

# 工業工程專題

## NTHU Bike Rental System

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### Idea Development

M-bike is a bicycle rental system that comes as solution for some problems of the school regarding to transportation, it was designed based on Product service system business model (PSS) and aims to provide the customer best function-oriented product and service in the school regarding to transportation.



### Business Analysis

#### Business model canvas

Key Partners	Key Activities	Value Proposition	Customer Relationships	Customer Segments
<ul style="list-style-type: none"> <li>Universities</li> <li>Maintenance company</li> </ul>	<ul style="list-style-type: none"> <li>Assembling</li> <li>Distribution</li> <li>Marketing</li> <li>Repairing/maintaining</li> </ul>	<ul style="list-style-type: none"> <li>Services</li> </ul>	<ul style="list-style-type: none"> <li>Through membership contracts</li> <li>Mass customization</li> </ul>	<ul style="list-style-type: none"> <li>Students</li> <li>Professors</li> <li>Biking lovers</li> </ul>
	<ul style="list-style-type: none"> <li>Key Resources</li> </ul>		<ul style="list-style-type: none"> <li>Channels</li> </ul>	
<ul style="list-style-type: none"> <li>Administration</li> <li>The product(bikes)</li> <li>Maintaining service</li> </ul>		<ul style="list-style-type: none"> <li>Revenue Streams</li> </ul>	<ul style="list-style-type: none"> <li>Through membership related charge</li> <li>Through product access charges(various models)</li> </ul>	

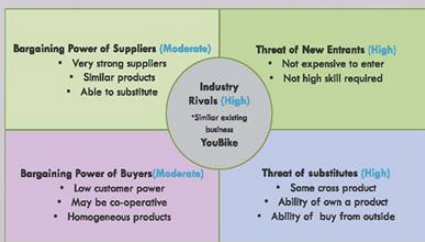
#### 4P Analysis



#### 3Cs Analysis

- Company**
  - Strong bond & relationship with the main customers
  - A system that will enhance campus' quality of life
  - Reduce waste and expenses
- Competitors**
  - Does not directly address our target customer
  - Higher sharing market and more market knowledge
  - Cooperate with big bicycle manufacturer company
- Customers**
  - Main customers are the Students & School faculties
  - Campus' visitors
  - School guests

#### Porter's five forces analysis



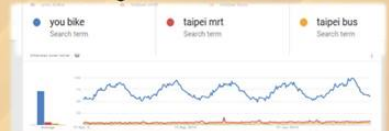
### Competitor Analysis

#### Market growth

Company	YOU-Bike
Founded	2009
Headquarters	Taipei
Area Served	New Taipei, Taipei, Taoyuan, Hsinchu
Products	Bicycles
Minimum charging time	30 min
Fee	5NT\$
Bikes rented so far	12,500,000
Enter time	First mover



#### Google trend of YouBike



#### Innovation/ development strategies

Strategies	Description	You Bike
Cooperation with bicycle manufacturer	Look forward to cooperate with a bicycle manufacturer, a cooperation that may facilitate the bicycle source and maintenance.	Supported by GIANT
New service disposal	Provide the customer new services such as health care service, where the customer can follow a health plan.	Relies basically in traditional service (Bicycle disposal)
Customized product and service	The bicycle will be designed in order suits better the customers' life and address better the customers' needs	Traditional bicycle (not customized)
More feature	Features such as, speakers, GPS, heart beat monitor, will be added to new bike for a better service.	None of these features
More Payment options	Despite EasyCard, customer will have other ways for pay for the services, and students might have discount and special payment program.	EasyCard, Ipass and credit card

### Cash Flow

#### Assumption

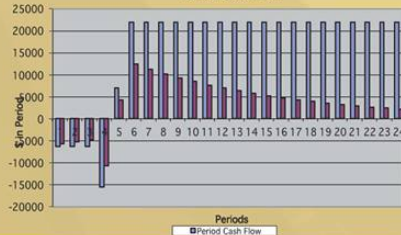
Description	Quantity	Single price	Expenses
Asphalt	500	8,000NT\$	4,000,000NT\$
Support Center	1	500,000NT\$	500,000NT\$
Work	2	80,000NT\$	160,000NT\$
Changing Frame Lock	150	10,000NT\$	1,500,000NT\$
Printer Car	1	400,000NT\$	400,000NT\$
Environmental Safety	500	1,500NT\$	750,000NT\$
Total			7,150,000NT\$

Fee	20NT\$/Day
Students & School faculties	30NT\$/Daily time
Visitors	10NT\$/hour(Night time)

Description	Quantity	Single price	Expenses
Asphalt	12	180,000NT\$	2,160,000NT\$
Workday	800	30,000NT\$	24,000,000NT\$
Asphalt	200	10,000NT\$	2,000,000NT\$
Bicycle depreciation	500	60,000NT\$	30,000,000NT\$
Maintenance	50	80,000NT\$	4,000,000NT\$
Gas for printer car	1	41,000NT\$	41,000NT\$
Total			6,601,000NT\$

Scenario	15000
Number of time used (use/month)	300
Visitor number of time used (use/month)	500
Number of bike	500

#### Period Cash Flow



### Campus Life

#### Transportation

- Transport disposal every part of the campus
- Cheap and fast way to get around in the campus
- Bus system support (less waiting time)
- GPS with description of some important places in campus

#### Health

- The bicycles will be equipped with a heartbeat monitor, which the user can use to monitor heartbeat, calories lost.
- There will also have health program designed by the school health center for each user.

#### Economic

- More environmental friendly
- Cheaper comparing with car
- Discount in some stores
- Less useless bike in the campus

#### Fun

- Can listen to music while riding (bluetooth speaker)
- A way of sport with friends
- A way to visit new places

More Efficient , More Safe , More Fun !!!  
M-bike

