MACES - Future Smart Mobility

User-Centered
Integrated and Service-Oriented

MACES
Mobility as a Service
Autonomous
Connected
Electrification
Sharing
What is MaaS?

- Mobility-as-a-Service is a user-centric, intelligent mobility management and distribution system, in which an integrator brings together offerings of multiple mobility service providers, and provides end-users access to them through a digital interface, allowing them to seamlessly plan and pay for mobility.
- Enjoying Freedom of Mobility without owning a vehicle
- To solve the problem of the gap and service shortage of public transport and to reduce private vehicle ownership.

Source: The importance of user perspective in the evolution of MaaS, Glenn Lyons (2019)
MaaS Requirements

- A wide range of transport modes are available in the city;
- Majority of the transport operators provide open data including real-time data to a third party;
- Majority of the transport operators allow a third party to sell their service;
- Majority of the transport operators offer e-ticket or e-payment to access their services
Why MaaS and Why Now?

• Rapidly advanced ICT technology
  • Providing better, real-time information (public transport and complementary services)
  • Multimodal and complete trip plan – facilitating access to all transport services through unified gateway

• Tackling shortcomings of public transport
  • Spatial and temporal accessible problems
  • Providing an compatible alternative to car dependent trips and car ownership

• Is there a need for real-time information and integration?

• How to trigger behavior change? What about habit formation?
Why MaaS and why now?

- Decreasing the environmental burden of transportation
  - Limiting fossil fuel dependency
- Reducing congestion
  - Better usage of existing capacity
- Digitization
  - Digital transformation and personalization

Just car-sharing is not MaaS
MaaS is not an app. The app is just the digital interface.
An intermodal journey planner is not MaaS
Just ride-hailing is not MaaS
MaaS is not just monthly subscription packages

Level of MaaS Integration

Levels of MaaS Integration

<table>
<thead>
<tr>
<th>Level 0</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>No integration: no operational, informational or transactional integration across modes</td>
<td>Basic integration: informational integration across (some) modes</td>
<td>Limited integration: informational integration across (some) modes with some operational integration and/or transactional integration</td>
<td>Partial integration: some journeys offer a fully integrated experience</td>
<td>Full integration under certain conditions: some but not all available modal combinations offer a fully integrated experience</td>
<td>Full integration under all conditions: full operational, informational and transactional integration across modes for all journeys</td>
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Source: The importance of user perspective in the evolution of MaaS, Glenn Lyons (2019)
MaaS in Taiwan

The government acts as enabler
Mature ICT Technology

Policy + Integrated Services + Customer Oriented = MaaS

Mobile APP + E-ticket Online Payment

Taipei-Yilan MaaS Project

Kaohsiung MaaS Project

Train | MRT | Light rail | Bus
Ferry | Taxi | Ride Sharing | E-Bike | Bicycle

One-stop service

Integrated service

Men-Go
Your Travel Magic
UMAJI Service Concept(1/2)

- 交通運輸業
- 零售通路業
- 飯店餐飲業
- 旅館住宿業
- 觀光服務業
- 物流服務業

産業資源

- 商品上架

To C

User-centered Service
Trigger behavior change

資料整合

公開運輸路線
班次

旅行時間預測
車輛動態資料 (GPS)
停車場資訊
電子票証資料 (E-pay)
道路偵測資料 (VD,CCTV)
E-tag資料

開放資料

Improve PT experience
旅程規劃、D2D運輸服務

Increase stickness
預約獎勵、套裝行程等

Reduce car dependence
無縫交通運輸網絡
UMAJI Service Concept (2/2)

**Transport Network Optimization**
Solve the problems of "transfer gap" and "insufficient service" between destinations.

**User Behavior Learning Mechanism**
Provide tailored solutions through customers’ behavior and preference learning.

**Incentive-triggered Behavior Change**
Conditional incentives to stimulate behavior change, incl. changes of vehicle, time & destination selection.

**Journey Planner**
Provide multiple POI selections, local recommendations and the most optimal route to transfer the planner.

**Personal Secretary**
Work as your “life & demand-responsive” secretary with dynamic event and LBS-based info push notification.

**Travel Condition Assessment**
Offer travel suggestions (vehicle, route, depart time) based on real-time traffic & weather info.

**EC Platform**
Enjoy one-time payment for online checkout and serve with diverse bundle services, incl. dining, accommodation, travel, shopping and transportation.

**Platform Construction and Operation**

**Stores (Suppliers) Management**

**Advertising Management**

**Sustainable Business Model**
UMAJI Use Case

Prepare the trip
- Where to go
  - Where to go
    - 自訂行程
    - 達人推薦

On the trip
- 旅運規劃方案
- 訂票線上付款
  - 隨行秘書
    - 行前通知提醒
    - 即時路况通知
    - 重新規劃

End the trip
- 享受旅行
  - QR code票券
  - 公共運輸動態資料
  - 到達目的地

You can use QR code to complete everything
UMAJI Service Function (1/2)

- POI
- Journey Planner
- Mobile Secretary
UMAJI Service Function(2/2)

Buy Ticket

- 訂票者: 王大明
- 起點站: 市府轉運站 → 羅東站
- 票種張數: 全票 1 張
- 乘車時間: 2017/12/1(五)

Pay Online

- 訂票代號: A12345678
- 交易狀態: 未付款
- 客運: 首都客運
- 路線: 1570(台北 - 羅東)
- 乘車日期: 2017/12/1(五)
- 標準: 全票 1 張
- 總票價: TWD 120

My tickets

- 訂單編號: 123456789
- 乘車時間: 2017/12/30  金額: 300

QR Code

- 乘車時間: 2017/11/05  金額: 300
- 乘車時間: 2017/10/02  金額: 300
- 使用條件:
  - 本票僅適用於絕佳運費使用
  - 本票僅適用於2017/12/30前使用，過期作廢。

台北 → 宜蘭
首都客運乘車券

11565498465143
Future Plan

- MaaS cannot exist without the digitization of transport services – and digitization is without doubt the biggest challenge the transport sector has ever faced.
- User-centric service is the key for the success of MaaS
- Transform UMAJI app as
  - Open platform for all service
  - Agile system and service development
- App users are all very picky
UMAJI Future Plan-Better User Experience

Seamless Mobility Service

Better Journey Planner

AI Customer Analysis

Easier Payment Service
Mobile Ticketing Standard

Why need to create mobile ticket standard?

- Mobility Service
- Information Exchange
- Integration
MaaS API Standard

Open API Platform
Thanks for your attention

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