Hotel Yield Management – Educational Kit

I N D E X

I N D E X

➔ Index

INTRODUCTION / GENERAL OVERVIEW

A silent revolution is taking place in the lodging & travel industry, affecting the way companies are managed and operated in a progressively deregulated economic environment. The concept of the great importance of information management relative to the traditionally leading role of operations management, accepted today in most industry sectors around the globe, is finally beginning to penetrate the lodging and travel industry too.

Information & decision technologies have arrived to assist service and lodging industry decision makers in meeting the challenge to stay competitive, and indeed thrive, in this competitive environment by taking advantage of state-of-the-art developments in new technology, operations research, and management information systems (MIS).

The lodging & travel industry generally and in particular American air carriers, have been motivated by deregulation policies and marketplace pressures to develop new decision support systems and demand driven inventory. Management systems to improve their bottom line.

Four main areas of information management applications, supported by current technology developments and a new, marketing and customer demand driven management culture, have been identified in playing a leading role in growing accommodation booking volume, revenues and an overall improvement of financial results:

- Marketing automation and product distribution through computerised reservation systems (CRS) and communication networks.
- Overall revenue growth and customer service quality improvement through Guest History and Marketing Databases.
- Executive information systems and customer databases to improve customer services, and to enable early problem identification and proactive distribution cost, revenue and targeted marketing management.
- Minimising denials and revenue losses through yield management systems and concepts.

Apart from serving the identical customer groups, lodging and passenger transport providers have on e major problem in common: they produce and offer a fixed inventory of perishable products which cannot be stored, if unsold at a specific point in time, to a variety of customer groups with different purchasing behaviour. These services are typically sold at different rates or tariffs under different booking conditions to different market segments, through a variety of distribution channels, to cope with demand swings and market trends.

A TYPICAL SITUATION

A client calls the hotel reservation office, requesting a discount rate single room from next Wednesday night through Friday. The question is: does the reservation office accept that reservation or not?

If it was the last single room available, it would not like to accept this reservation, IF it projected that between now and Wednesday night there was the likelihood of a booking request from a rack rate transient customer for the same arrival day and number of nights.

Neither would the reservation department want to accept that discount reservation, IF it could anticipate a late-booking request from a customer, who would like to stay from Wednesday through Sunday, since this customer also represents a greater revenue. In fact, a discounted rate for a longer stay may be significantly more revenue than a shorter stay at rack rate.

How does the hotel reservations manager know, how many reservations to take for what type of rooms at what rates or for what arrival and departure dates?

THAT'S YIELD MANAGEMENT!

YIELD MANAGEMENT DEFINITION

The term "Yield Management" has been coined in the airline industry and its objective is to manage the product inventory (seats on a given flight, rooms for a given night) in such a way as to maximise revenue. In the airline context, "Yield" is expressed in cents per passenger mile, which is not a very useful definition to be used for non-airline service providers. Yield Management should actually be called "Revenue Management" or "Inventory Control", since it is revenue, not (airline) yield to be maximised.

Yield or revenue management is not really new to Hoteliers, since physically identical rooms have been sold for higher prices during high season and for lower prices during low season and weekends for generations. This was done by more or less experienced staff with a varying talent to anticipate overall demand at certain days, weeks or periods of the year for a limited supply of rooms.

Yield management (or revenue management) is an economic discipline appropriate to many service industries in which market segment pricing (price differentiation) is combined with statistical analysis to expand the market for the service and increase the revenue "yield" per unit of capacity.

It is the set of demand forecasting techniques, optimisation models, and implementation procedures which collectively determine which reservation requests to accept and which to reject in order to maximise revenue. The principles of yield management had their origins in the airline industry, but have also taken hold widely throughout the rest of the travel industry.

Almost all major lodging corporations, airlines, cruise lines, car rental and passenger railroad firms are practising more or less sophisticated yield management methods, maintain inventory control systems and have either developed their own software and hardware configurations in conjunction with corporate CRS or are currently developing their own systems or screening the market for available integrated or stand-alone yield management software.

WHEN IS ITS USE APPROPRIATE ?

The intelligent use of yield management principles can be used to increase bottom line profitability in any service industry possessing the following characteristics:

- Demand for the service can be divided into distinct market segments and price elasticity varies among the customer segments.

- The capacity supply is relatively fixed and it is costly or impractical to add or subtract inventory in the short run.
- *The inventory is perishable and cannot be stored to be sold at a later date.*
- The marginal cost of selling an additional unit of inventory is low.
- The service is ordered in advance of its delivery / consumption.
- Demand for the service fluctuates and cannot be predicted with a high degree of certainty.
- *The physically (not commercially) identical product can be sold to different market segments for different prices under different booking conditions.*

Clearly, hotel rooms fit that product / service profile.

Market Segmentation:

Demand can be segmented into business and pleasure segments using discount rate restrictions.

Fixed Capacity:

Hotels have a fixed number of rooms and cannot add 100 rooms when a major convention is in town.

Perishable Inventory:

Hotels cannot sell last night's unsold rooms today.

Low Marginal Cost of Sale:

The marginal cost of cleaning and making up a room plus incremental supplies and utilities is low relative to the additional revenue, generated by a unit sale.

Advance Sales:

Reservations for rooms are accepted days, weeks and months in advance (even years for major conventions).

Uncertainty of Demand:

The demand for hotel rooms exhibits regular seasonal and day-of-week patterns, but cannot be forecasted precisely for any particular night.

Rate Differentiation:

Different, demand driven inventory controlled rates, combined with segment-specific booking restrictions (fencing), are at the core of modern Yield Management applications.

HOW DOES YIELD MANAGEMENT WORK?

The first step in a hotel yield management program is to carefully define the various segments of the market for rooms served and their booking behaviour. Ways can then be designed, allowing hotel management to charge different prices to different market segments (under specific booking conditions).

The objective is to expand the market and increase the hotel revenue potential by charging higher prices to those market segments which are little responsive to changes in price level and lower prices to those which will respond more strongly to a price reduction by increasing their purchases by a large enough amount to more than offset the revenue reduction resulting from the discount.

In the travel industry, the business segment of the market can be expected to be less sensitive to price than the leisure segment. Travel companies offer discounts to the leisure segment of the market, booking well in advance of departure. Late booking business travellers are largely precluded from taking advantage of these discounts through the imposition of advance purchase, length-of-stay requirements and/or other booking restrictions.

In the harsh world of perishable value and fixed supply the revenue maximisation objective becomes more operational when divided in two: when demand exceeds supply, yield management dictates decisions to maximise the average rate received for guest rooms. When supply exceeds demand, the objective shifts to the optimisation of revenue by raising occupancy, even at the expense of average rate.

YIELD MANAGEMENT CONTROLS

A hotel yield management system maximises revenue (or net revenue) by controlling reservation (room) inventory in the following ways:

1. Capacity Management:

For each class of rooms, a statistically supported total number of reservations is accepted in excess of actual physical supply of rooms in order to offset the effects of early check-outs, cancellations and no-shows between now and arrival date. This effectively trades off the risk (and cost) of some oversales versus the added revenue of reducing spoilage (rooms which go unoccupied after reservations were closed out).

On arrival day a more common form of capacity management takes place: the number of walk-ins to accept is being determined, based on expected cancellations an no-shows for that day.

Capacity management (or selective overbooking) will usually vary by room class, i.e. it might be economically advantageous to overbook more in lower classes of rooms knowing that upgrading to higher classes of rooms in an acceptable solution to an oversales problem.

The amount of overbooking to be done in this context is, of course, dependent on the demand for the higher rate class of rooms. In more sophisticated systems, the amount of capacity management may also be influenced by availability of rooms at sister hotels or competing hotels.

The instrument of overbooking is easier to manage for airlines, since customers can more easily be compensated by upgrading, free travel vouchers or by being offered a seat on another flight. In the hotel business, a customer might get lost this way forever, so authorisation and overbooking levels should be on the very safe side, taking local occupancy levels of competitors into account.

2. Discount Allocation:

For each class of rooms, reservations are requested at various available rates discounted from rack rate. The primary objective here is to protect enough remaining inventory for sale at a high rate to satisfy the projected demand for rooms at that rate between now and arrival date.

This process is repeated for each rate level from rack rate on down. This requires a food demand forecasting capability, a nested inventory structure, and a good stochastic optimisation technique to determine how much inventory to protect for each room class and rate category A secondary objective of limiting discounts is to encourage "buy-ups", this requires a good estimate of price elasticity or probability of upgrading.

3. Duration Control:

Duration control places limits on which reservation request to accept in order to protect sufficient space for multi-day requests which may represent more net revenue value to the hotel.

For example, if Wednesday is close to selling out but other nights are not, a hotel may want to protect the last few rooms on Wednesday for requests for Tuesday through Thursday or Wednesday through the weekend, even at a discounted rate, rather than accept reservations for Wednesday only, because the multi-day reservations represent more total revenue to the hotel.

Before setting those booking limits, though, the true "values" of reservations requests must be determined in full view of up-line or down-line displacements, i.e. if Tuesday, Wednesday, and Thursday are all close to capacity, then accepting a Tuesday through Thursday reservation at a discounted rate may not produce as high an expected contribution to the net revenue as holding out for individual night's reservations at close to rack rate.

4. Group Availability:

Another important factor in yield management systems for hotels is controlling availability to conventions and groups. This includes providing group booking limits as well as suggestion alternative group space in terms of size, rate, room class, or specific dates.

The group optimisation process needs to take the net peripheral (F&B etc.) revenue into account, generated in addition to rooms revenue by accepting a group.

Paradoxically but logically, optimal group rates usually rise with the size of the group for all periods, where there is demand from market segments, willing to accept higher rates, since the probability of transient, higher value guest displacement rises with the size of the group.

5. Supply Control:

Since hotel firms typically offer several products (e.g. basic, intermediate, and premium), a multiple product nesting structure is more appropriate, where shared inventory is used to automatically "upgrade" customers when the high valued product is not going to sell out.

Thus, there is really a two-dimensional inventory nesting structure - by product and the rate class. This type of a structure can significantly improve utilisation and overall revenue.

Hotel Management can't change the total number of available rooms short term, but can manipulate a given inventory of rooms of different types and rate classes by reassignment of room to varying product categories. Example: double room for single use, executive type to group or discount class.

Hotel Yield management does not change prices offered of the number of rooms available. It only determines the maximum amount of each product to sell for what rate or through which booking class under what booking conditions in order to maximise revenue. Yield Management does not generate demand. It only forecasts, accepts, rejects or redirects demand.

POLICIES, STRATEGIES & TACTICS

Good and timely demand forecasts on their own are not good enough. Systems and procedures must be in place to take advantage of these predictions. Hotels needs rate setting policies, promotional packaging, appropriately trained staff, yield oriented incentive programmes and automated systems designed to maximise yield to realise its full potential. Some of the following policies are in effect in many hotels today.

When demand is high:

- Restrict or close-off availability of low rate categories and low yield packages.
- Require minimum lengths of stay.
- Only commit rooms to those groups prepared to pay top rate.

When demand is low:

- Make special (inventory controlled) promotional rates available when usual rates meet with customer resistance.
- Seek group business from companies or market segments known to be rate sensitive.
- Promote "limited availability" low cost packages to the local transient market.

These tactics work. But it is nearly impossible for management to stay on top of the situation. Whilst burdened with innumerable other responsibilities, it must continuously update forecasts for individual arrival days for months or even longer time periods into the future, modify tactics, inform other departments and monitor the applications and revenue results of these tactics.

PRACTICAL REQUIREMENTS

In order to implement a yield management program there are a number of practical prerequisites which must be met first.

1. Access to Data

In order to forecast demand and valuate room inventory, the following current and historical information and data, commonly extracted from the reservation system and / or property management system, must be available:

Demand:

- Arrival date
- Departure date (booked and actual)
- Date of booking
- Date of cancellation / no-show
- Number in party
- Room category code
- Rate class code

- Actual rate paid
- Commission expense
- Food & Beverage (peripheral) revenue charged to room

Capacity:

- The number of saleable rooms by room category

Rates:

- The current rates by rate class (per room category)

After the completion of a Yield Management Audit, the assembly of the necessary databases in order to perform forecasting research and to develop optimisation models is usually the first major task in the development of a yield management system.

RESERVATION SYSTEM CONSIDERATIONS

Automated systems have an edge, but they must be properly programmed. With the best of intentions, even major hotel groups still get it wrong. Until recently, some systems closed rates on a schedule according to the number of rooms left to sell. Someone calling when there were 200 rooms left was automatically quoted the lower rates than the person inquiring a week later when only 50 rooms remained.

Though this sounds reasonable, a more complete approach needs to look at other factors such as forecast demand, the time remaining to sell the unsold rooms, and the impact of one day on its neighbouring days of the week. Only then resultant quotations can truly focus on maximum revenue.

The reservation system and the local property management systems are the electronic stores in which all sales and cancellation activity occur. Sales to the various customer types (market segments) can and should be controlled in the reservation system.

Due to the potentially large volume of controls and the impact on response time, the reservation system usually is the single most limiting factor, influencing the performance of a yield management system.

Most reservation systems in the lodging industry maintain independent product and rate class controls, allowing to limit the number of discount sales, but no nested inventory controls. This can result in closing of higher value rate classes, while discount classes are still available for sale. This is certainly inconsistent with the revenue maximisation objectives of yield management.

The inflexibility of computerised CRS or PMS stands often in the way of maximising revenue. On a multi-day stay these systems will typically quote in one of two ways:

- They will display only those rates that are available o the day of arrival.
- They will display only those rates that are available on all the days included in the stay.

Both approaches undermine the yield management objective. Neither provides the reservation agent with appropriate rates based on the aggregated demand for all the days involved in the stay. The implementation of a yield management system my require significant modifications to a hotel's CRS and PMS. These changes may be more costly and time consuming than the development of the decision support system proper.

Too many PMS users still erase most valuable past transaction data (e.g. guest history), necessary for effective yield management, regularly from their hard discs, without storing them on nowadays low-cost devices for later analysis.

Apart from database development and data storage, necessary adaptations or changes usually have to be made in the following tow areas:

- Data Exchange (between the PMS / CRS and the YMS.
- Internal controls (mechanisms in the CRS through which yield management decisions are carried out).

Traditional hotel reservation systems have not been designed to accommodate yield management applications (inventory nesting structures) and usually offer only a very limited number of booking classes, causing loss of potential revenue.

PROCEDURES & PERFORMANCE CONTROL

When hotels undertake a formal planning procedure, all too often the approach used is "last year plus X %". This method feels safe, but can be compared to driving a car by looking in the rear view mirror. It tends to perpetuate the past, both those things that worked and those that did not.

Planning must begin with a vision, and then be made operational with detailed strategies for attaining results. It is not uncommon to read plans that have contradictions and interdepartmental conflicts unintentionally built in. For the sales department to achieve room night goals it will need to use function rooms for meetings and exhibits.

This undermines the ability of the banquet department to realise its F&B targets. The result may well be conflict and dissension.

Without true yield management, fully supported by senior management, departmental "tunnel-vision" and isolated budget orientation can be very detrimental to overall hotel revenue.

Tactical plans need to be more than a list of activities, assignments and completion dates. They should read like military plans with "if this, then that" statements, all pointing the direction of increased revenue. In short, what is needed is a cohesive set of strategies, totally supported by inventory control tactics for all eventualities, with the ability to respond rapidly shifting market conditions.

Employees naturally concentrate on those activities that have the greatest impact on their performance assessment criteria. Experience has shown that reservation agents monitored on average call duration produce short calls, often by offering discounted rates.

Those receiving regular feedback on their individual revenue contribution increase both up-selling and the conversion of enquiries to reservations.

Similarly, many training and performance monitoring systems sabotage yield. As an example, when a sales Manager's effectiveness is measured by the number of roomnights sold, he or she receives an implicit message that every room-night, regardless of the market conditions of the days actually booked, makes the same contribution to the company's income statement. It should be clear that a group paying $ 70 when demand is low is worth more to a hotel than a group paying $ 100 during peak season, when the hotel fills up anyway for high rates.

Traditional measures (roomnights, occupancy) often miss the revenue maximisation mark. Regular and germane feedback provides direction and priorities to employees, extends encouragement and enables yield management techniques that would otherwise be impossible.

Feedback on the effect of the tactics employed leads to their continual refinement and renewal. Statistical tracking of the results of different capacity / rate allocation strategies and actual yield

management system performance allow management to measure the return on investment into the system and the effectiveness of the yield management department.

What is needed is a method for measuring performance that fosters decisions in alignment with the principles of yield management.

A BRIEF SUMMARY

1. Objectives

- Maximise customer revenue or profit.
- Set reservation availability based on value.
- Adjust minimum available price based on daily demand.
- Limit exposure to market share erosion or revenue dilution.

2. Controls

- Overbooking
- Discount rate allocation
- Duration control
- Group optimisation
- Supply control

3. Applications

Yield management techniques apply to a variety of situations, where:

- Many customer types (segments) compete for a limited supply of inventory (product / rate / duration).

- Where demand is uncertain and supply is limited and / or inflexible.

- And where unused inventory of perishable products looses its value and cannot be "stored" as in the manufacturing industry.

