The users can be informed that their reservations will be confirmed and seats allotted. Mail can be sent to them 12 hrs in advance to inform them of their seats and whether they would like to take the seats.

Overbooking must also depend on the movie: If released newly, the amount of overbooking has to be limited to less than 5 seats in a 162 seat theatre.

The advantages to the revenues for movie booking in India is that money for tickets once collected need not be refunded by law if the tickets are confirmed. In addition more than one movie screen in the multiplex screens the movie. The movie patrons can be shifted to other screens in the multiplex if reservations are not met.

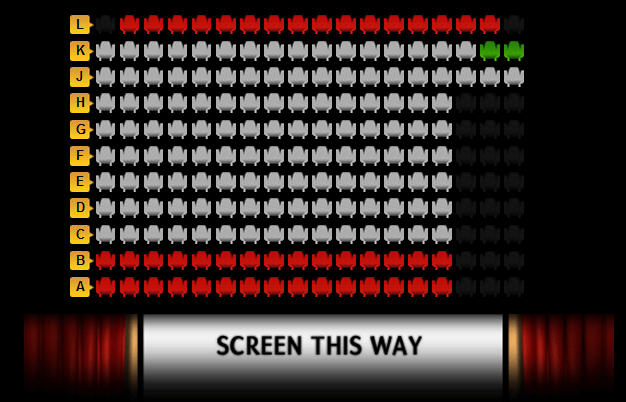
Certain classes such as gold class cannot have overbooking.

## UPGRADATION

Upgradation can be done at 2 levels:

* From regular seats to last seats
* Between screens

Below are the seating arrangements for the classic cinemas in PVR. The L-row seats are priced slightly higher than C to K row seats. Seats in A and B rows are reserved for Rs 10 government mandated tickets.



Changes can be made as follows:

1. Have three rows in the higher grade J, K and L
2. From C to H can be lower grade

This can allow for higher revenues as well as upgrades.

Another possibility is shift between screens. The classic cinemas and gold cinemas have similar timings and shows. Below are the timings for movie ‘Ek Mein Aur Ek Tu’ starring Kareena Kapoor and Imraan Khan

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Gold Cinemas | 10:00 | 12:15 | 13:30 | 15:30 | 17:00 | 18:45 | 20:30 |  |  |
| Classic Cinemas | 10:00 | 11:00 | 13:20 | 14:20 | 16:40 | 17:40 | 18:00 | 20:00 | 21:00 |

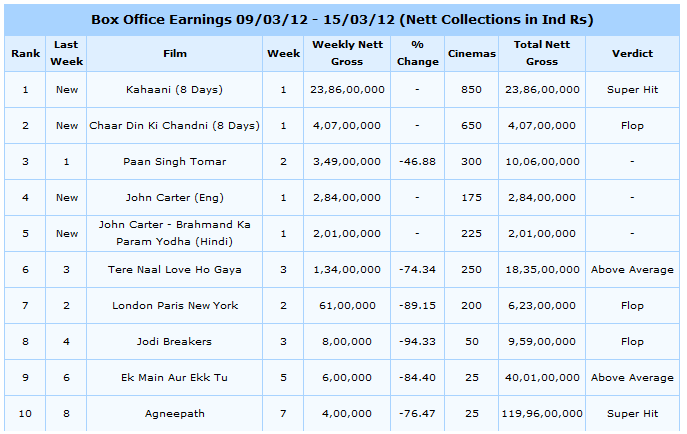
If the movie is below average or after 1 week of release, gold cinemas may be underutilised because of the high pricing. This can be filled through upgrades.

Upgrades can be given to frequent users to improve loyalty.

# RECOMMENDATIONS TO MAXIMISE REVENUE

## FORECASTING RECOMMENDATIONS

The challenges in forecast are that demand depends heavily on the release week of the movie. A much hyped film can do very well in the first week due to advance booking but then reduces depending on fate of the movie.



