New challenges in mobility services: business trends, forms and success factors

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Dimitriou holds Doctorate in Transport demand forecasting; MSc in Infrastructures Environmental Planning; MSc in Transport Planning & Management; and Diploma (equivalent to 4 years BA & 1 year MSc) in Civil Engineering (sector of transportation).

He has long experience in field of transportation, delivered many projects in planning, operation, management, business development and economics.

He is Assistant Professor in Management and Quantitative Analysis in Transport Infrastructures Development, providing dedicated courses and research in fields of transport economics, decision making and risk assessment (Dept. of Economics, Democritus University of Thrace, Greece).

He published over 90 papers in referred journals, editions, international conferences and he has elected in executive positions in professional associations and committees of expert.

He was Chairmen of the BoD and CEO in Athens Transports Organisation (since 2012); and Chairman of the BoD in Athens International Airport.
Objectives and Outline

- Trends and challenges in transport sector
- The benefits and prospects for transport sector towards data economy
  - Key drivers for growth
  - Types and mechanism to meet digitalization era
- Data Oriented Business in Transport
  - Scope and Targets
- Discussion issues and concluding remarks
Market challenges and trends

Transport Enterprises Revenues strategy

Transport activities

- Passengers/users (ticket, park&ride, etc)
- (penalties.....)

Non transport activities

- Advertising
- Commercial activities
- Real estate
- Creditability/financing
- Portfolio/asset management
- Trade (shopping centres, sales, etc)
- Other financial services (insurance, visa, etc)
- Other non-financial services (energy, info, etc.)

85% 40-50%

15% 60-50%

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Transport enterprises cost reduction strategy

- **minimize fixed cost (pricing)**
  - Low cost services
  - Budget vs premium services
- **value/usage of service**
  - Loyalty and fare collection
  - Environmental impact mitigation
- **reducing generalised cost**
  - Holistic approach on provided services
  - Take the benefits from other services
- **take the benefits of digitalisation**
  - Marketing
  - Sales
  - Information

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Tendency to reduce/control fares

Fares always pay the attention
Key challenges in Pricing

Pricing approach (1/2)

• Journey Time
  - Dwell time (frequency)
  - Travel time (operation speed)
  - Total journey time (access speed)

• Distance
  - Long – short distance (kms)
  - Time distance (sec/kms)

• Service
  - Express, direct (City centre, etc)
  - Dedicated (airport, university, etc)
  - Feeding (railway, regional bus, etc)

• Demand
  - Supply-demand
  - Alternative transport options
  - Compared to other services or products

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Key challenges in pricing

Pricing approach (2/2)

User Profile

- Age (less than 6 years, etc)
- Gender (female, male, etc)
- Independency (family, group, etc)
- Living area (resident, visitor, etc)
- Activities (students, employees, etc)
- Income

User mobility needs

- Daily trips (returned ticket, etc)
- Frequency (month, year, etc)

Network characteristics

- Time
  (peak/off peak, weekends, holidays, etc)
- Comfort
  (seat availability, stations, etc)
- Additional services
  (news, promotion, etc)
Transport enterprises key business planning variables

- **Strategy**
  - New market development
  - Market regulation - protection
  - Funding - capitals
  - Social impact

- **Planning**
  - New business
  - Business viability
  - Intellectual property
  - Benefits return

- **Innovation**
  - Products - services
  - IT – ITS - SMART
  - Smart business
  - Research

- **Competitiveness**
  - Regulatory framework
  - Monitoring/Review performance
  - Analysis of the competition
  - Provide information to users/market

Dimitriou et al. 2017, IJESRT, 6(1)

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Business analytics: Analysing trends and prospects

World Airport Connectivity trend in EU-non EU in terms of airline capacity, (2005-2016)

Connectivity in European hub airports (change 2008 vs 2016)

Intercontinental: 39.5%
Europe-Middle East: 65.6%
Europe-Africa: 21.1%
Europe-Latin America: 25.4%
Europe-Asia Pacific: 26.8%
Europe-North America: 22.5%
Intra-Europe: 19.7%

Source: ACI, 2016
From service delivering to data economy ….

“Data are to this century what oil was to the last one: driver for growth”
The Economist (May 6th, 2017)

The digital universe (zettabytes: $10^{21}$ bytes)
- 2013: < 10 zb
- 2020: ~ 45 zb
- 2025: ~ 180 zb
_Source: IDC; Bloomberg; (2017)_

Data-driven deals, selected examples
- Intel target Mobileye (self driving cars)
  value of deal 15.3 $bn
- Microsoft target LinkedIn (business networking)
  value of deal 26.2 $bn
_Source: company reports; (2017)_

Amazon (a giant in e-commerce)
- Storage devised holding 100 petabytes ($10^{15}$ bytes)
_Source: company report; (2016)_

Amazon, Alphabet and Microsoft together racked up nearly 432 bn in capital expenditure abd xcapital lease in 2016; up 22% from the previews year
_Source: Wall Street Journal_
Transport and data economy ....