Current applications include:

- Airlines
- Car Rentals
- Cruise Lines
- Financial Institutions
- Hotels
- Railroads
- Telecommunications
- Tour Operators

4. Basic System Requirements:

- A reservation system

- A decision support system

- A database of past reservation and occupancy information, including the pattern of reservation build-up prior to arrival date

- A system to forecast the demand for reservations between now and arrival date / departure time by rate class / room type, based on historical demand data

- An optimisation model to determine which combination of expected reservation requests and authorisation limits results in the greatest expected revenue

- A monitor an performance control system

OUTLOOK

The development gap between airlines and the non-airline YMS users, such as hotels, will not be overcome quickly, since generally speaking, many potential hotel users will have to develop or purchase latest generation property management and central (computerised) reservation systems, a communication infrastructure and, where necessary, interfaces first, in order to make full use of the revenue enhancement potential of state-of-the-art yield management applications.

Since only a company specific part of the total booking transaction volume currently passes through hotel CRS, hotel yield management systems will, with some exceptions, most likely be property based for the foreseeable future, since all guest transactions (in digital format), including reservations, needed for demand forecasting and optimal inventory allocation, are normally captured on-site by property management systems.

Some yield management systems already consider length of stay (duration control) in determining reservation request value and therefore availability. Furthermore, greater detail in forecasting is required than in the airline industry. In addition to demand, room supply forecasts need to be developed, since customers arrive and depart throughout the day, a real-time decision support system is required to control availability to walk-in demand and additional stays.

Investments in high-tech solutions, though, will only pay off, if a major part of the total funds invested in a Yield Management Program is earmarked for continuing human resource development and the creation of a company specific Yield Management Culture.

1. INTRODUCTION

➔ Index

1.1 THE CHANGING MARKETPLACE

- During the past decade, average profitability of the lodging, travel and passenger transport industries has declined and is insufficient in comparison with other sectors of the service economy.

- Apart from rising cost for financing, energy, personnel and other operational expenses, some of the main reasons for low profitability are the following:

  - The growing gap between supply and demand for hotel rooms (at current market prices) in most destinations (oversupply).
  - Outdated crafts oriented management methods.
  - Hierarchical management structure.
  - GM's with F&B, not marketing background.
  - Budget driven, not by marketing opportunities.
  - Underdeveloped or outdated information management and systems infrastructure.
  - Systems departments report to Finance, not Marketing.
  - Lack of market intelligence (research/analysis).
  - Lack of segment demand forecasting capabilities.
  - In some regions, destinations and market segments, overbuilding has created drastic oversupply of rooms, depressing average occupancies, rates and yields.
  - During the 80ies, the North American lodging industry lost some 12 billion US $s.
  - The *Sellers Market* of the good old days with strong demand, reasonable supply, high rates (in real terms) is history.
  - Today we experience a dynamic and aggressively competitive *Buyers Market* consisting of an ever larger number of different market segments (customers) and players in the distribution chain.
  - The terms: *Marketing* and *Sales* were not being viewed as important management functions in our industry and a job in operations offered better career opportunities.

- **Coping with the challenge, today's lodging industry is finally shifting its formerly main focus on products, *efficient day-to-day operations* towards strategic and tactical management priorities of:**

    - ***Marketing***
    - ***Sales***
    - ***Distribution***
    - ***Demand forecasting***
    - ***Pricing***
    - ***Inventory control***
    - ***Revenue management***

- **International travel and tourism has grown to be a global phenomenon and dwells only where movements of bodies and information is not restricted by regulations, policies or de-facto monopolies.**

- **The accelerating speed of market penetration and economic importance of information technology utilisation is only understandable on the backdrop of a major international shift in economic policies.**

- **Call it privatisation, liberalisation, deregulation or standardisation; what is boils down to is easier access to markets, customers, products and information.**

1.2 THE PARADIGM SHIFT

➔ Index

- **What happened to the Swiss Watch Manufacturing industry?**

- **We see the advent of a new breed of entrepreneurs with a global vision and equipped with the latest generation of intelligent technology, multimedia and interactive communication capabilities, computer reservation and inventory control systems.**

- **They are leaving their marks and shape the travel and accommodation marketing environment of the nineties and beyond.**

- **The growth of automated inventory controls (YMS), MIS/EIS-applications, business reporting capabilities and electronic product distribution is revolutionising the travel and lodging industry.**

- **It provides substantial benefit to individual properties and hotel groups marketing effectively an profitably through these new sales and communication channels in a highly competitive environment.**

- **Until recently, automated distribution systems were primarily used to serve the needs of airlines distributing to the business or corporate sector.**

- **The lodging industry, historically dominated by individual providers and small or medium size groups, has only recently been able to fully take advantage of automated distribution and reservations control opportunities.**

- **It is realising, that ACCESS to inventory is part of the product and customers get tired of traditional reservations process (listening to the music ...).**

- **Many hotels still rely on wholesalers, package tour operators, marketing consortia or other third party vendors to whom they have delegated all or parts of the necessary sales, marketing and distribution management functions.**

- **They have lost control over major parts of their inventory (and margins) and thus over their destiny.**

- **The importance of marketing, information, inventory and distribution management relative to the traditionally leading role of operations management is finally being accepted by lodging and travel industry leaders.**

CHANGING MANAGEMENT OBJECTIVES

- **New management techniques, information and decision support technologies have arrived to assist hospitality industry decision makers in meeting the challenge to stay competitive.**

- **What is needed in today's overcrowded marketplace is a reorientation towards a revenue driven and demand oriented decision making process to optimise customer and rate mix.**

- **How can hotel management measure the revenue and customer loss caused by selling out inventory at discount rates early to maximise occupancy and not being able to service *demand at any rate* close to arrival day?**

- **Surely, the rate differential multiplied by the number of denied high yield bookings has been lost, but also rack rate guests to competitors across the street.**

- **How can hotels management know, what demand and resulting revenues are at risk, when taking decisions today with an impact on future arrival days, solely based on experience, professional intuition and budget goals?**

YIELD MANAGEMENT CONCEPTS AND TOOLS HAVE BEEN DESIGNED TO IMPROVE AND SUPPORT BOTTOM-LINE ORIENTED DECISION-MAKING

1.3 HOW TO MEASURE BUSINESS PERFORMANCE

➔ Index

- When rates were firm and capacity for sale limited, business success was easily determined by the lodging industry's *favourite, and deeply ingrained benchmark*:.

OCCUPANCY

- At stable fixed cost, a full house represented *MAXIMUM REVENUE* and raising occupancy levels the main objective of hotel managers.

- Translated to the retail industry, this would mean to measure commercial success b the *number of customers entering the shop, not revenue per square metre.*

- The following statement prevails in press releases, reports to shareholders and discussions between hotel professional:

  - "During the past period, our occupancy levels improved from 55% to 59% and the break-even point will be reached at X %.

  - Though possibly reflecting overall destination demand swings, this kind of statement is usually more of a prophecy than a statistically supported forecast.

  - It neglects the fact that in a buyers market *occupancy has to be paid for in terms of lower average yields and contributions to fixed cost.*

  - Due to varying demand, price elasticity and average rates in different market segments, in most cases, break-even occupancy cannot be determined precisely enough in advance for a future period.

  - The reason is an almost industry-wide lack of demand forecasting capabilities (human and technical resources) and denial recording systems and applications.

  - In situations of oversupply, overall occupancy can be, circumstances allowing, raised by:

    ⇒ Discounting of all or specific products.

    ⇒ Delivering an improved product at constant rates (upgrades etc.).

  - The first option usually results in growing sales to price or margin sensitive segments (resellers, corporate, leisure etc.) and often results in revenue losses not compensated by the occupancy improvement.

- In most of the cases, these revenue losses stay unaccounted for, due to lack of data and systematic analysis.

- Many different combinations of Occupancy and Average Rate generate the identical revenue:

	JANUARY	FEBRUARY	MARCH
OCCUPANCY %	40	50	75
$ AVERAGE RATE	300	240	160
$ REVENUE	12.000	12.000	12.000

OCCUPANCY %	UP	UP	DOWN	DOWN	% ?
$ ADR	UP	DOWN	DOWN	UP	$?
$ REVENUE	UP	$	DOWN	?	$?

1.4 THE MANAGEMENT PROBLEM

➔ Index

- Apart from serving the identical customers and market segments, lodging and passenger transport providers have a number of major problems (and opportunities) in common:

  - They produce a fixed inventory of perishable products (services) which cannot be stored, if unsold at a specific point in time.

  - these services are typically sold for different prices under different conditions to different market segments, varying at certain times and relative dates of booking transaction and delivery.

  - Market segment demand for services varies with time.

  - Different market segments accept different rates and represent different revenue values.

  - Relevant information to take decisions affecting the future is *subject to statistical probability.*

- The *PROBLEM* is as old as our industry, only the term *Yield Management* as a method to capture *REVENUE OPPORTUNITIES*, based on a systematic approach, is relatively new.

- The use of the term by often only partly informed hotel professionals has certainly created some confusion, misunderstandings and, in some cases, a very costly resistance to change.

- The major reason was the fact, that Hoteliers historically were not used to ongoing business analysis, true market research, demand forecasting and information management .

- **Their main concern was looking at occupancy, numbers of roomnights sold and average rates - both quite meaningless numbers to manage the complex and dynamic lodging revenue generation process.**

THE MAIN PROBLEM IS:

- **How to raise revenue (yield) by raising average rates during peak demand periods by reducing discounted sales and at the same time to avoid loosing too much occupancy by raising average rates.**

- **How to improve yield by raising occupancy during low demand periods without loosing too much on the average rate.**

- **What concepts, tools and methods to use in order to achieve a yield (revenue per available room) maximising solution for the complex problem.**

- **The current economic climate and continuing development of new properties in already overcrowded markets put management under extreme cash-flow / revenue pressures.**

- **Specifically older 5-Star properties have come under intense rate pressure from tough new corporate travel guidelines and price competition from new 3-4 Star hotels.**

- **It is thus more likely for the foreseeable future, that volume business, *as long as it generates additional revenues and contributions to cover fixed cost*, will be top priority on more days per year than ever.**

- **Well managed and *INVENTORY CONTROLLED* volume business with low displacement of high yield, mainly later booking, business will stay important for the foreseeable future:**

    - **Corporate Business**

    - **Groups**

    - **Conventions, Meetings & Incentives**

    - **Tour Operators & Travel Industry**

    - **Special Packages (Weekend Breaks)**

    - **Other Innovative Promotions**

GLOBAL CAPACITY UTILISATION

- In average, at least 50% of all available inventory (hotel rooms, airline seats etc.) stay empty and represent Billions of $s of lost revenue or, in other words: Opportunity Cost.

- Depending on the supply / demand relationship, the lost revenue has to be financed by market participants:

  ⇒ By Suppliers (when demand is low)

  ⇒ By Customers (when demand is high)

  ⇒ By Suppliers & Customers (in most cases)

- In a buyers market the under-utilisation of saleable inventory has a depressing effect on profits and can be cited as one of the main reasons for our industry's declining return on investment (ROI) .

- Still, many hotels experience good numbers of sold-out days every year and still seem not capable, though, to avoid loosing potential revenue during those high demand periods.

- High-Yield denials during high demand periods are still more often the rule than the exception, since most sales departments still *THINK AND SELL VOLUME, NOT REVENUE.*

- Yield Management can help identifying *uncaptured revenue opportunities* and their various causes and puts management into the driver's seat again in managing inventory in view of overall revenue improvement.

1.5 YM USERS: THE CURRENT SITUATION

➔ Index

- The principles of yield management had their origins in the airline industry, but have also taken hold widely throughout the passenger transport, travel and lodging industries and other sectors of the service industries:
  - Blood Banks
  - Broadcasting
  - Financial Institutions
  - Movie Theatres
  - Telecommunications
  - Restaurants
- Almost all major lodging corporations, airlines, cruise lines, car rental and passenger railroad firms are practising - knowingly or unknowingly - more or less sophisticated yield management methods.

- **They maintain inventory control systems and have either developed their own soft- and hardware configurations in conjunction with corporate CRS and property based PMS.**

- **Major American hotel chains, such as Holiday Inn, Hyatt, Marriott and Sheraton, to name a few, started Overbooking and Computer Aided Pricing earlier than their competitors and are on their way to a truly three-dimensional Yield Management capability.**

- **A number of Europe based chains are planning major overhauls of their systems infrastructure, including YMS.**

- **Holiday Inn, Hilton, Radisson, Shangri-La, to name just a few, have invested in YM applications in conjunction with their PMS harmonisation and CRS/PMS integration drive.**

- **Yield Management capabilities are finally improving, based on long-term investment in state-of-the-art:**

  PMS: development, harmonisation and integration with CRS and other internal or external business or communication systems.

  CRS: design, development, updates and rewrites.

  Management-education and staff training.

- **It is important to note, that airline inventory control, distribution and reservation systems have always been CENTRALISED, making YM a central decision support function for marketing, pricing, sales, reservations and YM departments.**

- **Hotel inventory control, to the contrary, has traditionally been DECENTRALISED, making YM a property based decision support function and dependent on front office staff's professionalism.**

- **In most cases of chains, growing by acquisition, management contracts, or franchising, the PMS environment usually is HETEROGENEOUS and often not even properly integrated (interfaced) with the CRS.**

- **Investment decisions in IT-infrastructure (PMS/CRS/BOS) have often been abrogated to the owners of properties, not aware of the bottom-line impact of these strategic business decision.**

This has, for example, in many cases caused the following typical problems:

- **Totally outdated software and hardware installed.**

- **Lack of specific business date at properties and/or inconsistent data formats at properties and Head Quarters.**

- **Off-line reservations processing, mostly via fax (!) due to lack of real-time inventory access via airline or other CRS/Networks.**

- Revenue losses caused by "virtual inventory" and a lack of intelligent inventory viewing and controlling capabilities.

- Waste of human resources to update inventory manually and to re-enter existing digital data from / into CRS, PMS, BOS, MIS, SMS, etc.

- Loss of corporate management control and timely response and/or decisions to react to changing markets.

- THISCO and WIZCOM (AVIS) were the first service providers (switches) to address the access problem for travel agents via airline GDS for hotel groups with at least a centralised (virtual) inventory database (CRS).

- In general, Hotel YMS's have not reached the level of sophistication of (centralised) airline YMS yet, but improved systems and PMS/YMS/CRS interfaces are under development.

- As to the CRS/PMS integration developments, these are mainly driven by the leading hotel chains and marketing consortia, not by the multitude of individual properties or small groups.

- Today's Hotel YMS are basically separate decision support systems (DSS), in the best of cases interfaced with PMS and/or CRS.

- A fast growing number of individual properties, smaller groups and major chains, though, are currently investing intelligently in the basic foundation of any information systems infrastructure of revenue enhancement project:

MANAGEMENT EDUCATION & STAFF TRAINING

1.6 TODAY'S LIMITATIONS IN APPLYING YIELD MGT

➔ Index

- There are currently many real-life limitations to optimal YM, but few, which cannot be overcome by:
  - Good planning
  - Professional management
  - IT-infrastructure development
  - Willingness to invest and support the team

A list of a few major limitations or problems to be overcome:

- EDUCATION: the mindset of GM's and department heads, specifically the deeply rooted paradigm, that MORE (Volume, Occupancy, ADR) IS BETTER.

- The way, business performance is monitored and decisions taken (Occupancy/ADR versus Yield).

- Lack of understanding the value of Information (Business Intelligence) and Managing Information (MIS).

- Outdated software and hardware installed.

- PMS vendor not willing or able to deliver interfaces or source code to develop interfaces with YMS.

- Lack of management access to real-time inventory and lack of intelligent inventory viewing and controlling capabilities.

- Periodical destruction of digital historic transaction (demand) data. Lack of storage/backup devices.

- Lack of the most basic demand forecasting systems, such as booking curves and profiles.

- Lack of optimisation models to allocate inventory to booking classes (rates) and market segments.

- Lack of consistent denial recording for demand forecasting purposes.

- Lack of online access to all systems, databases, data, information and files by staff at different departments.

- Off-line reservation processing, mostly via fax, due to lack of real-time inventory access via airline or other CRS / Networks.

2. WHAT EXACTLY IS YIELD MANAGEMENT ?

➔ Index

A TYPICAL SITUATION:

A client calls your reservation office, requesting a discount rate single room (the last available room) from next Wednesday night through Friday.

The question is:

Should your reservation office accept that reservation or not?

- And if not, why not?

- If it was the last single room available, it would not like to accept this reservation, *IF* it projected that between now and Wednesday night there was the likelihood of a booking request from a rack rate transient customer for the same arrival day and number of nights.

- Neither would the reservation department want to accept that discount reservation, if it could anticipate a late-booking request form a customer, who would like to stay from Wednesday through Sunday, since this customer also represents a greater revenue.

- In fact, a discounted rate for a longer stay may be significantly more revenue than a shorter stay at rack rate.

- It would accept the reservation, though, *IF* it could anticipate a cancellation until Wednesday or an early departure on Wednesday, leaving the last room for the expected high yield guest.

How does the reservations manager know, how many reservations to take for what type of rooms at what property at what rates and for what arrival and departure dates?

