

Project Management: **Definition and Applications** **of the** **Yield Management**

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Introduction

What is Yield Management? This is the question we will intend to shortly explain in this report. This concept has been developed throughout different types of businesses and environments but is mainly based on an economic point of view rather than on a study of the internal management of the different actors.

We will first explain the definition of Yield Management and briefly expose its concept and objectives toward a business. Then we will develop our report on elements we have found on diverse areas where this technique applies, such as the Maritime and Air activities, Hotel business and Information Technology sector.

Globally, Yield Management has had an impact on logistics as much as on the Cost Strategy implemented by the different companies. In fact, it usually has unexpected consequences on the actual structure if not applied in coordination with the other services. From our logistician point of view, we will intend to point at the technical solutions that were developed in order to satisfy the new strategy and meet customers' expectations.

From this varied examples, we will try to differentiate the strategies that can be developed from the Yield Management concept as it is highly complicated once adapted to a specific market and type of products. In the applications we have decided to present through this report, the solutions offered by such technique are quite different and applied at different levels or aspect of their own activity.

A. Presentation of the Yield Management

To give a quick definition of the meaning of Yield Management, it is described as the process of maximising the contribution of every slot, vessel, trade and network. Basically it should be seen as the process of allocating the right type of capacity to the right kind of customer at the right price as to maximise revenue or yield. It is also noticeable that the concept should be used in combination with load factor management: as it will be explained with more details later; not combining those two techniques may result in ignoring the real capacity of a company to satisfy its own service guarantee or quality.

Other definitions have been given to explain more particularly what Yield Management is by various authors and different cultures (which sometimes affects the real meaning of a same term). We have selected a few others in order to make its understanding clearer:

- “Systems and procedures to maximize results from the sale of a product or service in more or less fixed supply whose revenue producing ability diminishes with time.”¹
- “Based on real-time demand forecasting by market micro-segment and an optimisation model, Yield Management (also known as "Revenue Management" or "Real-time pricing") is an economic technique to calculate the best pricing policy for optimizing profits generated by the sale of a product or service, based on real-time modelling and forecasting of demand behaviour per market micro-segment.”²
- “Yield Management aims to maximise the benefits of a company offering services. It identifies market segments, evaluates their potential and determines prices. It creates rules for pricing reduction and relocation in order to establish an advanced reservation procedure. It also controls their efficiency and application. It ensures the free capacity management by adapting prices and service offer to every segment specifications.”³
- “Yield Management can be defined as a management technique that aims for the optimisation of every free capacity slot. The objective is to optimise the production/distribution capacities in order to sell at a different price when Demand and Offer expectations are different.”⁴

¹ Dr. Warren Lieberman, Buckhiester.com

² OPTIMS : Company selling Yield Management softwares for Transport, Hotels and Tourism (www.optims.com).

³ Alain Capiez, Professeur Université Angers, Master Yield Management.

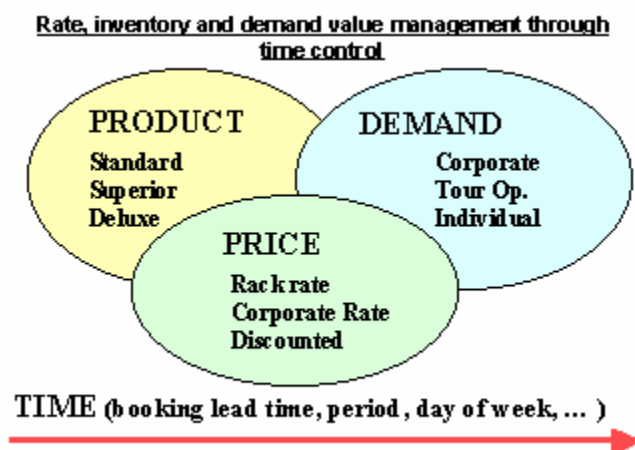
⁴ David Autissier, Maître de conférences ESA - Université Paris XII Val de Marne.

- “Yield Management (also called "Revenue Management" or "Real Time Pricing") is a technique that allows the calculation, in real time, of the best prices for optimisation of profits generated by the sale of a service or product, on the base of a model and prevision in real time of the Demand behaviour by market micro-segment.”⁵

Based on those several definitions, we still had to compile their views in order to constitute a global understanding of the Yield Management. For example, we would probably not resume the Yield Management applications to the companies offering services (such as the 3rd definition). In fact, as we will present it in the Information Technology part, it may also concern some specific industrial businesses such as the production of computer parts that has to evolve quickly in term of pricing, due to the fast development of high technology and the increasing demand of the public.

We also wanted to integrate the notion of “price discrimination” which is the sort of impact that Yield Management can have on a business’ customers. Anyway, those different approaches define almost all situations of Yield Management applications and that is why we selected those in order to properly introduce the following parts in this report.

We found it interesting to integrate as well the following figure from a French website (www.revdev-consultants.com) as it clearly indicates the 4 important variables to include in a Yield Management strategy: Product, Price, Demand and Time.



Effectively, these notions have led to the development of Yield Management strategies; they clearly affect the determination of the price offered for a specific service, at a specific time, depending on the resources you have and your product’s quality.

⁵ Evelyne Gasse, Centre Formateur Y.M. 2003.