Data collection
- Operator
- Cloud

Data Analysis
- Operator(s)/Authorities
- Independents
- Statistics
  - Stay behind the algorithm
  - Metrics and decision making

Data use
- Distributing the data
  - *Sale directly or indirectly*
- Machine learning
  - Interfaces
  - Smart applications

Technology to collect

Providers

Platforms

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Apps and SUs in Transport industry

**Transport Industry Expectations**

**Expectation differencing for**
- Carriers (competition)
- Infrastructure ops (attractiveness)
- Authorities (standards/regulation)

**Key Challenges**
Fares (pricing)
Services (satisfaction)
Business/Social (resilience)

**Initiatives/key words**
Effective Ticketing
Cost Control
Operation efficiency/utilization
Real time Information
Demand and Business Monitoring
Improving Safety/Security

**Ticketing**
*Mobile Ticketing SU Dice Raises $6M in Series A Funding August, 2016*

**Cost**

**Operation**

**Monitoring**

**Safety/security**

**Sales**

**Information**

**Data use**

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DATA Oriented Business in Transport: Scope and Targets

Need or not Start-up forms in transport sector?
Why are start-ups sometimes needed?

- If an individual technology **cannot be licensed** piecemeal, a startup is sometimes the only alternative.
- A startup is a way to translate (academic) **inventions into commercial goods** and services that benefit the public.
- Also serve as an engine for **local economic development and job creation**.
- Approximately 5-10% of inventions meet the criteria necessary to become a start-up company.
  - Invention – idea – market needs
  - Business plan
  - Funding
  - Market share
  - New product – generated (new) demand
Start up– (SU)

The idea: Take the benefits of
• Global digital market
• Low cost to start

The early stage target:
• Low implementation and management cost
• Quick profits
• Protect intellectual property
• Attract high risk investors

The final goal:
To be soon a LARGE, LOW COST Multinational Company
• Generating new demand
• Servicing new needs
• Using low cost tools

Technology
Start-up’s key success factors

The industry (economist, times, etc)
- Idea
- Team
- Business model
- Funding
- Timing

The reality (financial results & growth)
1. Timing
2. Team
3. Idea
4. Business model
5. Funding

Top 200 in USA (out of 100%)
40 - 60 Timing
30 - 40 Team
20 - 30 Idea
10 - 20 Business model
0 - 10 Funding

Bill Gross, March 2015
Founded > 50 start-ups - Incubated>1,000
Selected long years data

Key drivers
- Low cost
- Safety
- Environmental friendly

Key barriers
- Legislation
- Regulatory Framework
- Security/Control

Drones

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## Who invest?

<table>
<thead>
<tr>
<th>Source of Funding</th>
<th>FY 2007</th>
<th>FY 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>No External Funding</td>
<td>86</td>
<td>57</td>
</tr>
<tr>
<td>Own Institution</td>
<td>51</td>
<td>26</td>
</tr>
<tr>
<td>SBIR/STTR</td>
<td>42</td>
<td>32</td>
</tr>
<tr>
<td>Friends and Family</td>
<td>135</td>
<td>94</td>
</tr>
<tr>
<td>Individual Angels</td>
<td>82</td>
<td>49</td>
</tr>
<tr>
<td>Angel Network</td>
<td>32</td>
<td>26</td>
</tr>
<tr>
<td>State Funding</td>
<td>63</td>
<td>36</td>
</tr>
<tr>
<td>Venture Capital</td>
<td>88</td>
<td>85</td>
</tr>
<tr>
<td>Corporate Partner</td>
<td>33</td>
<td>25</td>
</tr>
<tr>
<td>Other</td>
<td>47</td>
<td>28</td>
</tr>
<tr>
<td>Total Start-ups Formed</td>
<td>555</td>
<td>462</td>
</tr>
<tr>
<td>In Home State</td>
<td>402</td>
<td>344</td>
</tr>
</tbody>
</table>

Source of Funding: Number Checked Yes as One of Sources of Funding

From 2007 AUTM survey
What are Angel Investors?

- Invest in companies **during the high risk seed stage** and very early stage
- Tend to be **individuals investing their own money** as opposed to VCs that manage the money invested in by multiple people
- Fill in the gap between “friends & family” and VC

What is Venture Capital (VC)?

- A type of **private equity** typically provided to early-stage, high-potential, growth companies **in the interest of generating a return**
  - Initial Public Offering (IPO)
  - Sale of the company
- Venture capital fund is a **pooled investment vehicle** that primarily invests the capital of third party investors in enterprises that are **too risky for standard capital markets or bank loans**

Focused on high profit margin and return on equity

Typically stay in the company up to the time that they can sell in high price

2 - 5% of the funds’ committed capital as a management fee + an additional 20% of the funds’ net profits

VCs typically stay in the company up to 5 years and leave 2-3 years after the payback period

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Universities Supporting & Educating Entrepreneurs

- **Faculty & students’** relative inexperience in founding, growing, and managing successful companies can be an impediment.

- Faculty members should reach out at others at universities who have experience in the **spinout process** and whose experiences are similar.

- In research institutions:
  - **555** new startup companies formed
  - **3,388** current startup companies in business

*Source: Association of University Technology Managers – 2007 Survey*
Concluding Remarks

- Need to meet the benefits of data economy
  - Take the benefits of network development
    - Introducing new services
  - Promote best practices
  - Investors
    - Attract funds
    - Promote new services generate new demand
  - Tool of transport system self improvement
    - Innovation
    - Adaptation
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Thank you

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