



Question

**How to optimize pricing and product availability?**

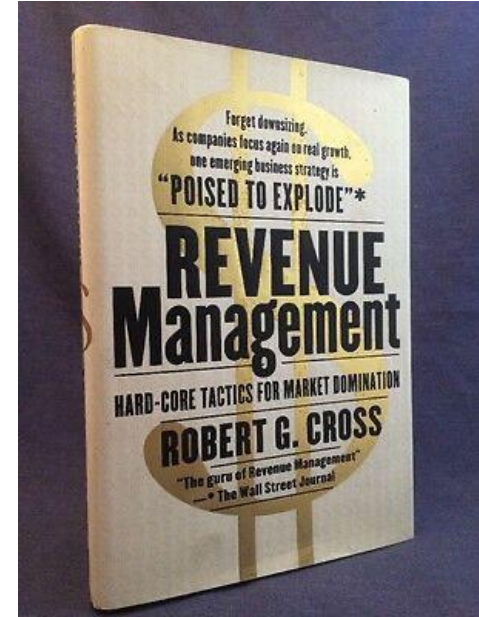
Demand Forecasting

Four Core Concepts of RM

Overselling

## The four concepts of revenue management are

1. Using variable pricing to shift demand
2. Using market-based pricing
3. Selling to segmented micro-markets
4. Saving inventory for valuable customers



# Concept #1

## Using variable pricing to shift demand

*Principle* A higher peak price shifts some demand to off-peak periods

Prices before RM						
Off-peak						
Peak						

Prices after RM						
Off-peak						
Peak						

### Examples

- Carol's barbershop
- Electronic road pricing in Singapore

## Concept #1

### Example – Carol's barbershop



Carol operated a one-chair barbershop in a rural town

Every day same price

Carol's problem

- Few customers on Tuesdays, yet overcrowded on Saturdays
- Carol needed to increase her revenues

Carol's options

1. Open half-day on Tuesday, hire extra help on Saturday
2. Increase her prices across-the-board
3. Or...?

## Concept #1

### Example – Carol's barbershop



Robert Cross recommended that Carol should

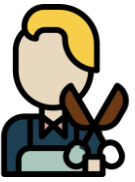
- Tuesday prices ↓ 20%
- Saturday prices ↑ 20%

The price change had an immediate impact!

- Retirees and mothers with school-age kids moved to Tuesdays
- Saturday customers had their wait times reduced from more than an hour to less than 30 minutes
- Carol's revenue ↑ by almost 20%

# Concept #1

## Example – Carol's barbershop



Demand Before RM						
Tuesday	T	T				
Saturday	S	S	S	S	F	F
Capacity						

Demand After RM						
Tuesday	T	T	F	F		
Saturday	S	S	S	S		
Capacity						

Prefers Tuesday	T
Prefers Saturday	S
Prefers Saturday but is flexible	F

# Concept #1

## Example – Electronic road pricing in Singapore



- Problem – Roads are congested during peak hours
- Solution
  - Make buying a car much more expensive 💰💰💰
  - Make driving on congested roads more expensive 💰 — “pay-as-you-drive”

Buying a car in Singapore is a lot more expensive, due to the high price of a COE (Certificate of Entitlement)

## COST OF GETTING A CAR

WHY ARE COE PRICES SO #\$\$\$&ING HIGH ?