B. Applications on the Maritime Industry

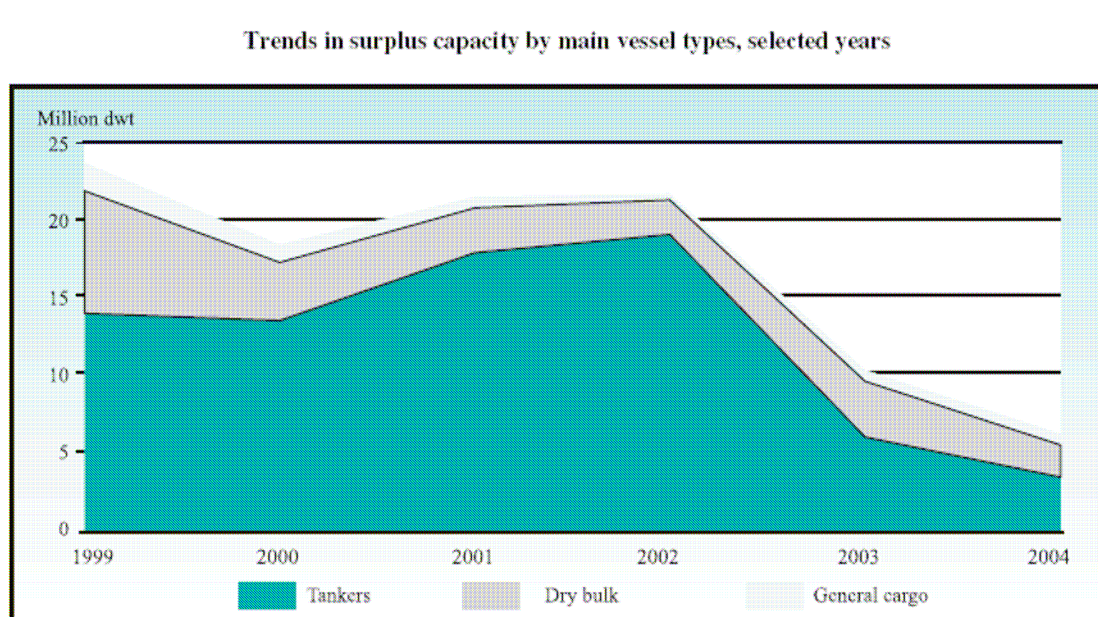
1. Global description of the Market

Maritime transport services are a key factor to the development of the world economy. Geographically, maritime traffic has evolved considerably over the last decades especially through growth in transpacific trade. By establishing commercial linkages between continents, maritime transport supports a considerable traffic that covers 90% of the intercontinental transport demand of freight.

In this first part, we are going to briefly present the actual situation of the market of the maritime transport, which is by definition an international and highly diversified activity, subject to constant changes.

1.1. The principal actors

The principal actors implicated in the maritime industry are the *shippers* and the *ship-owners*. Between these two major groups there is a strong power interrelation, formed according to the market conditions. Actually this interrelation is in favor of the shippers as there is a surplus of capacity which induces a reduction of freights. However the tendency seems to favor the ship-owners, as the demand for maritime transport services constantly grows, under the influence of the increasing needs of the developed countries. The following graph clearly illustrates this evolution.



Source: Compiled by the UNCTAD secretariat on the basis of data from *Lloyd's Shipping Economist*, various issues.

The maritime shipping industry offers two major types of services:

- **Charter services** (also known as Tramp):

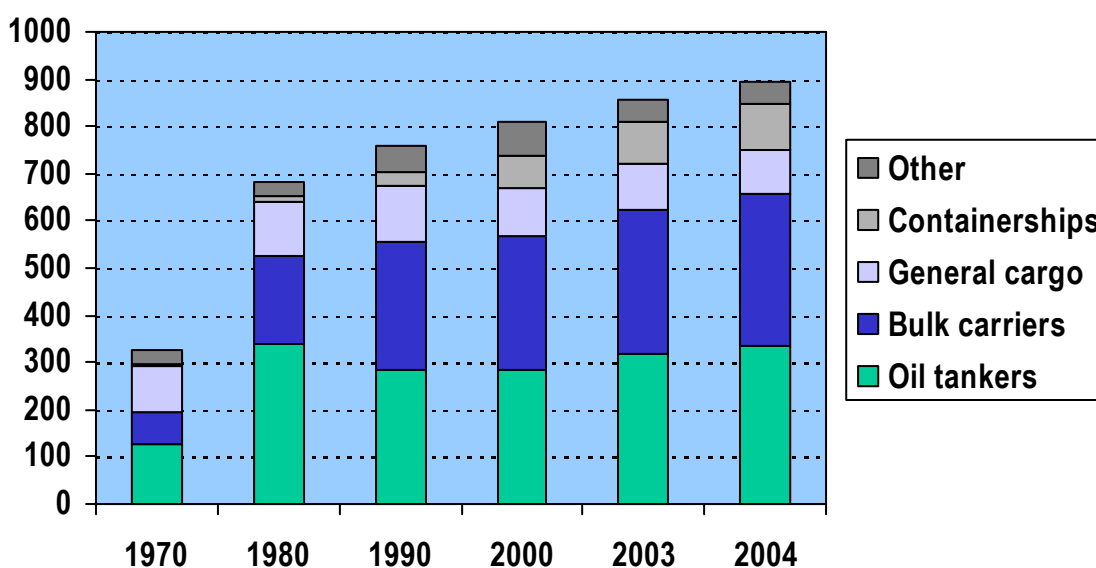
In this form of service a maritime company rents a ship for a specific purpose, commonly between a specific port of origin and destination. This type of shipping service is notably used in the case of bulk cargo, mainly petroleum, iron ore, grain or coal, often requiring specialized cargo ships.