THAT'S WHAT YIELD MANAGEMENT IS ALL ABOUT

Principally, Yield Management determines the right number of units of a product type (single, double, suite) to be allocated for sale to the right customer type (business or leisure travellers, convention participants) at the right price in order to maximise revenue (yield).

Hotel Yield Management helps determining the number of rooms of different types to be sold for future arrival dates at market segment oriented rates, taking length of stay into account.

Inventory is generally controlled by setting booking limits/sales allocations for different booking classes/market segments an d opening or closing availability of booking classes in the Reservation System (PMS/CRS).

2.1 THE YIELD MANAGEMENT DEFINITION

➔ Index

The term "*Yield Management*" has been coined in the airline industry and its objective is to manage the product inventory (seats on a given flight, rooms for a given night), in such a way as to maximise revenue.

In the airline context, *"Yield"* is expressed in cents per passenger mile, which is not a very appropriate definition to be used for non-airline market participants.

⇒ **Translated into he hotel situation, *"Yield"* would be defined by $s per guest room rental time (night, hours, minutes) by room type, comparable to the retail definition of $s per square metre per time period.**

***Yield Management* should rather *be called Revenue Management* or *Inventory control*, since it is revenue, not (airline) yield to be maximised.**
Yield or Revenue Management is not really new to Hoteliers, since identical rooms have been sold for higher prices during high season and for lower prices during low season and weekends for generations.

This was done by more or less experienced staff with varying talent to anticipate overall demand at certain days, weeks or periods of the year for a limited supply of rooms.

Yield Management (or Revenue Management) is an economic discipline appropriate specifically to hotels, but also to many sectors of the service industry, selling perishable products.

"*Market Segment Pricing*" (price differentiation) is combined with statistical analyses to expand the market for the service and increase the revenue "yield" per available unit of capacity.

It is a set of demand forecasting techniques, optimisation models, and implementation procedures which collectively determine which reservation requests to accept and which to reject in order to maximise revenue.

A number of American academics define "Yield" as the product of occupancy and "Price Efficiency". Price Efficiency is defined by dividing the average rate sold by the rack rate.

Example:

Rack rate:	**$**	**200**
Occupancy:	**%**	**50**
Achieved average rate:	**$**	**100**

YIELD = OCCUPANCY RATE X PRICE EFFICIENCY

Y = 50/100 x 100/200 = 25%

Maximum Yield is reached, when 100% of capacity is sold at rack rate:

Y - 100/100 x 200/200 = 100%

In view of Yield Management objectives, hotels should not focus on occupancy versus ADR, but rather look at the "true" YIELD, i.e.

REVENUE PER AVAILABLE ROOM (REVPAR):

$$\frac{\text{ROOM REVENUE PER DAY OR PERIOD}}{\text{NUMBER OF ROOMS AVAILABLE PER DAY OR PERIOD}}$$

Average revenue per room sold neither rakes unsold rooms into account nor changes in room supply (renovations, new construction) nor does it tell management, whether it is making or loosing money.

Average cost per available room per period can then easily be compared with average yield per room (REVPAR) per period and thus profit (margin) or loss per available room per period.

2.2 THE TRADE-OFF BETWEEN RATE & REVENUE

➔ Index

There is obviously a trade-off between average rate and revenue, driven by segment and total demand (occupancy) reacting on rate levels.

Hotels would certainly prefer to sell all rooms at rack rate to rate-insensitive transients, individual business travellers or well-to-do walk-ins to maximise revenue Because of demand fluctuation, excess capacity and discounting by competitors, this strategy will result in a loss of market share and revenue.

Single Price Strategies **disregard price sensitive customers (market segments) which will be lost to more flexible competitors.**

The opposite strategy to sell out early at discounted rates results in revenue losses, since later high yield customer requests cannot be accepted and will be lost to competitors.

Therefore the goal is clear: to determine, how many rooms to protect for each booking class (rate class / market segment) in order to minimise revenue loss caused by lack of reservation controls.

2.3 THE REVENUE IMPACT OF RATE DIFFERENTIATION

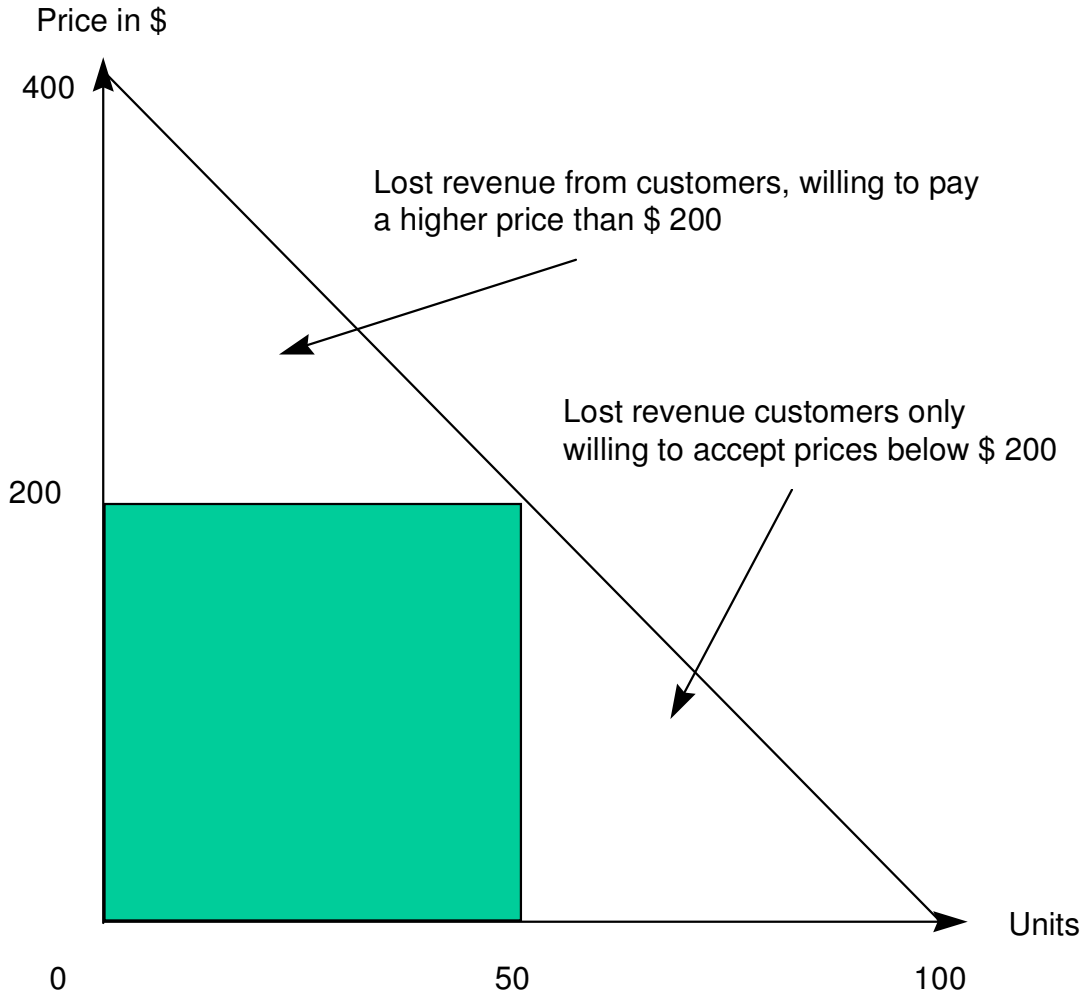
➔ Index

Economic theory tells us, that revenue for one product can, mathematically speaking, only be maximised, if a price is offered to each customer, that customer is willing and able to pay.

The willingness and ability to pay a price is called price elasticity, which is measured in % of quantity sold (more or less) relative to a % change on price (down or up).

If hotels knew the price elasticity of their market segments, revenue optimal pricing would be much less of a problem.

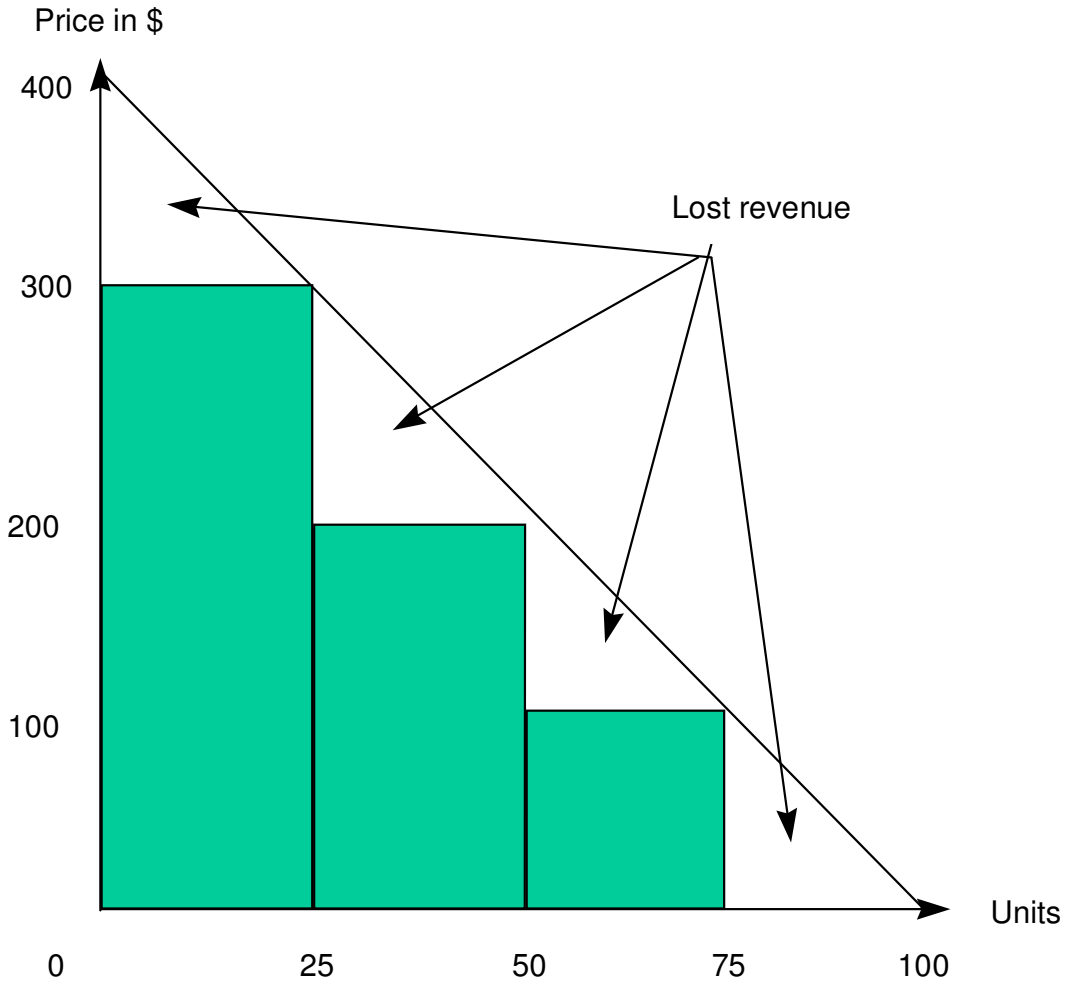
MAXIMUM ROOM REVENUE AT ONE RATE



Remarks:

The maximum achievable revenue at one price only is reached at 50 units sold for $ 200, generating a total revenue of $ 10.000. Any other single price would result in less revenue. The unhatched space below the demand curve represents lost revenues with customers, willing to pay more or only less than $ 200.

IMPACT OF RATE DIFFERENTIATION ON REVENUE



Remarks:

Widening the scope of prices offered to three ($ 100, 200, 300) generates a higher revenue of $ 15.000, but still leaves customer groups unserviced and cuases lost revenue (unhatched space). Maximum revenue could be reached by charging a different rate for eache unit ($ 1-400). this pricing strategy would result in an economically optimal utilisation of inventory.

2.4 MARKET SEGMENTATION & FENCING

➔ Index

The conditions, mentioned earlier for price differentiation and yield management based on market segmentation were the following:

- A downward sloping demand curve.
- Easily identifiable groups of customers with different types of demand for the product.
- The ability to segregate sales to each group of customers in such a way that they are "sealed off" (or fenced) from each other and high yield customers are prevented from trading down.

The hotel industry usually satisfies the first two conditions, but practically and culturally, it has not been able to charge them based on a rational pricing method and successfully separate its customers by setting effective fences.

BOOKING RESTRICTIONS & FENCES:

- TIME UNTIL ARRIVAL/CONDITIONS OF PURCHASE
- TIME ON ARRIVAL DAY
- ADVANCE PURCHASE, NON-REFUNDABLE RATES
- REFUND FOR NON/PART-USE OF SERVICES
- POSSIBILITY OF CHANGE OF SCHEDULE
- ARRIVAL/DEPARTURE DAY
- WEEKEND BOOKING
- DURATION OF STAY
- CLUB MEMBERSHIP - FREQUENT FLYER
- NUMBER OF PERSONS IN A GROUP
- REASONS OF THE TRIP
- SOURCE OF BOOKING
- ROOM / BED / SERVICE TYPE
- NUMBER OF NIGHTS / GUEST REVENUE
- SPECIAL GUEST REQUIREMENTS
- OTHER

What we see in reality today is what experts call "uncontrolled discounting", leading to rate wars to the short term benefit of customers, but not the hotel bottom line.

The problem is that not all discount customers book early because hotels don't always offer discounts early (as airlines do) and there is not incentive to book early.

Furthermore, in a world where no one pays sticker prices anymore, high yield customers do trade down from rack rate to discounts, due to the lack of appropriate fences (booking restrictions).

The lodging industry has "educated" corporate and business customers to search for discounts on a routine basis and a very dangerous "bazaar mentality" has taken hold.

This lack of rational pricing and the downward spiral of corporate volume and group rates reminds us of the situation of U.S. airlines after deregulation, where low-cost carriers started the fare-wars and almost all players lost money at the end

What originally was a good idea to fill empty rooms and generate more revenue to cover fixed costs has become grossly out of alignment.

There definitely is a need for change through a disciplined and rational approach (Example: Marriot's advance Purchase, non-refundable Rates) in harmony with the yield management concept.

There are some obvious challenges, though, to bringing rationality to room pricing, to stimulate incremental business and to allow yield management (systems) to function more accurately:

- The majority of hotels are decentralised profit-centres and not good at saying "no" to customer's requests.
- Our industry culture still focuses on "heads in beds" and high occupancy levels.
- Systems development and Information Management started very late and is not viewed as a top strategic management priority.
- Many hotels are not a commodity and price is just one of several factors for customers' choice.

2.5 WHEN DO SEGMENTS BOOK?

➔ Index

Revenue is not only driven by demand but is also influenced by customer (segment) booking behaviour and the point in time, relative to arrival, segments actually make reservations.

Experience tells us that price sensitive ("elastic") market segments (leisure travellers, groups) generally book earlier.

Time sensitive, less price elastic segments (business or individual travellers) tend to book later in the process.

Space needs to be protected for the high yield, later booking market segments to avoid sell-out to discount conscious, early booking clients.

2.6 THE INFORMATION PROBLEM

➔ Index

To make the recurrent decision, *how many rooms to protect* for which booking class (market segment) by booking limits, reliable values for decision parameters, determining the future, are needed by the Yield Management System.

Apart form *known* facts, such as capacity, rates, reservations on the books and historic transaction data, information is needed, describing *future customer behaviour* and competitors reactions.

