



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



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# Profile Dimitrios Dimitriou

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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.

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# 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



# Transport Enterprises Revenues strategy



## Transport activities

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

85%

40-50%



## Non transport activities

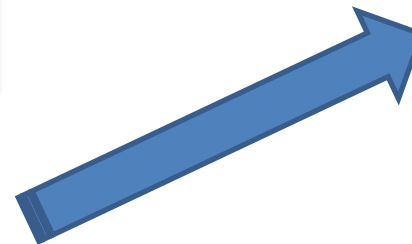
- Advertising
- Commercial activities
- Real estate

15%

60-50%



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



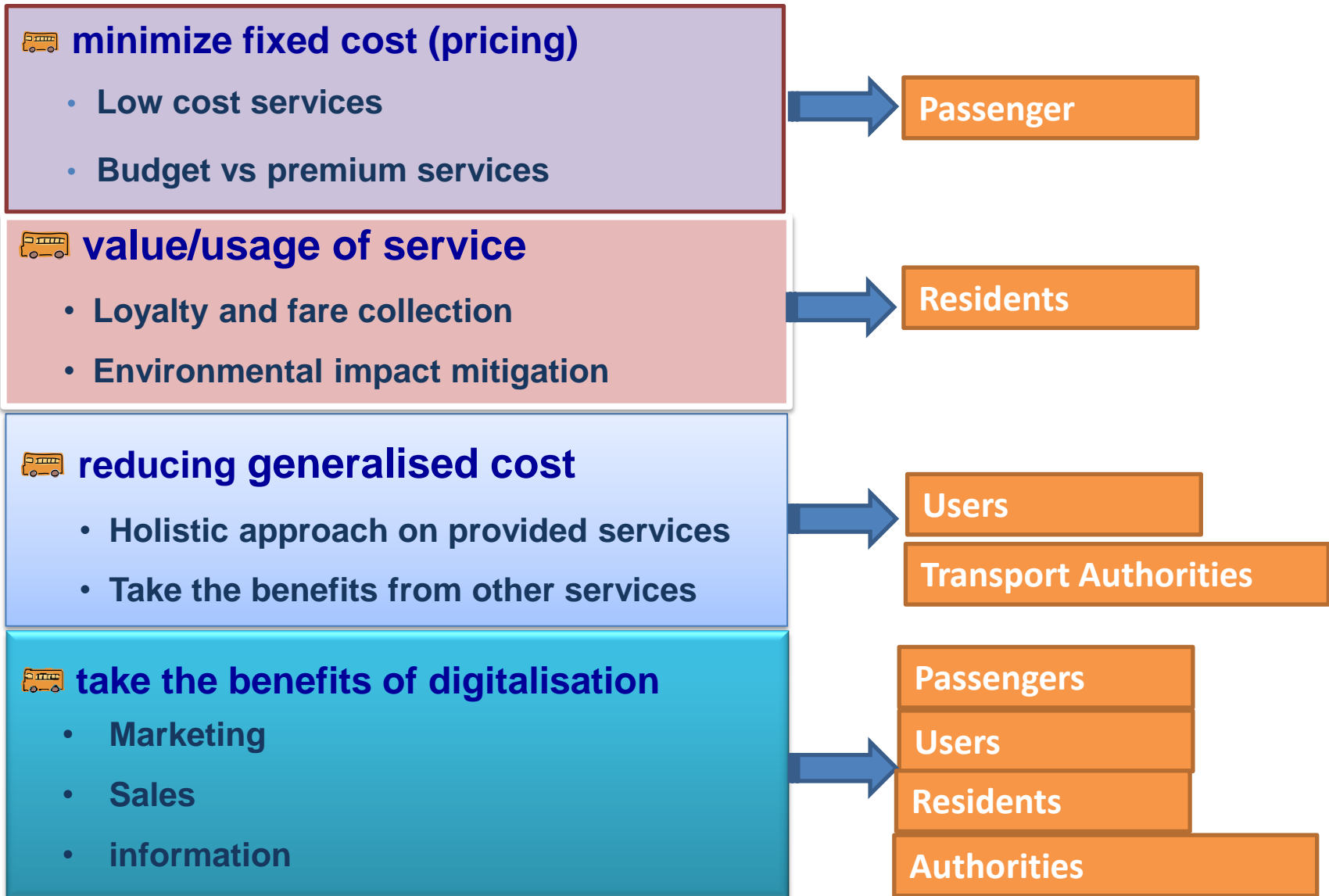
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# Transport enterprises cost reduction strategy