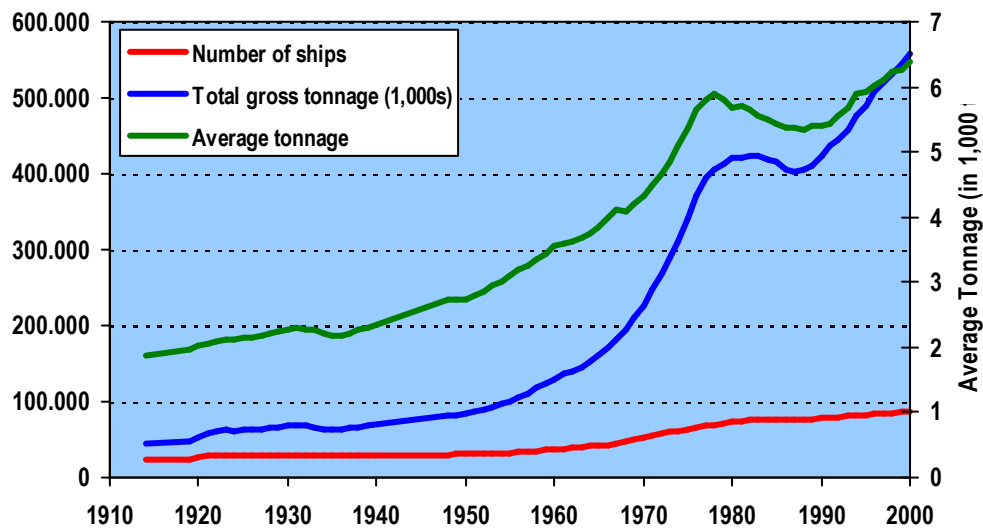
- **Liner shipping services.**

It involves a regular scheduled shipping service often calling several ports along a pendulum route. To insure reliability, frequency and a specific level of service, many ships can be allocated to a single route. These maritime shipping services are available to any freight importer or exporter, implying that the cargo being carried on any given ship belongs to different interests. A growing share of liner services is containerized.

Analysts believe that a continued growth in container transport is going to take place in the next few years. So far the forecasts have always been too modest. The driving forces are globalisation and the economic development in Asia, particularly China.

The following graphs clearly illustrate the repartition of the world fleet by type of vessel as well as its evolution over the last century.





The revolution of the containerisation

Containerization is an important element that changed freight handling and shipping. Today, approximately 80% of the total value of sea cargo, though only 20% of the total volume, is transported by containers.

The container's success can be explained by its numerous advantages. It makes handling easier and quicker and diminishes the duration of loading and unloading operations. This fact is beneficiary for the acceleration and rotation of ships and leads to an important deduction of fixed costs.

The trend is for bigger sizes of container ships to reduce costs by economies of scale.

1.2. The principal flows

An imbalance has been established in the traffic of commodities between the different continents. The main characteristics of flows as they have been developed are:

- Exports from Europe (mostly in final goods) highly more important than imports (mostly in raw materials)
- Imports in Asia particularly of American products and raw materials but also growing exports towards Europe and America
- American imports significantly higher than exports
- African exports, mainly in raw materials, a lot higher than imports, mainly in final products.

Today container traffic is distributed unevenly between the Far East (45%), Europe (23%), North America (16%), Near and Middle East (6%), Central and South America (4%), and Africa (3%).

In order to respond to this unequal traffic, ship-owners have to take into consideration the particularities of each maritime route.

2. The Impact of the Yield Management

Maritime companies, and more specifically those involved in the liner traffic, often recur to the Yield Management in order to attract customers and maximise their profits. Obviously it is applied in areas and periods with low demand. It is based on the simple concept of lowering the freight if the capacity is not full, hoping that low prices will attract potential shippers.

The impacts by applying such practices can be the following:

- *Improvement of profitability:* a slight increase of the revenue can bring a significant increase of the profits, as fixed costs represent an extremely high percentage of the total costs of a vessel and therefore its immobilisation or its sailing half-empty results to a high deficit.
- *Optimisation of the management costs:* the vessels are examined with reference to their capacity and can be repositioned on the main traffic axes. Their “returning empty” can be avoided more successfully.
- *More efficient management of the fleet:* the ships sail fully loaded and it becomes easier for the managers to meet the customers’ needs.

3. Consequences of the Yield Management

The application of the Yield Management can have considerable effects on the maritime industry and subsequently on other sectors related to maritime transport. Some of them could possibly be:

- *Creation of alliances:*
This is a new form of inter-firm organization that has emerged in the container shipping industry since the mid-1990s. Because of the costs of providing ship capacity to more and more markets escalating beyond the means of many carriers, many of the largest shipping

lines have come together by forming strategic alliances with erstwhile competitors. They offer joint services by pooling vessels on the main commercial routes. In this way each of them is able to commit fewer ships to a particular service route, and deploy the extra ships on other routes that are maintained outside the alliance. The alliance services are marketed separately, but operationally involve close cooperation in selecting ports of call and in establishing schedules. The alliance structure has led to significant developments in route alignments and the economies of scale of container shipping

- *Creation of maritime conferences:*

These are formal agreements between companies engaged on particular trading routes. They fix the rates charged by the individual lines. While they may be seen as anti-competitive, the conference system has always escaped prosecution from national anti-trust agencies. This is because they are seen as a mechanism to stabilize rates in an industry that is inherently unstable, with significant variations in supply of ship capacity and market demand. By fixing rates exporters are given protection from swings in prices, and are guaranteed a regular level of service provision.

- *Development of “4th generation ports”:*

Seaports, from the simple physical sea/land interface they once used to be, have successively turned into commerce and industrial centres, then into logistics and distribution platforms, and are now becoming intermodal nodes in international supply chains networks, the efficiency of which now drives trade competitiveness. Maritime companies have become so powerful that in many cases owe the container terminals they use.