Since hotel executives lack *clairvoyance*, the information describing future arrival and departure dates and reservations development between now and future dates can only be *estimated or forecasted.*

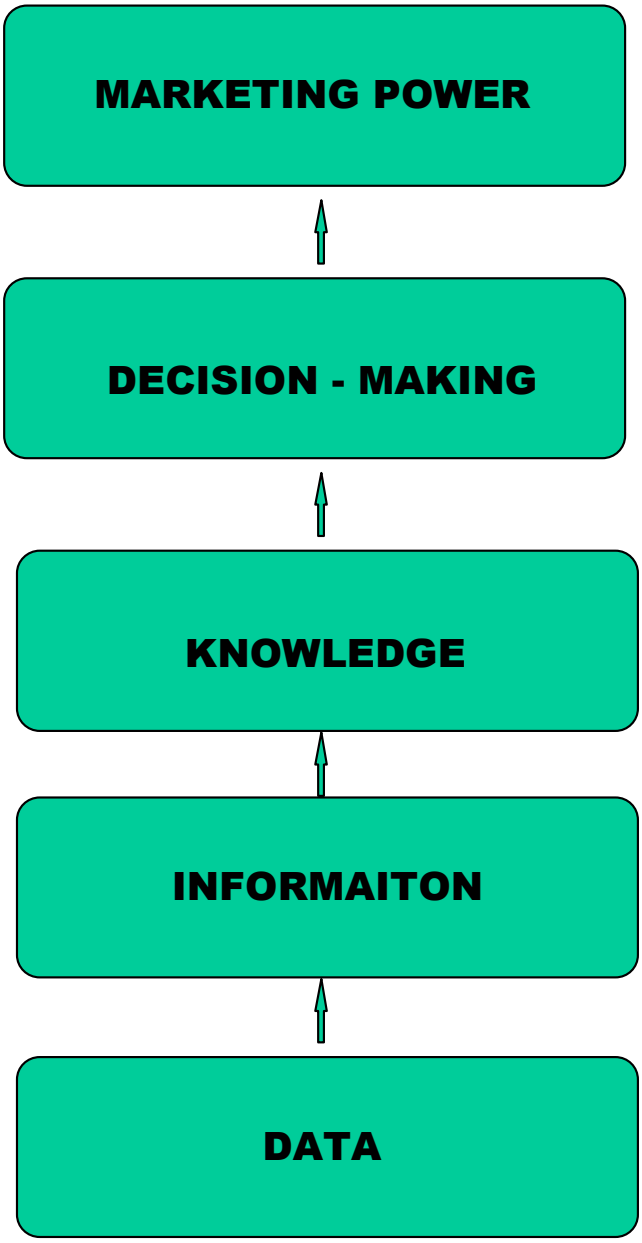
KNOWN DECISION PARAMETERS:

- **CAPACITY FOR SALE**
- **RATES OFFERED**
- **RESERVATIONS HOLDING TODAY**
- **HISTORIC TRANSACTIONS & DEMAND DATA**
- **HISTORIC DESTINATION DEMAND (ARRIVALS)**

UNKNOWN DECISION PARAMETERS:

- **FUTURE DEMAND**
- **HOW MANY EARLY VERSUS LATE BOOKINGS**
- **CANCELLATIONS**
- **NO-SHOWS**
- **WALK-INS & NON-RECORDS**
- **EARLY & LATE DEPARTURES**
- **UPSELL PROBABILITY**
- **ACTION & REACTION OF COMPETITORS**
- **EXTERNAL EVENTS**

THE INFORMATION PROBLEM



2.7 HOTEL YIELD MANAGEMENT OBJECTIVES

➔ Index

YIELD MANAGEMENT HAS THE FOLLOWING MAIN OBJECTIVES:

- **Maximise Yield or minimise lost revenue per available room, night or period in view of total cost per available room.**

- **Control availability of rooms by customer revenue potential (expected value of requests) and segment mix.**

- **Control daily availability of rates lower than rack in view of unsold inventory, time left to sell and segment or total demand.**

- **Determine minimum stay requirements in view of potential high yield (long stay / high rate) displacements.**

- **Minimise revenue erosion or loss of market share in view of total demand and price elasticity.**

- **Minimise lost revenue caused by rebooks, cancellations, no-shows and early departures.**

- **Minimise lost revenue caused by low demand for specific products (suites, doubles etc.).**

- **Evaluate group requests in view of displacement of higher value booking segments.**

IN GENERAL TERMS: TO MINIMISE LOST REVENUE OPPORTUNITIES

2.8 THE HISTORIC DEVELOPMENT

➔ Index

Although the lodging industry business ideally lends itself to Yield Management concepts and applications, it is the airline industry that spearheaded the development of Yield Management Systems since the early 80's.

It all began with the pioneering development of SABRE (Semi Automated Business Research Environment), a joint venture between IBM and American Airlines, some 34 years ago in 1962.

The SABRE project was the beginning of a era of electronic and centralised inventory control, which developed over the past decades into one of the world's *leading Global Travel Distribution Systems.*

The past decade also experienced an accelerated development of Property Management Systems (PMS) and Central Reservation Systems (CRS) as marketing and sales tools for hotels.

Historically, hotel systems were designed and used for back-office purposes, and DEP departments reported to the directors of Finance.

For the lodging industry today, PMS and CRS represent the building blocs of the basic infrastructure for electronic inventory and reservation sales control and offer much more intelligence to Marketing Departments than in the past.

3. PRECONDITIONS FOR THE SUCCESSFUL APPLICATION OF YIELD MANAGEMENT CONCEPTS

➔ Index

3.1 BASIC YIELD MANAGEMENT REQUIREMENTS

The intelligent use of yield management principles can be used to increase bottom line profitability in any service industry sector with the following characteristics:

- **Demand for (physically) identical service products can be divided into distinct market segments.**
- **Different customer types compete for a limited inventory.**
- **Price elasticity varies among competing customer segments.**
- **The capacity is fixed and fixed cost relatively high in comparison to variable cost.**
- **The inventory is perishable and cannot be stored to be sold at a later date.**
- **The marginal cost of selling an additional units of inventory is low and of adding a unit very high.**
- **The service is ordered (booked) in advance of its delivery / consumption.**
- **Demand for the service fluctuates and cannot be predicted with a high degree of certainty.**
- **Different prices can be charged *for physically identical, but commercially not identical products.***
- **Clearly, hotel rooms fit that product / service profile**

THE CAPACITY IS FIXED AND FIXED COST RELATIVELY HIGH RELATIVE TO TOTAL COST:

- **Hotels manage a fixed capacity. Once a hotel is built, it is difficult to adapt capacity to market demand short term.**
- **Under these circumstances, the main problem is to achieve maximum return on the investment in fixed capacity, the human resource pool and the fixed cost of operations.**

DEMAND FOR THE SERVICE CAN BE DIVIDED INTO DISTINCT MARKET SEGMENTS:

- **Hotel Management's desire is to offer each market segment those types of rooms, rates and booking conditions which best match customer's needs.**

- **Discount rates are made available to earlier booking leisure travellers or convention groups, usually combined with booking restrictions.**

- **Rack or high yield inventory is protected for later booking business, individual travellers with the need for flexibility and rate insensitive groups.**

DIFFERENT CUSTOMER TYPES COMPETE FOR A LIMITED INVENTORY:

- **Market segmentation and rate differentiation are based on the fact, that different customer types behave differently in terms of when they book and what rates they are willing or able to accept under what booking conditions.**

- **Guest history analysis and market research are the instruments to establish a basic segmentation and information concerning price elasticity of individual segments and the revenue effects of booking restrictions.**

PRICE ELASTICITY VARIES AMONG COMPETING CUSTOMER SEGMENTS:

- **To segment the hotel market, knowing the price elasticity of customer types and their booking behaviour is of great importance.**

- **Typical primary market segments are business and individual traveller, meetings and conventions, corporate and leisure groups.**

- **It is relatively easy to differentiate between time sensitive business and price sensitive leisure customers but more challenging to keep them apart through *FENCING.***

- **Hotel management pursues different marketing strategies and yield management tactics for these different customer groups.**

INVENTORY IS PERISHABLE AND CANNOT BE STORED TO BE SOLD AT A LATER DATE:

- **Hotel rooms clearly are perishable products which loose their value, if not consumed at a specific point in time.**

- **Hotel rooms cannot be stored for future sale, if demand is insufficient or additional units created, if demand is larger than inventory.**

- **It is the competition which benefits from denied bookings, even if rooms go unsold on arrival day.**

THE MARGINAL COST OF SELLING AN ADDITIONAL UNIT IS LOW AND OF ADDING A UNIT IS HIGH:

- **Once a certain number of units is sold, the marginal cost of selling an additional unit is low and can be neglected in view of yield management tactical inventory allocation.**

- **The additional revenue, though, generated by an additional sale almost fully contributes to cover fixed cost or bottom line profit.**

THE SERVICE IS ORDERED (BOOKED) IN ADVANCE OF ITS DELIVERY / CONSUMPTION:

- **Hotels sell their inventory weeks, days or hours prior to arrival, but in special markets (groups, conventions) bookings are made months or even years in advance.**

- **When future hotel rooms are sold, hotel management has the problem of making a decision today affecting future availability and revenues.**

- **actual demand on arrival day and reservations development until arrival day usually are not known and revenue may well be lost by selling low rates early and displacing high value business bookings which materialise close to arrival.**

DEMAND FOR THE SERVICE FLUCTUATES AND CANNOT BE PREDICTED WITH A HIGH DEGREE OF CERTAINTY:

- **The lodging industry suffers from strong total and segment demand fluctuations for single days or periods.**

- **Demand fluctuates daily, weekly, monthly, seasonally for all types of products, rates, arrival and departure dates.**

- **One-time or recurring events, such as Olympic Games, exhibitions, conventions, hurricanes and hotel openings can impact heavily on demand for certain arrival days and subsequently on revenue.**

DIFFERENT RATES CAN BE CHARGED FOR A PHYSICALLY IDENTICAL PRODUCT:

- **The lodging industry has charged different rates for different seasons, periods or arrival days for generations for *physically, but commercially not identical products:***

A MONDAY ROOM IS NOT A TUESDAY ROOM AND A TUESDAY THROUGH FRIDAY ROOM IS NOT A READY THROUGH MONDAY ROOM!

Corporate, group, weekend and other special rates are common practice and customers had to learn to live with it.

Airlines have led this development by changing fare availability and booking restriction over 100 million times per year.

3.2 YIELD MANAGEMENT BENEFITS IN VIEW OF PROPERTY TYPES & MARKETS SERVED

➔ Index

There clearly are types of properties and / or markets served which lend themselves more or less to YM practices and concepts.

In general, YM works better for properties serving a variety of distinctly different market segments, i.e. customer groups of varying average yield, price elasticity, reasons for travelling (duration / periods of utilisation) and / or booking behaviour.

The more homogeneous the customer types in view of the above mentioned aspects, the less revenue improvement can be expected from rate differentiation.

Still, even a one-rate economy hotel can apply yield management by controlling duration, where-as request for more nights (more $s for the hotel) generally enjoy a greater availability than short stays.

A resort property in Spain, selling 90% of its apartment inventory to on e major UK tour operator may not be convinced to invest scarce resources in a sophisticated tactical YMS.

A multi-segment city property in turn, serving a wider range of market segments, such as corporate , conventions, groups, tour operators, short breaks, leisure and individual travellers will certainly reap much larger benefits from practising YM.

Relative revenue improvements can depend on many factors, but will mainly be driven by:

- Quality and professionalism of the human resource pool on all levels
- The maturity of the system infrastructure
- The level of systems integration
- The actual YMS (application) in place

Depending on the specific situation, average revenue (yield) improvements between 0 and 5% can usually be achieved relatively soon, as long as major segment or destination demand does not decline and well trained and experienced staff does not leave in the middle of the process.

The law of declining returns applies to Yield Management programs too and further ongoing revenue improvements will be harder and more costly to achieve each year (comparing with levels achieved last period).

Preventing yield to decline in difficult markets relative to competitors' performance should be seen as an important achievement!

3.3 BASIC YIELD MANAGEMENT SYSTEM REQUIREMENTS

➔ Index

The majority of YMS need the same kind of data and information and share certain requirements for successful operation:

- **An appropriate Data Processing System: soft- and hardware**
- **A Reservation System (CRS/PMS)**
- **A Decision Support System (DSS)**
- **A Database of Past Transactions (History)**
- **Structured Segment Demand Information**
- **A Forecasting Model/System**
- **An Optimisation Model**
- **A Monitor and Performance Control System**
- **A clearly defined Marketing Policy**
- **A demand oriented Rate Structure**
- **A rational set of effective Fences**
- **A clearly defined policy concerning Overbooking and Service Quality**
- **A medium- an long-term Yield Management Strategy**

AN APPROPRIATE DATA PROCESSING SYSTEM:

- **To access and process all relevant data and information needed for revenue optimal inventory controls in a speedy and cost efficient manner.**
- **Type, size and processing speed of hardware used is determined by the size of the operation and specific requirements by the yield management and reservation system software.**
  - **A hotel chain, managing hundreds of properties, would normally employ a mainframe or a number of linked mini-computers to cope with large quantities of data and the complexity of models.**
  - **Smaller hotel groups or individual properties would normally use PCs or powerful workstations to support yield management and reservations capabilities.**

A RESERVATION SYSTEM:

- **Central reservation systems (CRS) or the local property management systems (PMS) are like electronic (virtual) store shelves, where reservations for different products (room types), arrival and departure dates are sold and where cancellations occur.**
    - **The majority of today's reservation systems support different methods of reservation sales controls.**
    - **Most currently available systems allow overbooking and booking limits for rate (booking) classes and store availability by room type and / or rate class for future arrival days.**
    - **In addition, some systems also allow duration and more complex controls.**

A DATABASE OF PAST TRANSACTION:

- **The last 1-3 years of historic transactions, including all bookings (reservation build-up & structure, relative booking date), arrivals, departures, cancellations, no-shows, walk-ins, early / late departures, revenues (including F&B), walked guests and cost of overbooking.**
- **The first step towards a fully or semi-automated yield management system is complete storage of data needed and generated daily by the CRS/PMS for future analysis.**
- **These data are the absolutely essential raw material for any kind of demand forecasting and revenue optimising inventory allocation.**

STRUCTURED SEGMENT DEMAND INFORMATION:

- **To improve decision making, Hotel Yield Management Systems require historic information on bookings, business transactions and demand by market segment.**
- **For product / rare categories, arrival and departure day combination, booking curves can be developed by market segment / booking class.**
- **Reservation data can be structured to reflect seasonally or recurring events and booking curves generated for demand forecasting.**
- **No Yield Management System deserving its name can produce results without good (segment) demand forecasting capabilities.**

A FORECASTING SYSTEM:

- **To determine future supply (availability) and demand it is necessary to forecast customer behaviour (bookings, cancellations, no-shows, walk-ins, early / late departures) based on historic data.**
- **Apart from competitors' actions and other external factors, relatively reliable forecasts can be produced by using statistical time series and / or causal models.**

AN OPTIMISATION MODEL

- To determine revenue maximising booking limits for each booking (rate) class in view of expected reservation request, an optimisation model needs to be developed.
- To determine revenue maximising overbooking authorisation levels for total hotel inventory or each booking (rate) class in view of expected cancellations, no-shows and early departures.
- Prior to computing optimal overbooking limits and inventory allocations in certain intervals, (control days) the model is fed with data from the reservation system (CRS /PMS) and the forecasting system.

A MONITOR AND PERFORMANCE CONTROL SYSTEM

- It is necessary to monitor the performance of the yield management system in terms of data processing functions and productivity in view of revenue improvements relative to market potential.
- Efficient controls must be in place to enable Yield Management to take action, when needed (Management by Exception).
- Gook Yield Management Systems can measure revenue potential and the impact of changes and improvements of models used

A CLEARLY DEFINED MARKETING POLICY

- Yield Management is a tactical management tool and does not change prices offered in the marketplace or the number of rooms available for sale.
- It only determines the maximum amount of each product to sell for what rate or through which booking class in order to maximise revenue.
- Yield Management does not generate demand, it only forecasts, accepts, rejects or redirects demand.
- It is not the role of Yield Management to take over the important responsibilities of marketing or pricing.
- Before starting to manage revenue with the Yield Management toolbox, a potential user should have made the following basic decision:
    - In which markets to operate and which market segments to serve: for example business, groups, conventions, leisure?
    - What rooms capacity to offer in which destinations, regions or countries?
    - What products (types of rooms and services) to offer for what rates at what (demand) periods to what market segment?

- A clear and up-sell-oriented pricing structure needs to be established to avoid revenue losses.

A DEMAND ORIENTED RATE STRUCTURE:

- The traditional hotel room pricing has taken almost everything into account to find the *RIGHT RATE* but the most important factor:

  THE WILLINGNESS AND ABILITY OF CUSTOMERS TO ACCEPT AND PAY RATES OFFERED

- **THE GOLDEN RULE:**

  ONE $ RATE PER NIGHT FOR EACH 1.000 $ OF INVESTMENT COST PER ROOM UNIT

- **THE "INTELLIGENT SOLUTION"**

  The combination of traditional pricing methods with the copy-machine to copy the price list of the hotel across the street, since "they surely know what they are doing".

- Due to the traditional lack of market research, hotel pricing methods usually do not account for actual future rooms supply at the planned destination relative to total forecasted demand in roomnights for the destination.

- Neither do they account for the dynamic factors (market shifts) influencing price elasticity by market segment and thus acceptability of rates.

- Without good forecasting models, supply and demand data, hotel pricing is more of a gamble than a rational approach. A citation form "The Harvard Business Review" (7/1988):

"Without Demand Forecasting You are Operating in the Dark"

- Compared to airlines, hotels rarely have a demand oriented rate structure, flanked by booking restrictions (fences) to control reservation sales of discount and special rates.

- To improve up-sell probability, large rate gaps should be reduced to generate extra revenue.

- To avoid revenue dilution, rates need to be protected by "fences" (booking restrictions) to avoid high yield customers buying discounted rates.

- In many cases, specifically 4 and 5 star properties, rack rates are vastly out of touch with reality and need to be adjusted.

- The standard argument for those high-in-the-sky rates is the perceived need to be able to offer huge "discounts" off rack rate to volume customers.

- If nobody actually buys rack rate, then it becomes a "phantom rate" with a negative impact on clients perception and revenues.

- In any case, different rates should be made available for each room type and each rate sold out of one booking class only to allow revenue maximising discount inventory management .

A CLEARLY DEFINED SERVICE QUALITY POLICY:

- Overbooking as part of the YM toolbox generates additional revenue, but also the risk of customer dissatisfaction with the potential loss of goodwill.

- Operational guidelines, oversales limits and tightly controlled overbooking management procedures need to be established and monitored to keep loss of goodwill under control.