	COST		PREVIOUS COE (JULY 2020)	LATEST COE (AUGUST 2020)
<b>Certificate Of Entitlement</b>	<b>\$33,000</b>	<b>Cat A</b> <i>Cars up to 1,600cc</i>	<b>\$32,699</b>	<b>\$33,000</b>
Open Market Value	\$19,783	<b>Cat B</b> <i>Cars above 1,600cc</i>	<b>\$35,001</b>	<b>\$37,102</b>
Add Registration Fee	\$19,783	<b>Cat C</b> <i>Goods vehicles &amp; bus</i>	<b>\$23,888</b>	<b>\$24,100</b>
Excise Duty	\$4,234	<b>Cat D</b> <i>Motorcycles</i>	<b>\$6,510</b>	<b>\$7,701</b>
Registration Fee	\$220	<b>Cat E</b> <i>Open</i>	<b>\$35,001</b>	<b>\$36,502</b>
Vehicle Emissions Scheme	\$0			
Other Charges	\$24,060			
<b>Final Price Of Car</b>	<b>\$101,080</b>			



# Example – Electronic road pricing in Singapore

## How ERP works



## HOW DOES ERP WORK?

**1** CASHCARDS ARE INSERTED INTO IN-VEHICLE UNITS (IUs).



**2** EACH TIME A VEHICLE PASSES THROUGH AN ERP GANTRY, ERP CHARGES ARE DEDUCTED FROM YOUR CASHCARD VIA SHORT-RANGE RADIO COMMUNICATION.



# Example – Electronic road pricing in Singapore

## How ERP works



Car: SGD 2  $\approx$  HKD 12



## Example – Electronic road pricing in Singapore

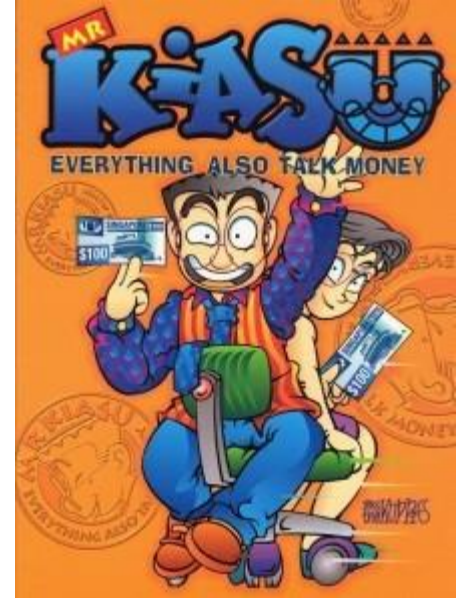
### How prices are determined

- Prices are set dynamically
  - Charges can change every 30 minutes (during peak periods)
- The LTA sets a target speed for each priced road
  - 20–30 km/h on arterial roads
  - 45–65 km/h on expressways

## Example – Electronic road pricing in Singapore Is ERP good for society



- Traffic congestion is costly to the individual and society
  - Tragedy of the commons, negative externalities
- ERP works because it hits drivers where it hurts



## Concept #2

Use market-based pricing rather than cost-based pricing

**Cost-based pricing** is cost plus markup

Example

- Cost of lunch/dinner is \$80
- Charge customers \$120 after adding a 50% margin

**Market-based pricing** is charging what customers are willing to pay

Example

- \$100 for lunch
- \$160 for dinner

## Concept #2

### Example – simplylife bakery cafe



“**Simply** the best burger and fries that I have ever eaten in my **life**.”

– Zachary Leung  
*Amateur Food Critic*



Example – simplylife bakery cafe

Why is the “same” meal charged at a different price? 🤔

Weekday  
Lunch  
11 – 3 PM

**\$92**



Burger  
+ 20 fries  
+ onions



Iced tea

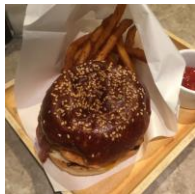


Soup

**+\$10**

Weekday  
Tea  
3 – 5 PM

**\$58**



Burger  
+ 15 fries



Iced tea

Weekday  
Dinner  
6 – 10 PM

**\$148**



Burger  
+ 20 fries  
+ onions



Iced tea



Soup

## Example – simplylife bakery cafe

A customer has different willingness to pay at different times

Weekday  
Lunch  
11 – 3 PM

- Lunch with colleagues
- Early lunch before CB2201

Weekday  
Tea  
3 – 5 PM

- Not really hungry during this time
- Too late for lunch, too early for dinner

See teacher's slide

Weekday  
Dinner  
6 – 10 PM

- Special dinner with wife or friends
- Celebration dinner with students



## Concept #2

### Example – Uber's surge pricing

#### How surge pricing works

Learn how surge pricing helps quickly connect each person who needs a ride with a driver to help them get to their destinations.