As a consequence of (i) the spreading of port concessions in specific traffic niches, like container terminal operations, and (ii) the relatively few number of international professional operators in the market, a new form of competition limitation develops along regional coastlines, crossing countries boundaries. It becomes now possible to anticipate that in the short run, one or two terminal operators may control a string of terminals on a given range, therefore establishing a new case of dominant position at a regional level.

C. Applications on the Air Industry

1. Global description of the Market

Definition and history of Yield Management – Airline Industry

Based on real-time demand forecasting by market micro-segment and an optimization model, Yield Management also known as *Revenue Management* or *Real-Time Pricing*, is an economic technique to calculate the best pricing policy for optimizing profits generated by the sale of a product or service, based on real-time modeling and forecasting of demand behavior per market micro-segment.

In the early 1980's the airline industry in the United States revolutionized the scientific method for calculating prices. Yield management offers an excellent solution to the problem of comparing supply and demand due to differentiated pricing and systematic control of the inventory for sale in each price category. Winners exist on both sides i.e, producer gains in increased turnover and revenue while the end-user enjoys lower prices for the same quality of service.

The success of Yield Management goes in hand with the development of electronic distribution. In order to understand the true significance of this management technique, it is important to note that it developed in the airline sector concomitantly with the implementation of electronic distribution in the form of the first GDS – Global Distribution Systems – (Sabre, Apollo, System One).

Yield Management – Tactical Tool

With the deregulation of the airline industry and the development of electronic distribution, the major companies used Yield Management as their main tactical weapon in their struggle to preserve market share while maintaining profitability. Those who implemented the most effective Yield Management systems (especially American Airlines and Delta Airlines) were in fact the companies who adapted best to this new competitive environment. The companies that did not invest or waited too long to invest in these tools have disappeared (People Express, Pan Am).

American Airlines calculated the systematic use of Yield Management enabled the company to generate 1.4 billion dollars in additional revenue between 1989 and 1991, whereas profits from the AMR holding represented 892 million dollars over the same period.

Yield Management is thus a necessary tactical weapon that ensures the profitability, if not the viability of any business operating in a highly competitive environment. Following its consecration in the airline industry, Yield Management began in the early 1990's to penetrate other sectors of activity first in the United States and then in Europe.

Challenges of Yield Management - Airline Industry

Yield Management is being used as a technique for extracting the maximum amount of revenue from a fixed quantity of perishable goods and/or services. Efficient yield management means maximizing the revenue from selling its ad inventory.

Prior to deregulation in 1978, all airlines offered the same government-approved fares. When *People's Express* introduced the industry's first low-fares nationwide, major carriers were forced to reach or go out of business. Following that strategy, American Airlines introduced its first true yield management system that allowed it to dynamically adjust fares on historical and current booking patterns. Since then, yield management had been adopted by many industries that have similar inventory characteristics.

2. The Impact of the Yield Management

Why is Yield Management important?

A few characteristics that make yield management efficient.

- ***Relatively Fixed Capacity***

If capacity were flexible, there would be no need for a tradeoff. If airlines could add or remove seats or aircraft at will, there would be no reason to try to manage capacity. Unfortunately, the plane cannot be enlarged; the only flexibility allowed is to schedule the passenger on a later flight.

- ***Ability to segment markets***

The airline industry segments the customers on each route into various groups and sets a different price for each group or 'class' as called in the airline industry. Two people sitting to each other on the same flight could have paid completely different prices for their tickets. Classes are differentiated by the terms of the ticket. These terms include cancellation policies, purchase time and return dates. A businessman, who buys a ticket a few days before the flight and wants flexible dates, will pay more than a leisure traveler who bought his ticket well in advance. The airlines have conducted a thorough analysis based on historical data to decide how many seats should be allocated to each class. The allocation of seats per class and the ticket price are the keys to maximizing airlines yield. One is willing to pay a higher fare in exchange for flexibility (open return, cancellation option, schedule change etc.) while on the other hand one is willing to

give-up some flexibility for the sake of a cheaper ticket (stay overnight Saturday, not come back on Labor Day – which is a peak day). Such a strategy allows airlines to fill seats that would otherwise be empty.

- ***Overbooking***

One statistic in the airline industry is that 50% of initial reservations get cancelled or are no shows. To deal with no shows, airlines typically overbook flights by 15%. This is the historical figure that allows airlines to minimize empty seats on flights. Sometimes, airlines wind up overbooking, too many passengers show up for the flights and the airline is required to reschedule some passengers to later flights and compensate them. Overbooking is used to account for both cancellations of campaigns and insertion orders that did not get booked. Moreover, overbooking tries to compensate for inventory forecasting inaccuracies.

- ***Perishable Inventory***

Another aspect is that if the plane leaves the gate with empty seats, this inventory is cannot be stored and is lost. If an airline can minimize the inventory spoilage, then it will operate much more efficiently. Since yield management determines the load level to try to maximize revenue, we see why businesses that deal with perishable inventory can benefit from such a technique.

- ***Audience Overlap***

A big issue for airlines is that a lot of their routes overlap since they use a hub-and-spoke model. In the hug-and-spoke model, passengers flying from New York and passengers flying from Miami might end up on the same connecting flight to Los Angeles. This adds a degree of difficulty to yield management.

- ***Product Sold in Advance***

If all tickets were sold at once, the right tradeoff would be a fixed figure and would not take advantage of customer behavior. Since customer demand level patterns vary continually over time, it makes sense to also try to find the best tradeoff over time. Airplane fares change all the time, some on hourly basis others on a weekly basis. The tradeoffs occur when a manager is faced with the option of accepting an early reservation from a customer who wants low price, or waiting to see if a higher paying customer will show up.