A MEDIUM AND LONG-TERM YIELD MANAGEMENT STRATEGY:

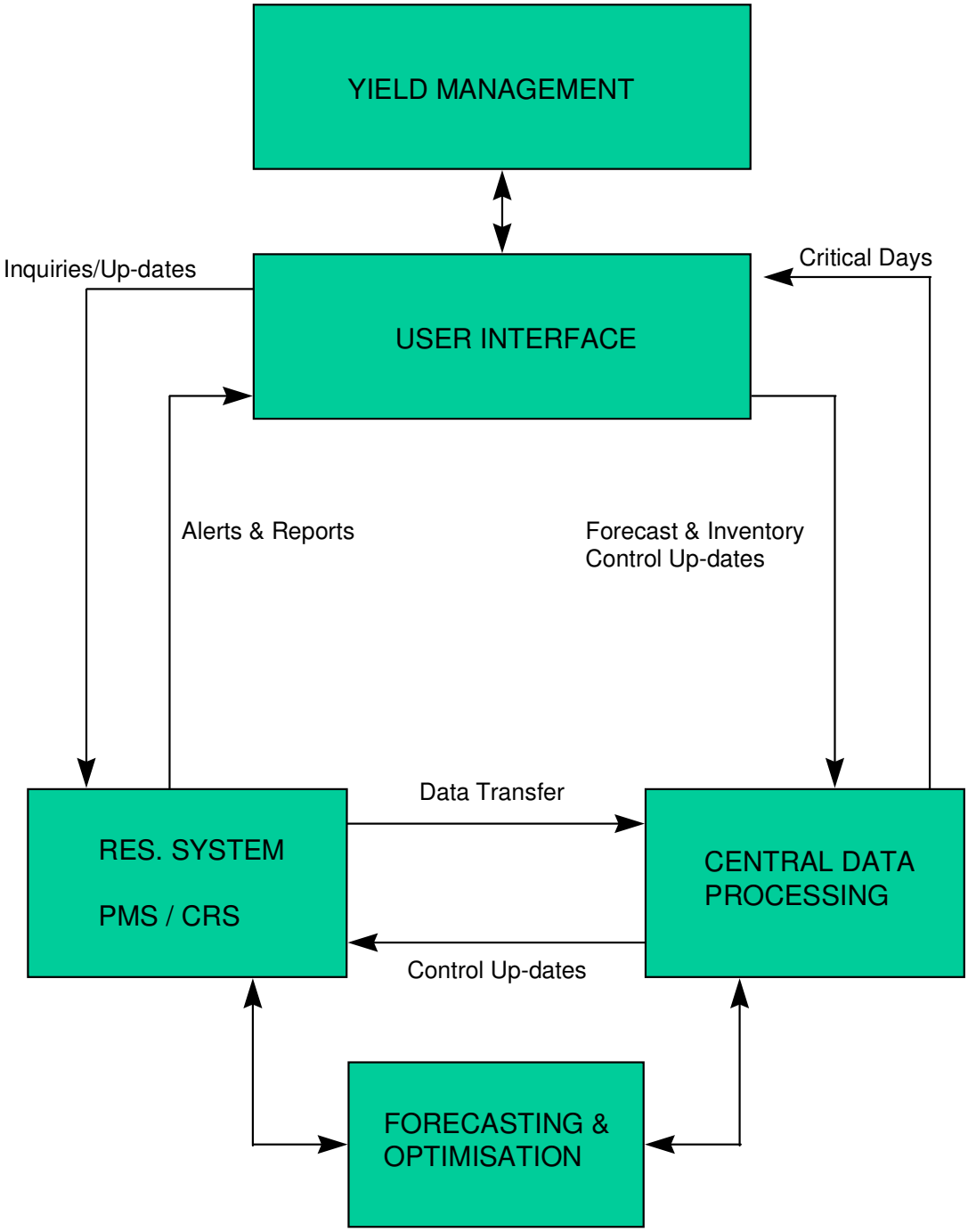
- Without proper management controls and well trained procedures, Yield Management practices may well have a negative impact on service quality (overbooking).

- To improve revenues by discount allocation, attractive rates may well close out early in the booking process.

- At times, such as during the pre- and post- opening periods, there may be conflicting goals, between headquarters and property management such as market share versus revenue maximisation.

4. TYPICAL YIELD MANAGEMENT SYSTEM LAYOUT

➔ Index



5. THE YIELD MANAGEMENT CONCEPT

➔ Index

- **Harmonising capacity with constantly varying demand is the major challenge and top priority for all service providers, since products perish, if not consumed at delivery time.**

- **Hotels always have either too many or too few rooms available for specific arrival and departure dates, relative to market demand.**

- **The lodging industry thus faces the challenge of controlling a fixed capacity (inventory) to avoid revenue losses, caused by demand swings, demand peaks and perishability.**

5.1 THE YIELD MANAGEMENT CONTROL DIMENSIONS

➔ Index

TREE BASIC TYPES OF CONTROLS ARE APPLIED AT CERTAIN INTERVALS PRIOR TO ARRIVAL DAY:

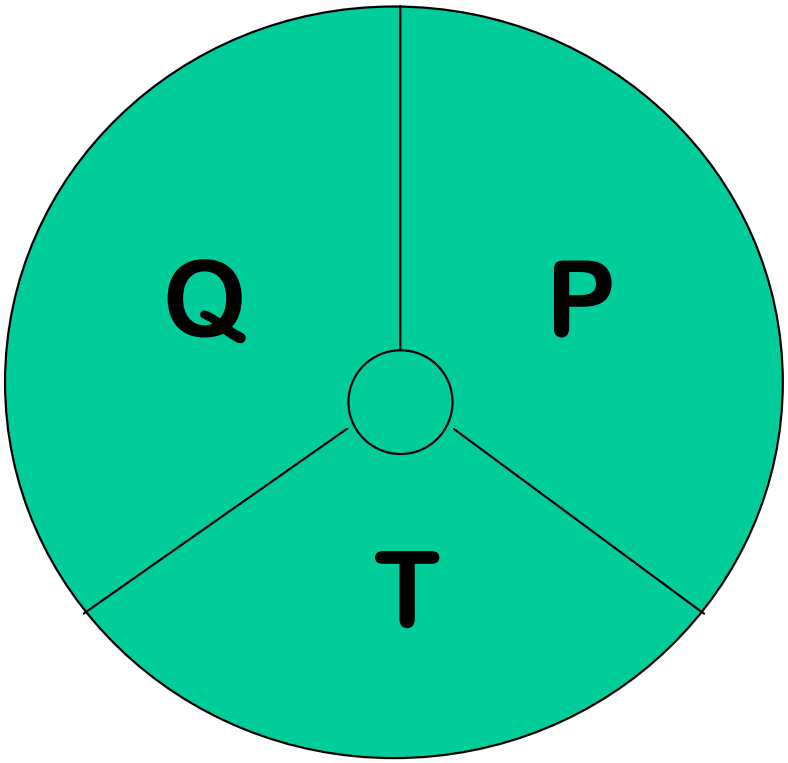
- **CAPACITY MANAGEMENT**

- **RATE / INVENTORY CONTROL**

- **DURATION CONTROL**

The objective is the revenue maximising allocation of a limited number of rooms to customers (segments), competing for space and rate classes.

THE TREE DIMENSIONS OF DECISION MAKING



LEGEND:

Q = Quantity
P = Price
T = Time

Capacity (Inventory) Management allocates the saleable inventory of different room types to market segments in view of expected segment demand, cancellations, no-shows and early departures (overbooking).

Rate (Discount) Control aims at determining the revenue maximising rate mix (numbers of rooms to be sold for different rates) for different market segment demand situations.

Duration Control takes into account, that the revenue value of a customer request can only be determined by multiplying the rate (rental of unit per time period) offered by the number of time periods (hours, nights) requested.

In the area of group business the Date / Time Sensitivity Dimension comes into play, when group availability and rates are determined by the number of high yield customers displaced and potential revenue loss caused by displacement.

In real life, guests normally determine two or three of the decision parameters and thus control most of the dimensions, leaving hotel management only with the decision to

accept or not accept the request

Assuming availability, the only control dimension left for hotel management in most cases is the price (rooms rate) and the number of units (allocation to booking/rate classes) to be offered at those rates.

The situation is different, though, when considering group requests: convention organisers and tour operators are more often willing to negotiate and move a meeting to a period, where the predetermined group rate is available.

5.2 METHODS OF CAPACITY CONTROL

➔ Index

THERE ARE FOUR BASIC METHODS FOR SERVICE PROVIDERS TO CONTROL INVENTORY:

- **Bookings are accepted only up to 100% of capacity.**

Many hotels still don't overbook and therefore loose revenues

- **"Pooling" of clients to service varying demand.**

Example: dentist's waiting room, shuttle services

- **Lowering of service standards during peak times.**

Example: customers standing in overcrowded trains.

- **Influencing customer behaviour by improved information**

  Example: news broadcast about motorway bottle-necks and overcrowded airports.

- **Capacity utilisation (occupancy / load factor) is a main indicator for operations efficiency and measure for "technical" productivity.**

- **Occupancy as a measure stick for efficiency does not necessarily reflect the ability to adapt to changing demand or the operation's viability (business profitability).**

- ***Average occupancy figures are quite meaningless since they don't show demand lows and peaks and chances to sell-out on a specific day.***

MEASURING ACTUAL DEMAND FOR ROOMS

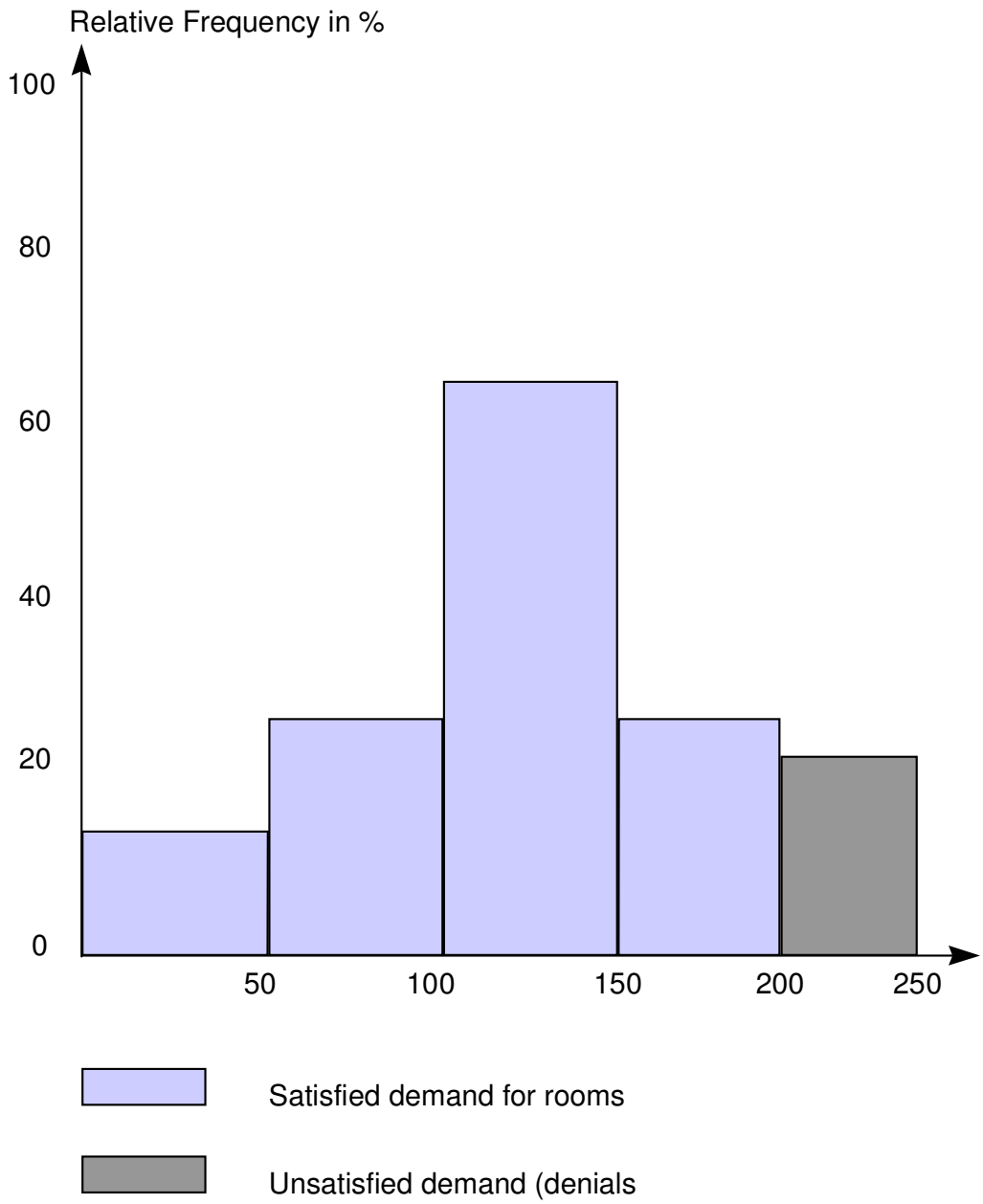
- **The diagram shows the distribution (relative frequency) of SATISFIED DEMAND (number of rooms actually occupied in the past).**

- **This demand distribution may well hide a very different distribution of ACTUAL DEMAND, since at times, the given capacity (200 rooms) did not satisfy all reservation requests.**

- **The denied part of ACTUAL DEMAND is called UNSATISFIED DEMAND (denials).**

- **SATISFIED + UNSATISFIED DEMAND = ACTUAL (TOTAL) DEMAND.**

METHODS OF CAPACITY CONTROL



HARMONISING SUPPLY AND DEMAND

- **The classical methods of capacity management alone are not sufficient to cope with the perishability of service products and the problem of unsatisfied demand, caused by fixed inventory.**

- **For Hotel Management it is thus necessary to solve the problem with modern concepts and tools, capable to harmonise utilisation of a fixed supply with constantly varying demand.**

- **Thus, an additional control dimension is needed to harmonise supply and demand: price – or:**

THE REVENUE GENERATING ROOM RATE

5.3 YIELD MANAGEMENT DECISION SUPPORT TOOLS

➔ Index

Yield Management problem solutions are based on more or less abstract, theoretical and complex modelling approaches, which can be divided into the following five major groups:

EMRR (Expected Marginal Room Revenue) Models

- **Booking Curves**
- **Expert Systems**
- **Neutral Networks**
- **Operations Research Models**

EXPECTED MARGINAL ROOM REVENUE MODELS (EMRR):

- **Applied to the lodging industry, the EMRR-Concept is based on estimating as precisely as possible the marginal revenue for each room sold from a given fixed inventory.**

- **Assuming rooms could be added to the inventory to sell, the marginal expected revenue per additional room to sell declines if the number of rooms grows and increases if it declines.**

- **If there is only one room left to sell, the probability of selling that room is high and the probability of having to discount the rate to sell the room, low.**

EXPECTED MARGINAL ROOM REVENUE MODELS (EMRR):

- **Every additional room to sell reduces the probability to sell this room until the "LAST ROOM", which can't be sold even for a zero rate.**

- **EMRR values can be defined *as opportunity cost of marginal room units* and represent the values of alternative revenue opportunities foregone by selling the marginal room.**

- **Once the EMRR-Curve is established, it can be used to determine the optimal allocation of rooms to be sold through booking (rate) classes to market segments.**

- **Inventory is protected step by step from the top down for each rate class until the EMRR-value of the next reservation request in the previous rate class equals the EMRR-value of the next lower rate class.**

- **This method is applied to all rate classes down to determine revenue optimal booking limits for each class.**

BOOKING CURVES

- **A relatively simple and quite widely used method to manage hotel inventory in view of changing demand is to develop booking curves from past transaction data.**

- **Booking curves represent actual (past) bookings and checked-in demand and do not specifically identify reservation turnover, caused by cancellations.**

- **They don't show sold out days and don't take denials (actual demand) into account.**

- **Upper and lower threshold curves represent deviations from mean demand and allow forecasting unusual booking development (critical days).**

- **Booking curves tend to "freeze" sub-optimal historic booking patterns and do not account for short term shifts in customer behaviour or segment demand.**

- **Booking curves do not determine optimal allocation of booking limits for rate classes or revenue maximising rate/duration combinations.**

- **Inventory allocations by rate class and/or duration need to be checked and manually adjusted quite frequently in order to improve revenue.**

EXPERT SYSTEMS

Since Yield Management decisions are recurrent and based on rules, Expert Systems, Artificial Intelligence (AI) and Neural Networks can be applied to support the inventory allocation decision making process.

Expert Systems use sets of predetermined rules to recommend booking limits.