How does surge pricing affect the behavior of drivers and riders?



## Concept #3

### Selling to segmented micro-markets

**Principle** Charge different prices to different categories of customers

**Example** Why does MCL cinemas charge different prices?

Current pricing

- An adult ticket costs \$95
- A student ticket costs \$55

Versus one price

- A flat price of \$70

【學生哥】  
hok<sup>6</sup> saang<sup>1</sup> go<sup>1</sup>

姓名	#又係陳大文 (全日制學生)	日期	10月6日 - 12月14日
地址	Festival Grand Cinema; Grand Windsor Cinema; STAR Cinema 及MCL院線		
【一】MCL課外睇好戲 - 學生優惠			
【註】			

A cartoon character with a blue cap and a white shirt with a blue bow tie, holding up a blue sign with the MCL logo. The character is smiling and has its arms raised.

## Concept #3

### Not an example: MTR/bus concession fares

- Students, children and the elderly pay less to ride the MTR/bus
- This is not an example of revenue management
- Why?

## Concept #4

### Save inventory for valuable customers

#### A simple mental model

- Two types of customers:
  - Business customers **pay more** but **book late**
  - Leisure customers **pay less** but **book early**
- You need to **save seats** for the business customers

#### *Example* Yield management at American Airlines

- AA sells seats at multiple fare classes
- There may be empty seats on the plane...
- But only the more expensive fare classes are open!



# Concept #4

## Example – Different fare classes on Cathay Pacific

HKG ✈ SIN

Tue 06 Nov 2018 - Mon 12 Nov 2018

Total HKD0 ▾

### Select your fare

	SELECTED			
	Economy Save	Economy Core	Economy Standard	PREMIUM ECONOMY Standard <span>i</span>
Pre-book seat	Chargeable	Free of charge	Free of charge	Free of charge
Re-booking	HKD 900	HKD 900	HKD 900	HKD 900
Asia Miles*	A 2000	A 3600	A 3600	A 4000
Upgrade with miles	✗	✗	✓	✗
Club points*	20	30	30	40
Charge for cancellation before departure	HKD 900	HKD 900	HKD 900	HKD 900
Charge for cancellation after departure	No refund	No refund	HKD 900	HKD 900
No-show charge	HKD 1000	HKD 1000	HKD 1000	HKD 1000
Price per adult from	HKD <b>4,082</b>	HKD <b>4,612</b>	HKD <b>5,362</b>	HKD <b>5,382</b>

# Concept #4

## Example – Different fare classes on Cathay Pacific

HKG ✈ SIN

Tue 06 Nov 2018 - Mon 12 Nov 2018

Total HKD0 ▾

Select your fare

✈ Pre-book seat

↺ Re-booking

✈ Asia Miles\*

✈ Upgrade with miles

📄 Club points\*

✈ Charge for cancellation  
before departure

✈ Charge for cancellation  
after departure

✈ No-show charge

Price per adult from

**Fare Classes  
Closed Due to  
Low Supply**

### Economy Standard

Free of charge

HKD 900

A 3600

✓

30

HKD 900

HKD 900

HKD 1000

HKD  
**5,362**

### PREMIUM ECONOMY Standard



Free of charge

HKD 900

A 4000

✗

40

HKD 900

HKD 900

HKD 1000

HKD  
**5,382**

## Key takeaways

Four of the key concepts of RM are:

1. Using variable pricing to shift demand
2. Using market-based pricing
3. Selling to segmented micro-markets
4. Saving inventory for valuable customers