- ***Fluctuating Demand***

Yield management is a tool that can be used to smooth the demand pattern. In peak season, the airline can increase its revenue by increasing the fare on its tickets and on low season, it can increase capacity utilization by offering low prices. Past years data will offer the manager a way to forecast when these peak and low seasons occur. Demand fluctuates seasonally (peak season in the summer and low season in the fall) and also gradually (there is an increase in the demand for reservation until a few days prior departure).

- ***Low Marginal Sales Costs and High Capacity Change Costs***

In order for yield management to work optimally, additional capacity should be expensive to acquire. In this situation, the cost of a plane is high, moreover the lag between the order and delivery is significant. On the other hand, the cost of an additional passenger should be low such as the negligible cost of drinks and food for a customer. In fact if there were low capacity change costs, it would be easy to adapt quickly by storing a few airplanes in reserve.

3. Consequences of the Yield Management

The Problematic behind Yield Management in the Airline Industry

Yield management in the airline industry has similar objectives to inventory control for manufacturing companies. The yield management problem is best described as a non-linear, stochastic, mixed-integer mathematical program that requires data such as passenger demand pattern, cancellations, group reservations, cargo load and other estimates. Solving this problem would require too many variables, and problem has been simplified into three smaller ones: overbooking, discount allocation and traffic management.

- ***Overbooking***

Overbooking is the practice to intentionally sell more seats than available in order to offset the effect of passenger cancellations and no-shows. Without it, it is estimated that although a plane is fully booked at departure about 15% of the seats would be empty. Some airlines allow cancellations of reservation without penalty. An astonishing figure is that on average, about half of all reservations made for a flight are cancelled or become no-show. As a result, poor overbooking decisions can be very costly.

On the other hand, the airline should try to assess the price of overbooking. A passenger who is denied a seat despite his reservation can happen to be very expensive. In short run, it is only a ticket revenue loss, but long term implications include passenger loyalty, airline reputation etc.

- ***Discount Allocation***

If all passengers on a flight were paying the same price, overbooking would be the panacea of yield management. Discount allocation being the process of determining the number of discount fares to offer in a flight. The ratio of discount against the full fares (called buckets) is not fixed during the reservation period and is moved appropriately as the departure date approaches. It varies on the basis of forecast, past experience and special events. Here again the opportunity cost of selling a discounted ticket instead of a full fare one has to be measured in order to make the best decision possible.

An example to illustrate Discount Allocation used by United Airways for its Mexican routes:

In order to stimulate demand on the Mexican routes, United Airways decided to offer a special non-refundable, non-exchangeable, one-month-advance-purchased ticket on its Chicago-Cancun route for only \$450 instead of the regular \$650 round-trip fare. The DC-10 used by United Airways has a capacity of 150 passengers in tourist class. Past data analysis showed that the demand for full-fare tickets follows a normal distribution with mean of 60 and a standard deviation of 15.

C_u = Average cost (Cost associated with reserving too few seats at full fare)

C_o = Average Shortage cost (Cost associated with reserving too many seats at full fare)

C_u is the lost opportunity of an additional \$200 which is the difference between the full and the discounted fare. C_o = \$450 because it is assumed that the extra seats reserved for full-fare passengers could only have been sold at a discount.

Using the critical fractile model:

$$P(f < x) \leq C_u / (C_u + C_o)$$

Where f is the demand for full fare tickets and x is the number of seats reserved for full fare passengers.

The critical fractile value $P(f < x) = 200 / (200 + 450) = 0.31$

From Normal Distribution table, corresponding value of $z = -0.50$

Calculating the number of full fare seats to reserve =

$$= \mu + z\sigma$$

$$= 60 + (-0.50)(15)$$

$$= 53 \text{ seats}$$

- **Traffic Management**

After deregulation in the 1970's, most airlines adopted the hub-and-spoke concept in order to serve more markets. Instead of having point-to-point connection between cities, all flight and therefore passengers would connect to a hub and be dispatched toward their final destination onto another flight. This has increased the complexity of the whole system drastically; flights that once served one single market now serve several dozens. It has made the demand pattern more difficult to forecast and the variability of revenue within a fare class has become large since one flight does not typically represent the whole trip of a passenger. If an airline only had point-to-point routes with no connecting passengers, traffic management would not be an issue for a given flight, overbooking level and discount allocation problems alone could be used to maximize revenue. If we take into consideration connecting flights, the complexity of the problem considerably increases. For example let's consider passengers traveling from Florida to California, and assuming there are four flights from four different cities in Florida, which must connect in Las Vegas where passengers take their flight for any Californian cities. 16 routes exist with nested rate classes for only 8 flights. Managing yield at this point is quite a challenge. The question to be asked now is what kind of decision should be taken if a discount seat is available from Tallahassee to Las Vegas but only a full-fare seat is available from Las Vegas to Sacramento.

Conclusions

While dealing with Yield Management, managers should pay an utmost consideration to decision making for the following reasons:

- One of the most important issues regarding Yield Management is measuring performance. Load factor, yield (revenue per passenger mile) are measures affected by external competition. In assessing performance, American Airlines uses the discount allocation revenue opportunity model. It measures where the airline stands in comparison to its maximum revenue possible and the minimum revenue possible (no yield management)
- Customers seem to be resigned to the fact that airlines discriminate on price but many find it very bitter and it sometimes leads to customer alienation. In industries with only a few competitors it works fine, but where competition intensifies like in the hotel industry, it no longer works. Again we emphasize the tradeoff between short-term which focuses on profits and long-term which focuses on delivering good, reliable service.
- From a managerial point of view, employees' morale is at stake here. Since yield management takes much of the guess work out of how many seats to sell at what price, less decision power is left on their shoulders and as technology is more and more present in their professional lives, it may reduce them to being simple operators rather than decision makers. In addition, some employees are paid a percentage of the sales they make, fostering them to make group sales which in turn may be contradictory with the objective of yield management that is maximizing revenues for a whole flight. As an example, a sales person might be denied by the system to sell discounted tickets to a group of 30 people more than 45 days in advance. As a result, this employee may lose the sale.