The demand falls almost 75% for a film in its third week if the movie is above average and 95% if the film is flop. Thus an ***exponential decay method*** can be used when forecasting a film after one week. Further similar ‘verdict’ films can be forecasted similarly ie. Flops have more or less similar decay and Super hits fall in demand 75% after almost 8 weeks.

The initial week can be forecasted through ***mathematical models*** where:

Demand = f (Star-cast, publicity, songs\_popularity) for hindi / regional movies and

Demand = f (International-success, publicity) for English movies

Data must be unconstrained for the weekend and morning show affects. Outliers need to be analysed and adjusted for.

## PRICING RECOMMENDATIONS

PVR has existing different prices for:

1. Different days of week
2. Different time of day
3. On the release date of movie

Below is the pricing for Classic Cinemas for the week of release for the film ‘Agent Vinod’

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | 10:00 | 11:00 | 13:20 | 14:20 | 16:40 | 17:40 | 18:00 | 20:00 | 21:00 |
| Friday | 23-Mar-12 | 350 | 350 | 410 | 410 | 410 | 410 | 410 | 410 | 410 |
| Saturday | 24-Mar-12 | 160 | 160 | 350 | 350 | 350 | 350 | 350 | 350 | 350 |
| Sunday | 25-Mar-12 | 160 | 160 | 350 | 350 | 350 | 350 | 350 | 350 | 350 |
| Monday | 26-Mar-12 | 90 | 90 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |
| Tuesday | 27-Mar-12 | 90 | 90 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |
| Wednesday | 28-Mar-12 | 90 | 90 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |
| Thursday | 29-Mar-12 | 90 | 90 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |

There is no specific seat split. Rows C to L have the same price.

Split the Classic Theatre into three:

1. Premium Class (Rows K, L and M)
2. Economy Class (Rows C to J)
3. Subsidised Class (Rows A and B)

The base prices can be fixed based on **demand given by the forecasts above**, location of theatre and facilities offered.

Split into 12 **fare** classes: Class A (upto Rs 100), Class B (Rs. 100 to Rs. 200) and so on till Class L (Rs 1100 to Rs 1200). Dynamic opening and closing of fare levels can be done.

Upgrades can be offered from economy to premium class.

# METRICS FOR EFFECTIVENESS OF REVENUE MANAGEMENT PROCESS

The process of revenue management is relevant only as long as it is effective. Like every other industry, PVRs also use metrics to gauge the performance of the revenue management systems and the functioning of the organization at large.

One of the key measures of measuring the effectiveness of the revenue management process in theatres is the *Revenue per available seat hour*. The duration of a show is one of the critical constraints in the revenue maximization process for movie halls. Its relevance increases as it defines the slots and the number of shows that can be aired in a day. However, it is a high level measure that does not take into account all factors.

A better metric for the same is the *Revenue Opportunity Metric* which was originally developed by the American Airlines, and since then, has been used across various industries to measure revenue management effectiveness. Revenue Opportunity Metric (ROM) assumes that a record of all the booking requests received by a theatre is available – both successful and unsuccessful ones. Then revenue is measured for a hall in a show under two extreme cases. The first one is when all bookings are accepted till either demand is exhausted or one of the capacity constraints is met, whichever comes first. The revenue achieved in this base case is the theatre’s performance without any revenue management. In the perfect revenue management case, tickets are sold in decreasing order of revenue till either demand is exhausted or capacity constraint is reached. This represents a case in which as much revenue as possible was garnered from different classes of tickets, given the demand in these classes. It is essential to note that the revenue in the perfect revenue management case will always be greater than the base case. However, The Revenue Opportunity Metric is the revenue actually achieved in a show time minus the revenue that would have been achieved in the base case (no revenue management case) expressed as a percentage of the total revenue opportunity.

However, even Revenue Opportunity Metric (ROM) is also not an ideal metric as it is dependent on demand. For example, the ROM for a minor movie like may be close to 100% since demand would be very small and every ticket sold would be an added revenue item. However, this means that the change in ROM is because of the change in the underlying nature of demand rather than change in revenue management effectiveness.

Thus, we see that it is important to use this metric with its related fine print and understand the variables that influence its value.