The following example illustrates the method:

IF* CONTROL DAY IS IN OCTOBER *AND

IF ARRIVAL DAY IN DECEMBER *AND*

IF ARRIVAL DAY IS MORE THAN 40 DAYS OUT *AND*

IF ARRIVAL DAY IS LESS THAN 60 DAYS OUT *AND*

IF DISCOUNT BOOKINGS ARE GREATER THAN 25% OF CAPACITY *AND*

IF TOTAL BOOKINGS ARE GREATER THAN 35% OF CAPACITY

THEN LIMIT AVAILABILITY OF THE DISCOUNT RATE TO 45% OF CAPACITY

- **Expert Systems, capable of handling most aspects of capacity control, can be developed for relatively low cost and can generate better results than booking curves alone.**

- **To develop very good Expert Systems is a difficult and complex task and requires thorough knowledge of developers about customer behaviour.**

NEURAL NETWORKS

- **Neural Networks represent a special form of AI, resembling an electronic circuit, reacting to predefined inputs.**

- **Once calibrated, they react to specific situations and "learn" from continuing repetition.**

- **Neural Network approaches are still highly theoretical and to our knowledge have not been implemented successfully in commercial yield management systems yet.**

OPERATIONS RESEARCH MODELS

- **Operations Research Models have been successfully used by airlines, represent mathematical formulations to forecast future customer behaviour and to generate optimal booking limits.**

- **Forecasts, describing future customer behaviour and demand, bookings, cancellations etc. are computed by using historic behavioural patterns, demand, booking and transaction data.**

- **Booking limits (protection levels) are determined by mathematical formulations, describing the relationships between inventory control actions and the resulting revenue.**

- **Compared to Booking Curves and Expert Systems, the development of OR-Models is much more time consuming and costly.**

- **OR-Models need sufficient ongoing data processing capacity to support forecasting and optimisation models and are, because of their often very complex structure, difficult to understand by non-expert users.**

5.4 FORECASTING TECHNIQUES

➔ Index

FORECASTING TECHNIQUES ARE APPLIED TO DETERMINE THE FOLLOWING AS PRECISELY AS POSSIBLE:

- **The total expected segment demand for a product type/rate class for a duration of X nights for arrival day Y.**
- **the expected cancellation rate until arrival day.**
- **The number of no-shows, walk-ins and early/late departures to determine overbooking levels.**
- **Forecasts are made by product type and/or booking/rate class.**
- **Forecasts are made for short (actual bookings), medium and longer periods (seasonal trends).**

IN GENERAL, THREE STEPS OF FORECASTING TECHNIQUES ARE USED:

- **Booking curves & profiles to estimate future demand, based on reservation activity over time.**
- **Time series modelling, based on historic data.**
- **Causal modelling, based on relationships between customer behaviour, price, competitive actions and external factors or events.**
- **Forecasting total demand and booking development over time serves the objective to come up with booking curves for the house or each market segment separately and to determine threshold curves for manual intervention.**
- **Forecasting Models take factors into account which are influenced by arrival dates (Weekends, X-Mas, days prior to major conventions) and recurring seasonal demand swings.**
- **Exponential Smoothing and Trend Analysis are applied to minimise forecasting errors.**
- **Resulting demand data can then be compared with actual reservations on the books up to the control date to determine remaining demand potential.**

BOOKING CURVES & PROFILES

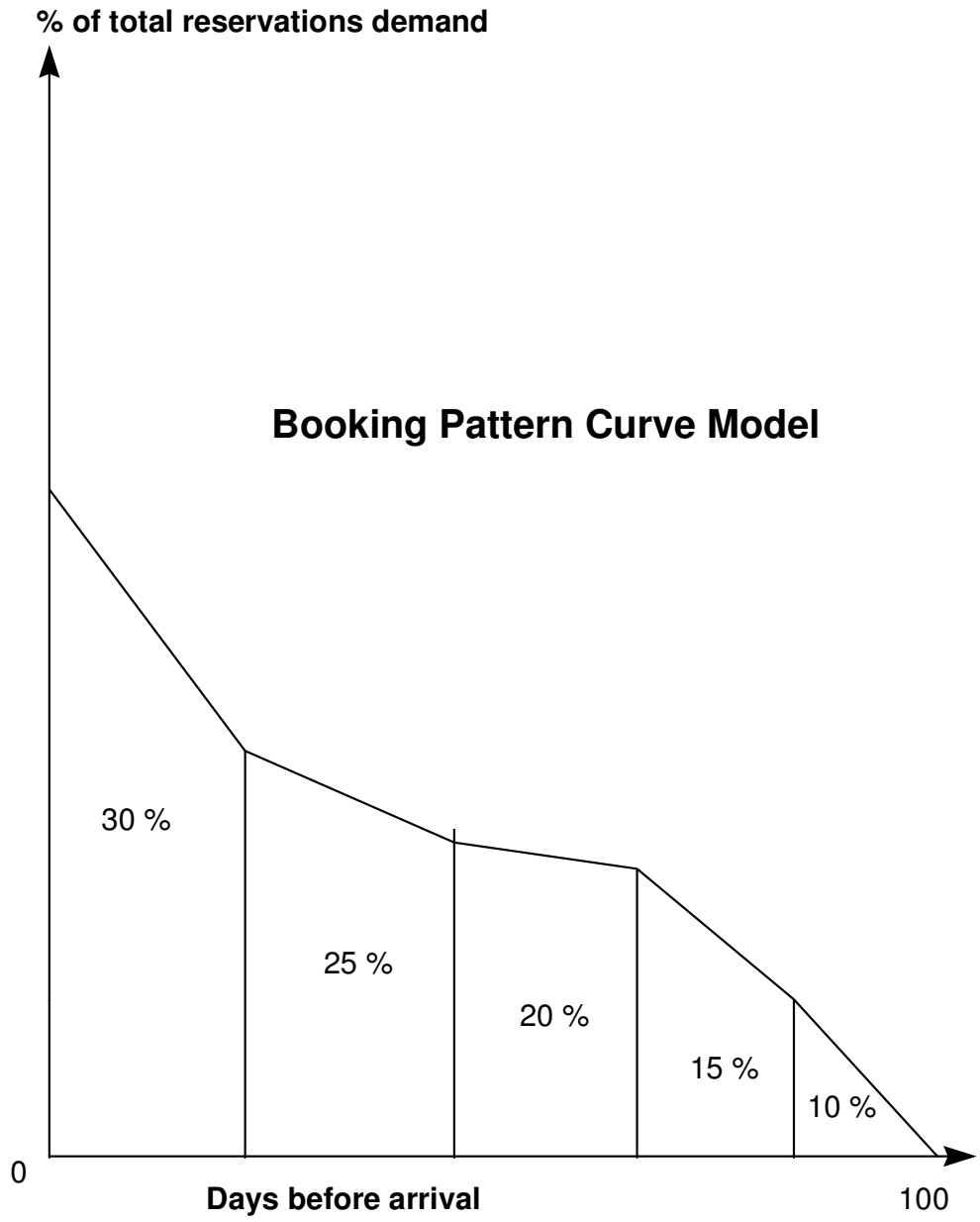
- **Booking Profiles determine what portion (%) of total forecasted bookings (not Dollars) should have been already sold at a given (control) date.**

- **Comparison with actual reservations allows management to take corrective action by opening or closing discounted rate classes or changing inventory allocations (booking limits).**

- **Same is valid for cancellations, where tracking of absolute and relative cancellation development is used to identify unexpected behaviour.**

- **To avoid huge quantities of similar booking curves and profiles, these are clustered into a manageable number of representative curves.**

- **The booking curve approach is well suited for lodging operations aiming at fast and satisfactory results and interested in saving substantial amounts of development Dollars.**



As mentioned earlier, an important issue for Hotel Yield Management Systems is the capability to capture denied bookings (denial reporting),which transaction based booking curves do not account for.

Denial Reporting is not an expensive, time consuming or complex capability to develop and implement, but it needs discipline, training and rewards to work in the day-to-day hotel reservation business

Capturing denied booking demand is of greatest importance for high quality demand forecasting, long-term capacity planning and the success of any hotel yield management project.

6. RESERVATION CONTROLS TO REDUCE LOST REVENUE OPPORTUNITIES

➔ Index

6.1 THE SALES CONTROL TOOLBOX

HOTEL MANAGEMENT HAS THE FOLLOWING INSTRUMENTS AND CONTROL DIMENSIONS AT ITS DISPOSAL:

- CAPACITY CONTROL / OVERBOOKING
- RATE / INVENTORY CONTROL
- DURATION CONTROL
- MANAGING GROUP REQUESTS
- JOINT INVENTORY / SUPPLY CONTROL

6.2 OVERBOOKING PHYSICAL INVENTORY

➔ Index

- To minimise revenue caused by empty rooms on arrival day, controlled overbooking is yield management's answer to the following problems:
  - Customers cancelling booked rooms until arrival day.
  - The "bad" behaviour of booked customers not showing up on arrival day.
  - Customers checking out earlier than booked.
- If, for example 5% of reservations holding on control date are cancelled until arrival date and another 3% of booked arrivals are no-shows, an originally sold out hotel can realise a loss of 8% in occupancy, if it does not overbook.
- The revenue lost by closing out reservation requests too early can easily be determined by multiplying the number of empty rooms by the average revenue per room occupied that night.

- **For each class of rooms, a statistically supported total number of reservations is accepted in excess of actual physical supply of rooms in order to offset the effects of early checkouts, cancellations and no-shows between now and arrival date.**

- **The variable overbooking limits for future arrival days are determined by forecasting reservations, cancellations, no-shows, walk-ins, early / late departures for every room type and market segment until arrival night, the expected total demand and the recapture rate.**

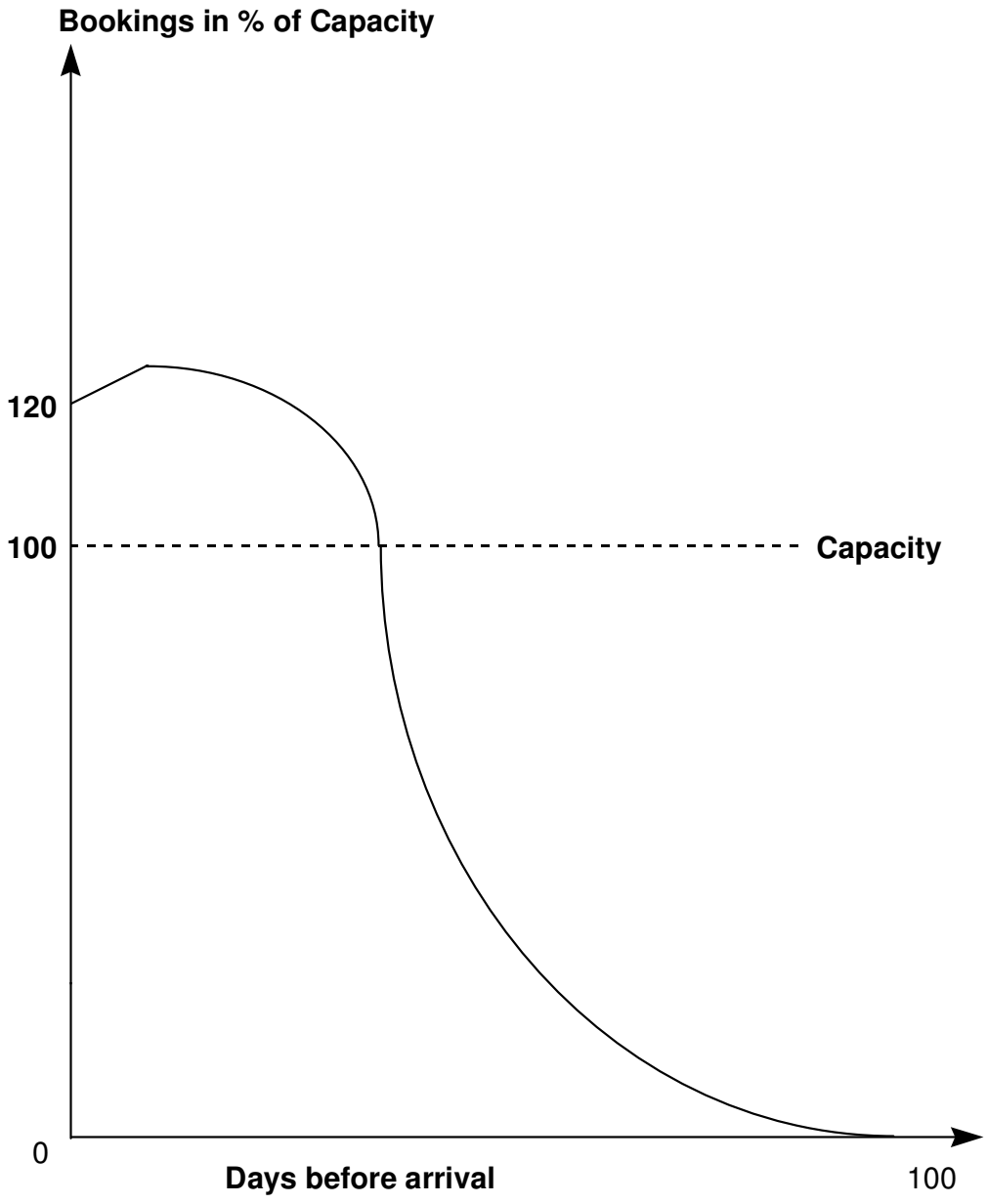
- **Capacity utilisation (occupancy) and revenue is raised in order to compensate for customer behaviour, causing revenue losses (spoilage).**

- **The optimal, revenue maximising, overbooking level may well result in excessive oversales, i.e. in an unacceptable number of walked guests.**

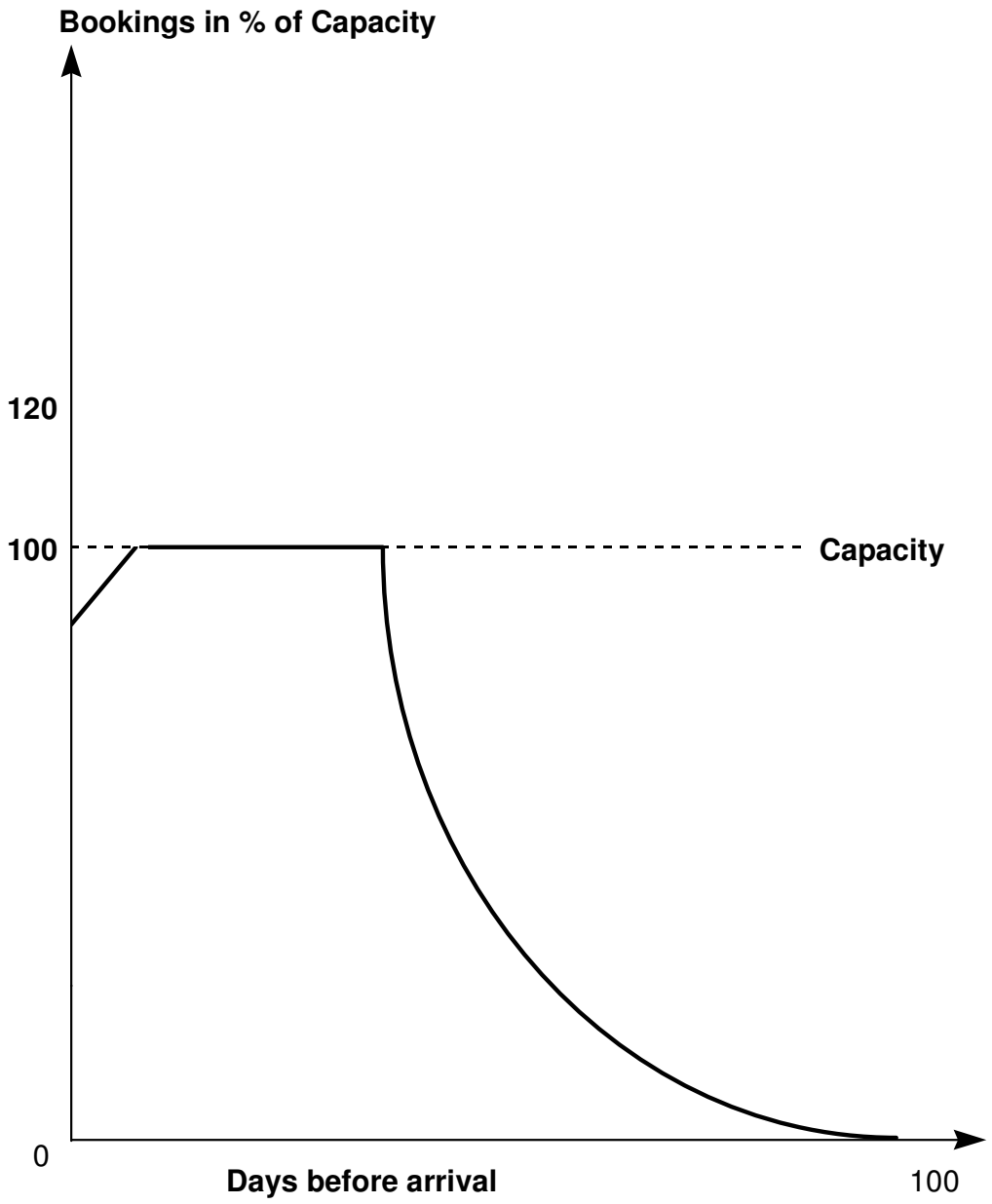
- **Hotels use overbooking more conservatively (left of the optimum), since dissatisfied guests may never return and represent a loss of future revenue.**

- **Cancellation development until arrival day is determined by the time left until arrival and the booked segment mix, since segments behave differently.**