D. Applications on the Hotel Industry

1. Global description of the Market

Yield management has been practiced in the hotel industry internationally for about 10 years. It basically enables hotels to price the product differently for different market segments, purchase patterns and distribution channels. The basic objective is to increase the revenue and the contribution by charging a higher price from certain market segments, distribution channels, purchase patterns like length of advance booking etc. This is now being practiced very widely by all the hotel chains and progressive independent hotels for marketing of hotel room inventories. The strategy is designed to dramatically increase revenues, maximise profits, greatly improve the effectiveness of market segmentation, open new market segments and strengthen product portfolio strategies. The strategy and the implementation is dependent on having a good data about past purchases of different segments, occupancy levels in different parts of the year/parts of the week, occupancy achieved through different segments etc. Yield management also plays an integral role in determining the size of group blocks, group cut-off dates, preferred arrival/departure patterns, reservation restrictions, and food and beverage guidelines. There are sophisticated computer softwares and models available from the vendors, which are being used by all the practitioners.

Up until the late 1980s, revenue management for most hotels was similar to revenue management for the airlines before deregulation. Their rate variables consisted of offering weekday and weekend rates, negotiating corporate volume discounts, and overselling group blocks in order to maximize occupancy. Once the airlines instituted yield management, however, the hotel industry gradually woke up and realized the potential that this management philosophy, and subsequent technology tools, offered. So, in the early 1990s, major hotel chains began experimenting with yield management models. Some chains, like Hyatt, invested in sophisticated computerized systems that tracked numerous sources of data. Others responded with predominantly manual systems combining the reporting capabilities of their reservations and front desk systems with a team of trained managers to direct pricing and inventory issues. Either way, the result was the same: hotels discovered that they could dramatically increase revenue growth and profitability by committing to yield management systems.

In 1996, for example, a typical hotel suddenly realized that a one percent increase in fixed-cost expenditures yielded a paltry 2.3 percent increase in operating profit. But a one percent increase in pricing yielded a hefty 11.1 percent increase in profit (the inverse held true, too: a one percent decrease in pricing resulted in an 11.1 increase in loss).

Considering these figures, it's easy to understand why hotels invested heavily in both the technology and manpower to attack yield management head on. Yield management allows properties to discount with discretion in order to build market share, uncover hidden demand that promotes aggressive pricing, identify lost revenue opportunities and, most importantly, increase revenue growth without increasing fixed costs.

2. The Impact of the Yield Management

To this day, yield management practices still vary widely from chain to chain and hotel to hotel. Some chains live and breathe yield management, creating entire revenue management teams dedicated to crunching the numbers at the property level. Others utilize yield management but rely more heavily on input from the general manager, director of sales, sales managers, convention services managers, and reservation manager of each hotel. And others have yet to adopt yield management practices, but these hotels are rare.

Generally, yield management is an ongoing, day-in and day-out, week-in and week-out process. The yield management team at a property may meet once a week to review a predetermined period into the future, but on a daily basis team members are most likely evaluating each and every piece of potential business to see how and if it fits into the acceptable business guidelines of the hotel.

One of the major effects of yield management is more consistent pricing from sales manager to sales manager, hotel to hotel, and competitor to competitor. Translation? Less negotiating power and rate flexibility for the meeting planner.

As properties take a closer look at their overall market mix in an attempt to maximize their return, certain hotels may decide to cut group blocks and allocate more rooms to other market segments such as transient leisure, corporate volume accounts, wholesale, and tour and travel. That affects not only the availability of rooms at individual hotels, but also the number of hotels that need to be utilized for citywide events.

In addition, due to yield management, cut-off dates have truly become a rate issue, not a date issue. Hotels want the ability to control their inventory after cut-off in order to maximize the return on their remaining rooms. As a result, meeting planners are seeing less flexibility with cut-off dates and contract terms that allow the group rate to be honoured after cut-off only "if *group* rooms are available in inventory."

Yield management has affected contracted concessions as well. Concessions that directly impact REVPAR (Revenue Per Available Room), such as reductions on rate and increases in complimentary rooms, are far less attractive to hotels than soft cost items such as VIP amenities, airport transfers, and food and beverage discounts.

The bottom line is that it is now more difficult, but by no means impossible, to find a "good deal" at a hotel. It is, however, more important than ever for the hotel to perceive your convention as being valuable. Essentially, you need to sell your meeting to the property by pushing as many of the right revenue buttons as possible.

Here's an example of yield management at work at a 700-room hotel with a maximum group block of 500:

- Rack rate: \$175 (peak season)
- Peak seasons: March-May, September-November
- Meeting space: 25,000 square feet
- Desired catering revenue per room, per night: \$74-\$65 peak season, \$64-\$50 shoulder season, \$50 or below off season
- Peak demand days: Midweek (Monday-Thursday)
- Slow days: Weekends (Friday-Sunday)
- Desired patterns: Thursday-Sunday, Wednesday-Sunday, Sunday-Wednesday
- Peak season transient (individual traveller) demand: 200 rooms

In summary, it's important to keep in mind the following points:

- It is currently a supplier's market. Rate and occupancy will continue to increase over the next few years.
- Demand drives hotel pricing. Hotels do not have consistent margins; their product is perishable and its shelf life is one day.
- Many variables affect pricing; the key is to be flexible and knowledgeable about your meeting and your group.

3. Consequences of the Yield Management

The Yield Management is a tactical tool of the hoteliers with important consequences on the hotel industry, such as:

- Better management and organization of the traffic due to market segmentation.
- Improvement of the level of services offered and therefore increase of the level of satisfaction, through transparency and interactive marketing.
- Minimization of the segment of the market which is more sensible to price changes and maximization of the most profitable one.
- Higher opportunities of offering total services to the customers, such as organized holiday packages.

E. Applications on the Information Technology Industry

1. Global description of the Market

In this part, we will present the Information Industry market over two types of services proposed: the physical product (Personal Computers, Servers...) and the technology power control service. Any person in our society knows what the first category is but the second one has recently been developed and is addressed to professionals only. The following parts will briefly expose their specificities.

1.1. The physical production

Every production industry is looking for cost optimisation and optimal benefits. The Information Technology market is also influenced by the increasing need of its production from the global market, which makes products evolve rapidly and shorten their life cycles. Such as the fashion business, personal computers and chips have a short seasonality (generally 6 months) and their selling price is consequently quickly cut by half of its original value and decreasing among time.

The consequence of this situation is the increasing competition between the IT industries to invest in research and development, generating more complex products, with increasing power and increasing operating speed. In order to sell its products at a high price, an important investment is also made in marketing operations to captivate the public on specific improvements made over the last generation and the competitors.

Most major part or computer producers have recently merged or ceased their operational activities to develop their offer of services which are getting more diversified (Ex: IBM's personal computers production sold to Lenovo, now 3rd world producer). IBM, leader company of the market, has now moved to a different type of offer that provides "energy" more than a physical potential: an "On Demand" service.

1.2. An “On Demand” Information Technology offer

Effectively, the IT market is now evolving to a similar offer that we already know in the “Mobile service”. This historic company in IT research and development (first producer of computers, calculators and chips...), has now introduced a very powerful chip on the market, but its particularity is that it can be controlled at distance. This way the IBM Company is not anymore selling a simple server to its customers but renting them power in order to manage their expenses depending on peak or low seasons.

Before this evolution, customers used to buy computer and power every year or two in order to expand their possibilities according to their business. Now IBM offers them freely any material they require for work, along with updates when required, and then release more or less power into the chip after customer’s indications about its activity’s evolution.

This operation has been called “On Demand” service, and IBM now gets more information about its customers’ activities and seasonality, which allows generating specific forfeits or price according to the general use of the Information Technology.

2. The Impact of the Yield Management

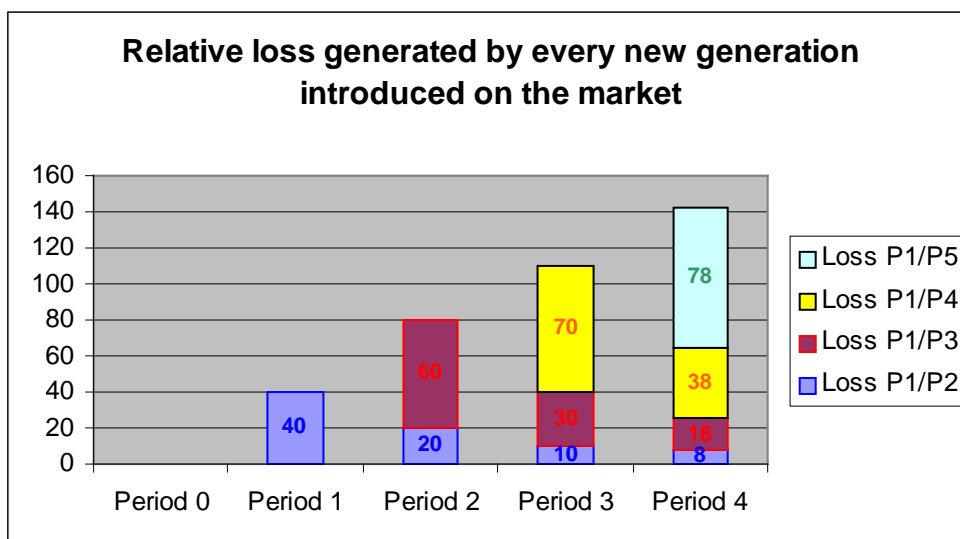
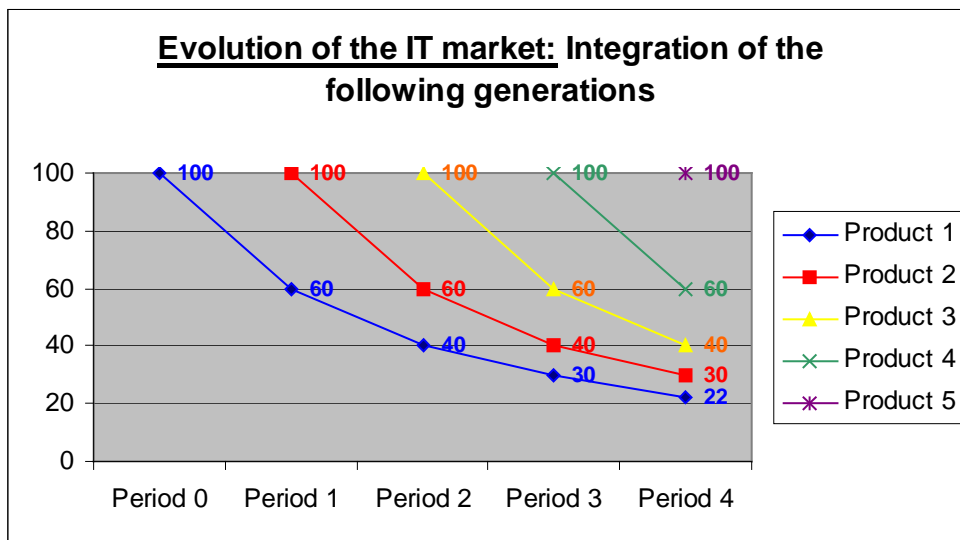
2.1. Impact on the IT physical production