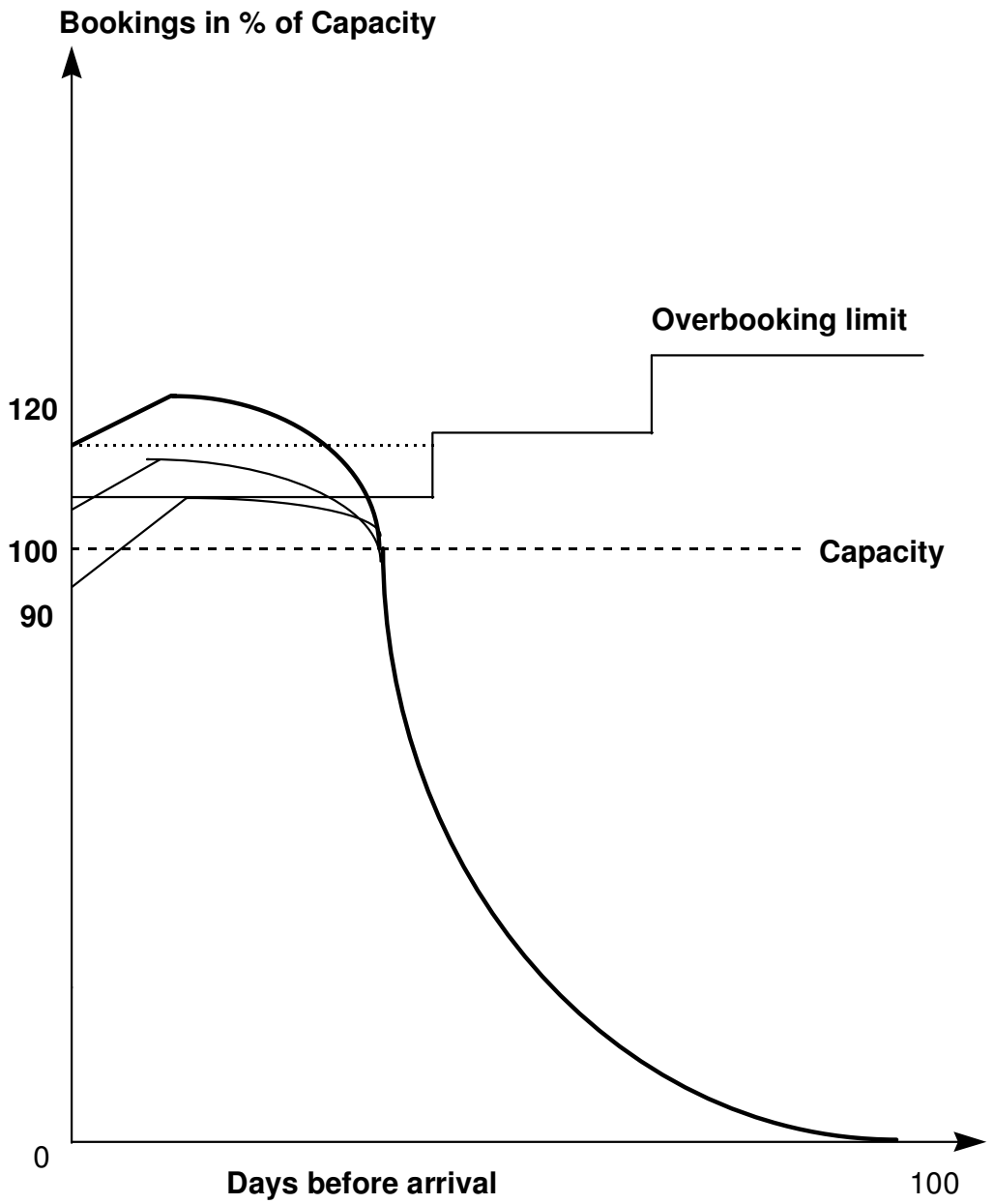
UNCONSTRAINED RESERVATIONS DEVELOPMENT



CONSTRAINED RESERVATIONS DEVELOPMENT



CONSTRAINED RESERVATIONS DEVELOPMENT



- Managed overbooking effectively trades off the risk (and cost) of some oversales versus the added revenue of reducing spoilage (rooms which go unoccupied after reservations were closed out).

- On arrival day a more common form of capacity management takes place: the number of walk-ups to accept is being determined, based on expected cancellations and no-shows for that day.

- Capacity management (or selective overbooking) will usually vary by room class, i.e. it might be economically advantageous to overbook more in lower classes of rooms knowing that upgrading to higher classes of rooms is an acceptable solution to an oversales problem.

- The amount of overbooking to be done in this context is, of course, dependent on the expected demand for the higher class of rooms.

- In more sophisticated systems, the amount of capacity management may also be influenced by availability of rooms at sister hotels or competing hotels.

- The instrument of overbooking is easier for airlines to manage, since customers can more easily be compensated by upgrading, free travel vouchers or by being offered a seat on another flight.

- In the hotel business, a customer might get lost this way forever, so authorisation and overbooking levels should be on the very safe side, taking local occupancy levels of competitors into account.

6.3 OPTIMAL INVENTORY ALLOCATION TO RATE CLASSES

➔ Index

- For each class of rooms, reservations are requested over a range of various available rates, fenced by booking conditions, by different customer types (market segments).

- The primary objective here is to protect enough remaining inventory for sale at higher rates to satisfy the projected demand for rooms at those rates between now and arrival date.

- This process is repeated for each rate level from rack rate on down and requires the following:

    - A good demand forecasting capability.

    - A nested inventory structure and,

    - A good stochastic optimisation technique to determine how much inventory to protect for each room class and rate category.

- A secondary objective of limiting discounts is to encourage "bus-ups".

- This requires a good estimate of price elasticity or probability of up-selling.

- The available daily minimum rate rises over time with the reservation build-up process for each arrival day, reflecting the higher EMRR of a declining number of rooms available for sale.

THE OPTIMUM ALLOCATION OF AVAILABLE RATES DEPENDS ON:

- Total capacity (rooms)
- Relative value of high and low yield rate categories
- Average and mean deviation of forecasted high value demand
- Price elasticity of demand
- Competitors rate and availability

6.4 DURATION CONTROL

➔ Index

- Airlines have to solve the problem of net marginal values of reservation requests for flights (legs, segments and Origin-Destination (O-D) Paris) in a Hub-and-Spoke-System (Network Optimisation).

- Hotels have to accept or deny booking requests from different customer types for different lengths of stay on the basis of given rates, availability, forecasted segment demand and potential revenue displacement (Linear Network).

- The mathematical solution to the problem is extremely complex, but to put it in simple terms, hotel management will not accept a reservation for a certain duration as long as it can expect another booking request at the same rate for a longer stay.

METHODS:

- Reduction of availability for guests, requesting only one night or short stays in favour of higher value booking requests for longer stays.

- Availability of individual booking classes is determined by the total expected sales value of reservations for those classes (roomnights x rate x probability) and the revenue value of displaced (later) bookings.

- If demand is sufficient, reduced rates for longer duration can be limited to serve short stays at rack rate, if the total revenue from short stays is expected to be greater than revenue from longer staying guests.

6.5 HOW TO MANAGE GROUP REQUESTS

➔ Index

- Depending on customer mix and segment demand, rack rate sales and corporate business alone may well not generate enough revenue to break even and pay all the bills.

- The group, airline, convention and short break segments can play, among others, an important role in filling empty rooms and generate much needed revenue to contribute towards fixed cost.

- During peak demand periods, though, lower rate group business tends to displace (often later booking) higher yield customers.

- The concept used to optimise the management of group requests is very similar to that of controlling inventory allocations to rate classes.

- Availability for groups depends on the expected revenue value of a group request, the expected value of later booking groups and the revenue lost by displacing later booking higher value business.

GROUP REVENUE IS DETERMINED BY:

- Group Rate
- Arrival and Departure Date
- Group Size
- Group Cancellation Probability
- Group Attrition Rate
- Typical Net Profit from F&B Sales and other Peripheral Revenues from groups

6.6 MANAGING PRODUCT INVENTORY

➔ Index

- Hotels have little means to adapt capacity to changing demand short term and have to employ tactical management tools to minimise lost revenue.

- Some flexibility is left, though, in terms of internal inventory management to satisfy customer requests by reallocation of room inventory from one product category into another (for example X junior suites into single room category).

- If actual demand for rack rate and high value room types is lower than expected, and medium/low rate categories sold out, upgrading will fill those rooms and reduce revenue spoilage.

7. RESERVATION SYSTEM TOPICS

➔ Index

- **The central reservation system (CRS) or the local property management system (PMS) is like a virtual electronic store, where reservations for different products (room types) are sold or exchanged and where cancellations occur.**

- **Product allocations and sales to various customer types (market segments) are controlled in the reservation system (PMS/CRS).**

- **Almost all reservations systems today allow some kind of booking limits and maintain availability at least by product type and rate (booking class).**

- **Most reservation systems allow reservation allocations to be pooled.**

- **Most hotel reservation systems maintain independent product and rate class controls to limit discount sales.**

- **Some reservations systems are capable of length of stay control by product/rate/duration.**

7.1 SEPARATE AND NESTED BOOKING CLASSES

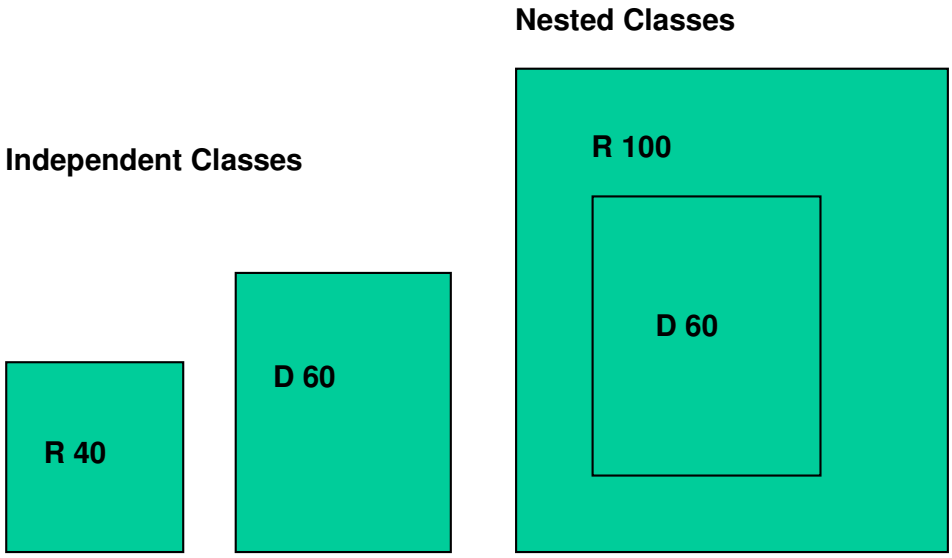
➔ Index

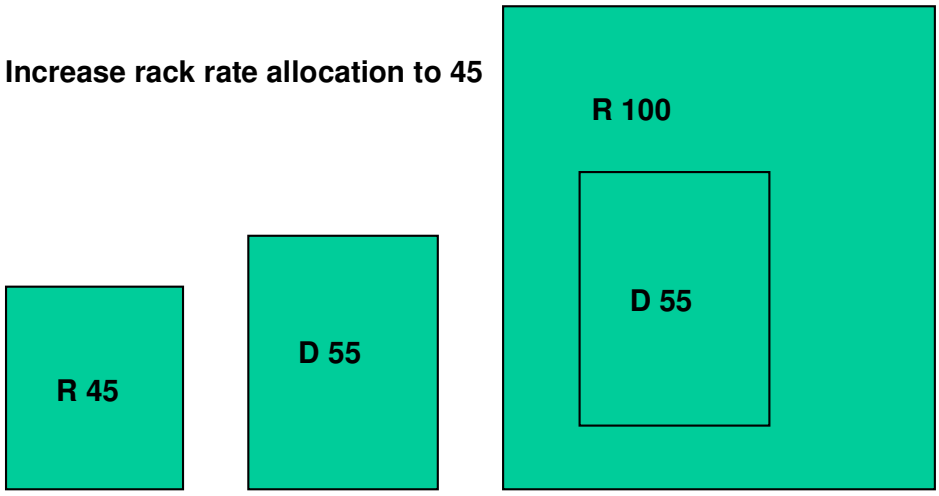
- **Independent (non-nested) controls may well result in lost revenues by limiting sales of higher value reservation inventory, when rack rate closes earlier than discount rate.**

- **This is inconsistent with the yield management objective, to maximise revenue, and has been recognised by airlines as a major source of additional revenue.**

- **If the number of rooms, allocated to a rate class changes, all affected rate classes must be reallocated manually in the non-nested "old" systems.**

BOOKING LIMITS IN INDEPENDENT & NESTED CLASSES





7.2 VIRTUAL NESTING STRUCTURE

➔ Index

Days	Nights	Class	Rate
MO	3 N	R	300
MO	4 N	C	220
MO	5 N	G	80
FR	4 N	W	90
MO	3 N	G	80
MO	1 N	C	220
SA	1 N	W	90

Nested Booking Classes

A
B
C
D

Virtual Nesting Structure

7.3 HOTEL YM: WHERE ARE WE GOING?

➔ Index

- The lodging industry, including the major chains, has lost some 15 years or more in IT-development relative to airlines, and seemed to have lost faith for some time due to the CONFIRM debacle.

- Now the major chains seem to finally have embraced the concept of regaining control over their destiny again by controlling their inventory and the market's access to inventory.

- The following main areas of information, database & communication management applications and a new, ***marketing and customer demand driven management culture***, will play an important role in overall yield improvement the years ahead:

- Property based and central group inventory database development (PMS/CRS).

- CRS/PMS integration (last room availability) to minimise lost revenue from denials.

- Marketing automation and global product distribution through CRS, communication networks and user-friendly, automated direct access reservation systems for corporate and individual clients.

- **Overall revenue growth and customer service quality improvement through Guest History and (Direct) Marketing Database.**

- **Executive Information Systems (EIS) to enable early problem identification and proactive distribution cost, revenue and targeted marketing planning and management.**

- **PMS/CRS-integrated Sales & Marketing Systems to cut down on response time to customer requests, improve yield and enhance overall departmental productivity.**

- **Corporate Direct Access Systems (DAS) to strengthen volume customers' loyalty and improve service and reporting capabilities.**

- **Marketing & Distribution through the INTERNET (WWW, THISCO's Travelweb et al.) to a global audience.**

- **Minimising lost revenue opportunities through Yield Management (inventory and sales control) Systems.**

- **Future YM developments should be seen on the backdrop of an evolving *Electronic Travel Products Marketplace in Cyberspace.***

- **The global marketplace for perishable commodities such as hotel rooms and airline seats will earlier or later follow the rules of an auction house (silent auction).**

- **Anyone equipped with a PC and a modem can be a player and participate in the game of placing specified "anonymous" bids in the auction system, to be picked up by competing YMS of service providers.**

8. HOW HOTEL ROOMS WILL BE BOUGHT AND SOLD TOMORROW

➔ Index

8.1 HOW HOTEL ROOMS WILL BE SOLD TOMORROW: THE COMMUNICATION HIGHWAYS

- Globalisation in the travel industry is changing both the way we market our hotels, sell reservations and how we invest in technology based marketing systems.

- Business travel agents are beginning to negotiate management fees with their corporate accounts as an alternative to commission income.

- European travel agents are following their U.S. counterparts and are planning for enhanced automation levels in the wake of travel deregulation in Europe.

- Toll free telephone services are increasingly featured by hotel marketing groups and central reservation services.

- In response to Globalisation pressures there will be more hotel marketing consortia groups. There are now approximately 30 marketing groups in Germany alone 20 more than 1992.

- Tourism organisations and domestic government are already acting to build national or regional distribution systems, often in association with the national hotel association or regional travel trade organisations.

- Hotel chains are beginning to install data and communication networks to service administration as well as trading needs.

- This indicates a general trend towards hotel specific distribution network development.

- Sales growth of packaged holidays is declining as tourists move towards "a la carte" travel and accommodation buying - a general trend towards a consumer oriented supply.

- Corporate travel managers are installing travel cost optimisation systems- a kind of reverse yield management solution - to help them get the best value from travel and accommodation.

- Hotel rooms are increasingly treated as a trading commodity in the USA, leading the way for domestic and global "automated dealing rooms".

- The North American business schools are predicting that during this decade, information will replace capital as the greatest asset of the enterprise.

8.2 RESERVATIONS PROCESSING: MANUAL VERSUS TOTAL ACCESS

➔ Index

- The travel industry demands automated hotel rooms distribution and reservations, hence the growth of representation and reservations companies.

- For most hotels investment in product source automation would be an uneconomic option - a better solution is to group with other hotels to form a collective automation service, hence the growth of marketing consortia.

- A business travel agent in Europe would rather connect via the USA to a hotel CRS representing a local hotel chain than call the hotel direct.

- With no domestic travel agency network, international networking for hotels is still more cost effective than a telephone call.

- In a typical, average size, 3 star city hotel with a PMS:

    - Reservations do not always enter reservations or cancellations directly and immediately into their system, but rather note them on paper first or process faxes next day.

    - Managers take bookings without reference to actual availability and expected demand.

    - Sales personnel work from out-of-date listings with little support from reservations staff who are treated as a separate operational department and not a part of the sales team.

- In this scenario a PMS interface would be of little as no value to the business.

- The hotel industry will need to change, and adapt information management strategies first, before automation can play a significant role at the property level.

8.3 ELECTRONIC DISTRIBUTION CHANNELS & RESERVATION NETWORKS

➔ Index

- Your success through international reservations networks and third party reservations service providers will ultimately depend on how well they answer the phone and handle customers and how well they know your product.

- Assuming that your rates are competitive, your success through distribution channels will depend either on your location or your brand recognition, or both.

- Direct corporate sales can be handled via a regional sales office to make it easier for "local" corporate accounts to book "direct".

- **Direct local/regional "Corporate Access Systems" to book inventory (last room) via modem directly in the property's PMS will build customer loyalty and avoid costly travel agency networks.**

- **However, for the majority of smaller businesses the marketing and sales cost (via CRS/GDS) can outweigh any revenue benefits.**

- **In Europe approximately 9 % of hotel reservations are made through travel industry booking systems whereas that portion for North America is estimated to be over 50% and even higher for chains only.**

- **A number of organisations are offering services to fill the vacuum and are available for domestic and international distribution:**

    - **Networks (including Internet)**
    - **Marketing consortia**
    - **Representations systems**
    - **Telephone Answering Services**
    - **Shared Use Computer Systems**
    - **Switches**

- **However, which is right for a particular business and which will generate reservation sales and revenues?**

- **Marketing Consortia:**

    - **Probably the fastest growing European lodging industry sector.**
    - **Generally have a clear market focus and sell a region or brand image.**
    - **Generally strong on marketing but relatively weak on distribution technology to support marketing strategies.**
    - **Market forces causing overlap with representation companies.**
    - **For independent or smaller hotels, marketing consortia can offer the advantages of brand identity and access to a wider market.**

- **Representation Companies:**

    - **Provide adequate sales and reservations support in areas that would be uneconomic for all but the mega hotel chains.**
    - **Increasingly offering themselves as the link to travel agency networks and airline sourced business.**
    -

- The trend is towards simplifying the transaction between customer, travel agent and hotel by guaranteed payment schemes and commission handling.
- To create economic sales volumes, brand identity and product positioning have become secondary issues.
- Hotel brand may suffer in competition with representation company's own branding effort.

- Multi-Hosting of Computer System:
  - Costs of owning main frame computer systems are increasing, whilst their effective life becomes shorter.
  - Marketing can become constrained by inadequate computer systems and CRS database software architecture.
  - Airlines are increasingly finding costs of building and operating their own computer systems excessive, and are looking towards shared ownership options and outsourcing.
  - The hotel industry now has access to hotel specific distribution switches that link hotel CRS to the airline GDS. These include THISCo (founded by a hotel industry based consortium) and WIZCOM (from the Avis Group).
  - Ownership of state of the art computer system is no longer seen as key marketing edge.

- Multi-Access Distribution Systems & Integrated Networks:
  - Evolved in Europe to reduce airline distribution costs by putting computer terminals on travel agents desks (AMADEUS/GALILEO).
  - Inputs are standardised, but user has to know the individual responses.
  - Distribution systems (CRS) may well be biased towards products sold by the owners.
  - Travel agents are not provided with a single standard booking record (GNR), limiting the benefits of office automation.
  - Security restrictions limit ability of travel agents in providing cross border support to business clients.
  - Package holiday business will ensure continued life, but GDS will replace airline connections to offer business orientated products.

- Airline based CRS, Distribution Systems & GDS:
  - Airline CRS were created in the 1960s to enable airlines to control inventory availability, reduce costs of sale and to improve service.
  - Originated in North America with airlines placing their own terminals in travel agencies.

- During busy periods, call answered exceeded by calls that disconnected.
- Airline systems were extended in the 1970s to also sell third party airline's seats and serve the needs of the business travel agents and the leisure agents using scheduled airline seats.
- Additional products, car rental and lodging, were added for the twin purpose of raising throughput, reducing costs and making systems more attractive to travel agents.
- Approximately 30% or more of CRS's gross revenue now comes from car rental and hotel bookings.
- Major car rental companies get over 60% of all their bookings through airline systems.
- 50% or more of U.S. corporate hotel bookings made through airline systems.
- System bias towards owner airline services resulted in legislation to create neutrality and a "level playing field" for competitors (CRS Code of Conduct).
- U.S. airline CRS are targeting Europe and The Far East to service their travel agents and customers, and pursue new business growth opportunities.
- Travel agents forming global alliances and consortia to serve multi-nationals by global consolidation of their client's travel.
- Rental Car and hotel distribution added both a service element and a tool to generate revenue.
- System design limits flexibility, and the companies who can participate.
- In UK adverse staff and union reactions to loss of employment caused the creation of nominally independent multi-access systems, actively supported by major airlines.
- In Europe, multi-access systems (AMADEUS/GALILEO) were extended to serve complete travel agent needs and both the business and leisure industries.
- EC-legislation is expected to grant equal access rights and opportunities for service providers across Europe borders.

- Tourist Board Information & Reservation Systems (Public CRS):

- Tourism is an essential part of a country's gross national product and independent travellers are seen as the main growth area.
- Existing infrastructure based on paper brochures, telephone calls and faxes to hotels or service providers are still prevailing.
- "The concept of the Lost Cities": Many destinations have not yet been put on the electronic destination map and are not bookable through domestic or international travel agency networks.
- To compete and maximise market potential, there is a strategic need to present product to overseas travel agencies and to customers direct.

- GDSs are designed for airlines and corporate business users, whereas tourist board systems support small local hotels and the leisure traveller.

8.4 DISTRIBUTION CHANNELS & COST CONTROL

➔ Index

In general, rates sold only represent gross revenues. Fixed and variable cost per sale or reservation have to be taken into account to determine the profit maximising distribution mix.

NET RATE ANALYSIS

DISTRIBUTION COSTS	RACK 100%	RATE
Agent Commissions	10.0%	90.5%
Reservation System Fees	5.0%	85.0%
Reservation System Commission	7.5%	77.5%
Hotel CRS Charge	5.0	72.5%
Credit Card Charge	2.5%	70.0%
SALES & MARKETING COSTS		
Corp. Disc. / Upgrades / Overrides	10.0%	60.0%
Direct Marketing & Printing	10.0%	50.0%
Direct Sales Payroll & Expenses	10.0%	40.0%
AFTER DEDUCTION	**NET RATE**	**40.0%**

- In the hotel yield management context, the distribution cost, determined by business source and distribution channel should be part of the revenue optimising equation.

- As shown in the above example, a marginal room sold for a $300 gross rate loaded with all of the listed distribution cost will only add a net revenue of $ 210 towards fixed cost of hotel operations or profit.

- In this case a direct local sale of the same room to an alternative customer for a 10% discount would generate $60 more than the above international sale.

- This is one more reason to question the validity of average rates sold as a meaningful measure-stick for business performance and basis for marketing decisions.

- If measured by ADR or the number or roomnights sold, there is little incentive for sales and reservation department to sell net revenue.

- Based on gross rates, the customer value based inventory control and reservation sales decisions may well result in revenue losses (lower net yield/ margin per available room) not directly apparent to marketing, sales and reservations management.

- Travel agency commissions, CRS booking fees and other distribution costs get paid by the back office weeks after the customers have departed and often months after a "good looking" rate has been sold.

- *Yield management's top goal is to improve the bottom line of hotel companies - not gross sales before variable distribution cost - or the number of roomnights.*

8.5 THE DIFFERENCE BETWEEN HOTELS AND AIRLINES

➔ Index

- **THE HOTEL INDUSTRY IS HETEROGENEOUS AND FRAGMENTED:**
  - **Many types of companies, products, destinations and market segments.**
- **SEGMENT/LEG CONTROLS VERSUS DURATION CONTROL:**
  - **Early departure during a flight not to be recommended.**
- **HOTEL-OWNER OFTEN NOT IDENTICAL WITH OPERATOR:**
  - **"The computer will do for another five years".**
- **AIRLINES ARE MORE FLEXIBLE IN ADJUSTING CAPACITY:**
  - **Hotels can't fly to where customers are waiting.**
- **HOTELS ARE DECENTRALISED PROFIT CENTRES:**
  - **Pilots don't get bonuses for high load factors and are not responsible for the financial success of their professional activity.**
- **HOTELS HAVE YET TO EMBRACE THE FENCING CONCEPT:**
  - **Negotiation skills of hotel personnel and of guests can make the difference.**
- **AIRLINES HAVE CENTRALISED PRICING AND SALES:**
  - **Just try to make a cash offer at the check-in gate at Budapest for the next flight to London Heathrow.**

8.6 FINAL REMARKS & OUTLOOK

➔ Index

The discussions of the hotel management concepts and tools, we have come to term YIELD MANAGEMENT, were designed to give you food for thought and outline the importance of the most valuable resource for market oriented and successful hotel management.

INFORMATION

Information is the raw material to produce, package, distribute, manage, market and sell room rental serviced, to make daily decisions in an environment of uncertainty, affecting future revenues and profitability.

You cant make money working against your customers by neglecting their needs or buying behaviour and by insisting on your view of what the market wants from you.

Better adaptation of your business - what your offer when, to whom and for how much - to the ever changing marketplace - demand and supply - will reap benefits.

The Yield Management Toolbox can help you to manage your saleable inventory in a market and customer oriented manner (or: to set your sails and your direction in a way, moving your boat faster) and thus improve profitability.

Consequent application of Yield Management tactics minimises the number of UNFORCED ERRORS in decision-making and the loss of revenues resulting from disregarding volatile segment demand and customer's booking behaviour.

➔ Index

DEFINITION OF TERMINOLOGY

BIASED SCREEN DISPLAY	CRS screen display favouring sale of CRS owners products
BUCKETS	Different product types or booking classes forming part of the services offered (hotel rooms, airline seats, etc.)
BOOKING LIMIT	A booking limit is normally associated with each bucket. It describes the number of product units available for sale in each bucket
BOOKING CURVES	Booking curves represent the development of reservations for units of a certain bucket over time
BOOKING PROFILES	Booking Profiles describe what portion (%) of total forecasted bookings for any arrival day should have been already sold at a given date
BOOKING CLASS	Traditionally an inventory structure of separate buckets to control availability of different product 7 rates (see buckets)
CRO	Central Reservations Office providing telephone answering services
CRS	Computer Reservation System, the electronic store for the product inventory available for sale
GDS	Global Distribution System
LAN / WAN	Local Area Network / Wide Area Network
LAST SEAT / ROOM AVAILABILITY	Direct Access to live (real-time) inventory, resident in CRS of service Provider
LOAD FACTOR	Percentage of capacity utilisation
MARKETING CONSORTIA	Marketing and sales organisations assembling and promoting products with a unified brand identity
MARKET SEGMENT	Groups of customers showing similar booking behaviour and price elasticity. Can be, but not necessarily, identical with booking class
MULTI ACCESS SYSTEMS	Connectivity switches that can directly link a travel agent with CRS. To aid use, the entry commands have been standardised
MULTI-HOSTING	The use of a single computer system by a number of users
NATIONAL DISTRIBUTION SYSTEMS	National travel agency networks, usually owned or co-owned by national carriers
NESTING	Method of nesting formerly separate booking classes into a hierarchical inventory structure
NEUTRAL DISPLAY	Unbiased design of reservation screen display by appropriate selection algorithms
OCCUPANCY	Percentage of room inventory utilisation
PMS	Property Management System used by hotels for inventory control, reservations, accounting, billing, check-in and POS integration
PNR / GNR	Passenger/Guest Name Record: passenger/guest related electronic transaction file, created by booking a seat/room
QUALITY CONTROL SYSTEM	Software to check bookings for compliance with travel policy and lowest legal rates/fares. Rebooks to lower rates/fares automatically
PUBLLLIC CIRS	Public Computer (Destination) Information and Reservation Systems
REPRESENTATION COMPANIES	Sales Organisations used by hotels/groups where own presence would not be economic
RATE CLASSES	There are two categories of rate classes: independent or nested. Independent rate classes are assigned to specific buckets and a specific number of saleable units, independent of actual demand

➔ Index

DEFINITION OF TERMINOLOGY

T&E CONTROL SYSTEMS	**Software used by travel agents and corporate business to control the costs of travel and entertainment by only allowing bookings to be made for selected providers and classes of lodging and travel**
THRESHOLD CURVES	**Upper and lower threshold curves represent deviations from mean demand and allow forecasting unusual booking development (critical days)**
TOLL FREE TELEPHONE	**Where the recipient (service provider) pays for the call**
TRANSACTION FEE	**Fee charged to providers by CRS operators for bookings made through their systems**
VIDEOTEX	**Technology to enable information systems to be accessed via normal telephone lines**
VIRTUAL NESTING	**Method of nesting lower revenue value classes into the next higher value classes to realise the full benefit of duration/itinerary controls**
YIELD MANAGEMENT	**Tactical methods of maximising revenue through demand driven control of reservation sales and inventory using forecasting and optimisation models. Instruments: Discount Control, Overbooking, Duration Control, Group Optimising, Supply Control**

➔ Index

Job Profile for Group Discussions:

1. Each group elects a group leader to moderate discussions and to present the group's findings to the other groups at the afternoon roundtable discussion.

2. Review the major topics of the YM Seminar and identify and list revenue opportunities at your properties, ranked by importance (most probable positive revenue impact), to be captured by corporate and/or property departments represented by taking actions, changing procedures, mission statements, business objectives, reports, contracts with clients, new definition of job responsibilities, implementation of information and decision support systems a.o.

    - Short term (next 3 months)
    - Medium term (next 12 months)
    - Long term (next 24 months)

3. Discuss your findings from step one and agree on a mission statement of your group's objectives by department (list up to max. 20 items for short/medium/long term) in view of revenue opportunities to be captured by implementing Yield Management practices and concepts and identify specific actions, changes or procedures, reports, regular meetings objectives, contracts with clients, job profiles a.o.

    - Short term (next 3 months)
    - Medium term (next 12 months)
    - Long term (next 24 months)

4. Identify and list problems (business, technical, customers, attitudes a.o.) and difficulties to be overcome by corporate and/or properties departments in order to assure your revenue management objectives will be met by your proposed actions.

➔ Index

FINDINGS YM TOPICS	RANKING Priority					POSSIBILITIES	ACTION Term			Description
1)	A	-	-	1	2	Allocate more capacity			L	• revise allotment

CAPACITY MANAGEMENT						for "Rack" during peak periods (protect rack rate)		M	L	and distribution • revise overbooking policy • review market mix
2) DISCOUNT ALLOCATION	-	B	-	1	2	Minimise and/or eliminate discounts where ever possible (protect rack rate)	S	M M		• implement good forecast tool (buy YMS) • say "NO" more often • creating products (fencing)
3) DURATION CONTROL	A	-	-	-	2	define minimum stay periods for peak periods for defined segments	S	M M	L	• check calendar • flexible duration control policy (➔ demand)
4) GROUP AVAILABILITY	-	B	-	-	2	during defined periods, only accept groups on half board basis increase rates when high(er) volume request for groups (jeopardise higher class)		M		• define and/or revise group policy for pricing and duration control
5) SUPPLY CONTROL										•

Legend:

A = Priority high
B = Priority medium
C = Priority low

1 = Corporate
2 = Property

S = Short term
M = Medium term
L = Long term

➔ Index

MISSION STATEMENTS
(per departments)

STATEMENTS	FINDINGS	ACTION	TERM
MARKETING Implement Yield Mgt System policy into property's Marketing Plan and related Action Plan to set proper strategy	• generate more revenue by implementing the previously mentioned findings	• implement into planning & policy • apply policy • monitor • define measurement	L S M/L L
SALES Proceed, apply and implement the set and defined actions	• no access to PMS • lack of proper forecasting • interference of other departments	• provide constant "real-time" access to PMS • proper forecasting • define interference and proper info channelling	L L S
RESERVATION Constant knowledge of products (rooms & f&b) and policies together with constant up-dating and handling reservations	• general booking situation not always updated • no denial statistics available	• quick response • daily up-dating of reservations • proper forecasting by YMS, Sales and Rooms Division	S L/M
FRONT OFFICE Up-selling at any given time with rendering decision making process to Front Office Staff	• lack of proper training • lack of policy • no delegation with shift of authority and decision making	• professional training of FO • delegate duty and authority • implement "lowest daily rate"	M S S

S = Short term
M = Medium term
L = Long term

➔ Index

PROBLEMS & RISKS

BUSINESS	• **eventually loosing customer to our competitor ("no")**
TECHNICAL	• **need of appropriate soft- and hardware to implement and apply yield management** • **professional and constant training of human resources involved** • **lack of technical support** • **lack of proper history data available**
CUSTOMERS	• **study/handling with different types of customer behaviour (Q/P/T)** • **catch the real *needs* of the customer**
ATTITUDE	• **acceptance of changes in general** • **fear of new technology in particular** • **lack of motivation for new and state-of-the-art working techniques**

go ➔ index