In order to quickly respond to customers’ requests and need in a constantly evolving product that must guarantee power, speed and price, IT producing companies have now changed their strategy in managing the supply chain. Such as many international industries, they also have delocalised their activities in “cheap worker countries”. The main difference is that due to the important investments made in research and development, they now use the Yield Management toward the market in order to better control their products seasonality and sales.

As a high technology offer, the products are introduced in the market at a high price which, due to the quick evolution of the market, must decrease rapidly, to allow the following generation be attractive and still more expensive. All products must then enter a new selling supply chain, decreasing their value at every actor in the chain: retailers and maintenance industries buy those cheaper products to re-introduce them at a lower price for general customers.

Yield Management has been implemented in order to calculate a price for the product introduced in the market that will attract the high quality customers, but will also create the need to buy the following version as they would lose more money if waiting for the second generation of a similar product.

As per this figure, we can see the price fixed when a new product is put on the market (Base 100). The following figure shows the relative money (considering that every following product is more powerful and efficient than the previous generation) lost in waiting for every following generation.



Source: Compilation of information for varied report (See bibliography)

As it is indicated, a customer buying the first generation would reduce its “technology” and relative investment loss in buying every new generation. Waiting for its real and technical needs would make him miss the opportunity remaining by constantly using the most performing products, as well as reducing its expenses when investing in a whole new IT structure.

The only exception to this “potential loss” would be that the customer doesn’t require updates to its material until its product’s value on the market equals to 0, which would mean that any new investment will cost the same price from then on.

2.2. Impact on the IT service

The Yield Management has been specifically implemented and designed when creating this concept as the IT offer that IBM offers to its customer is supposed to suit better their real needs and activity. Thanks to their customers’ information about the seasonality of their activity, they will adapt the power sold to the potential used.

This management allows the customers paying the real use of technology but also improves IBM’s relation with them as they start creating more adapted prices according to their partner’s size, frequency of adaptation to the market, seasonality. Knowing better their needs and adaptability to its technology, IBM can re-design some of its products with the specific aspects of these new “partners” and lead the market among competitors by creating strong partnerships and long-term relations.

The only current problem of this Commercial strategy is that prices are still high according to IBM calculations, which makes this service accessible to only a few for whom the need of efficient and fast-response material is primary. Banks, multinational industries and sports events are among their main partners at the moment but they should design a more adapted solution for smaller businesses as the competitors may shortly offer a similar service to face IBM’s strategy.

3. Consequences of the Yield Management on the IT Industry

Yield Management hasn’t changed considerably the IT physical production industry as it was mainly a commercial strategy used to integrate research and development investments into the calculation of the selling price, added to the global strategy to make every new generation remaining attractive.

However, it has considerably developed the complexity of the whole IT supply chain as new partners and IT parts retailers have been created in order to re-use as long as possible every generation, in order to eventually come back to its origin and re-enter the production flow for a different generation.

On the other side, the IT service offer has a large market to develop as it has only been recently designed. Considering IBM's internal structure, it allows the international company to keep a real control of its parts wherever they go in the world as they keep a real contact with them. Products' tracking has been extended to its optimal point as they now know exactly when every part is reintegrated into their supply chain and can be re-sold at a lower price.

Every generation of products implemented according to the customer's facilities along with the extension of services that IBM tends to develop in order to diversify its relation with various types of customers can then be used several times and generate benefits for various partners of the IT global supply chain. Still most IBM partners don't realise the benefits compared to the margins realised by the multinational industry and may cause problems in the future if their partnership isn't reinforced efficiently.

Conclusion

Concluding this report, we would like to point out all the nuances in which Yield Management can be applied to the Industry business. Through these varied techniques and results gained on those activities, we intended to clearly present what is this concept and how it affects an industry business.

As we have seen, all strategies, cost calculations and resources management are implied by the customer type, its specific expectations and the variation of demand depending on time or season. Moreover, different companies may implement their solutions according to their own facilities and development potential to face an increased (or better regulated) demand. The case of selling an IT service “On Demand” is currently very specific to the IBM Company as it is a new concept and it might increase the opportunities of development if other competitors invest in such strategy.

More or less, Yield Management is also driven by the response given by the competitors to the solutions offered. In the case of Air traffic, the “Low Cost” Companies have given a hard time to the mature ones as they built their whole structure on cost reductions whereas the previous ones were based on a long history knowledge and infrastructure, more costly and longer to renovate.

Yield Management also allows most of these industries to be more flexible in order to respond to the evolving demand and the possible incidents that may occur, such as a plane terrorist attack, the tsunami... All these kind of elements strongly affected most of the businesses we developed in this report, but thanks to the Yield Management, most companies survived to what could have been a crash in Transportation or Hospitality economy, because they were able to offer a cheaper service for a limited period of time, in order to re-start their normal activity later on.

Yield Management is not a perfect or final solution to a business, but at least it is an option to face the increasing competition over the next decades. There may be an even more appropriate solution to satisfy customer, industry and provider...

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