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# Fares always pay the attention



FARE CALL: Rail Back on Track is calling for an equitable fare system.  
PHOTO: CLAUDIA SALTER

## Increasing fares will not solve crisis facing public transport

THERE is a crisis on SEQ public transport. The non-fare review outcomes are not going to address it.

What will be scrapping the failed five year fare path, and put in place a fare system that is balanced, equitable, cost-sustainable and that will avert the current affordability and patronage crisis. Increasing fares by another 7.5% is not making anything more affordable. My pension just went up 0.6%.

For interest, some simple fare comparisons below that stamp the fare system in SEQ as one of the most anti-public transport fare systems in Australia and the world. They all do better than SEQ, says a lot ...

ROBERT DOW  
RAIL Back On Track



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## Pricing approach (1/2)

### Journey Time

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

### Distance

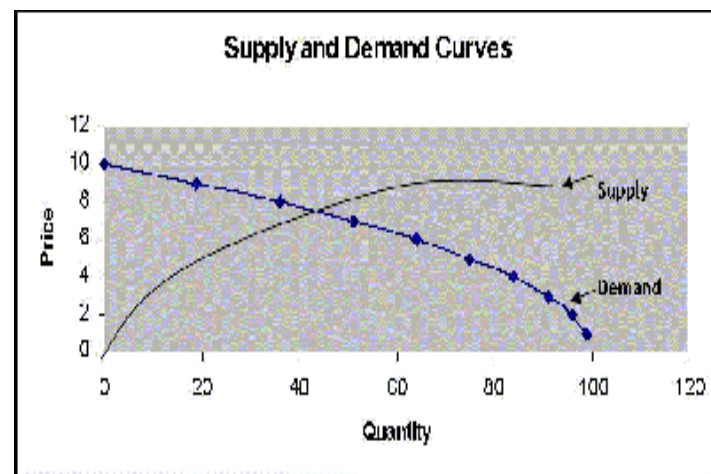
- Long – short distance (kms)
- Time distance (sec/kms)

### 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



# 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)



Bus Fare Schedule  
Effective April 2, 2012

Whatever route you  
may take.... Relax!  
Put your seat in ours.



THINK GREEN  
TAKE TRANSIT

For all your transit information  
905-687-5555  
[www.yourbus.com](http://www.yourbus.com)

8

#### CASH

Adult, Senior, Secondary Student	\$ 2.75 EXACT FARE
Elementary (age 6 to grade 8)	\$ 2.25 EXACT FARE
Children 5 and under	FREE
<small>(Must be accompanied by a fare paying adult. Maximum of 4 children per adult)</small>	

#### RIDE CARDS

Adult	10 ride card for \$ 26.00
Senior (65 years or older)	10 ride card for \$ 20.00
Elementary & Secondary Student	10 ride card for \$ 22.50

#### PASSES

Proper Identification must be shown to purchase a pass. LOST, STOLEN or DAMAGED passes **ARE NOT** replaced or refunded.

**NOTE:** 31 day passes are valid from first day of activation. Your signature is required on the front of all 31 day passes. Your signature is subject to random written verification by a transit official.

ALL 31 DAY PASSES ARE NON TRANSFERABLE

Adult 31 day pass	\$ 90.00
Senior 31 day pass	\$ 55.00
Student 31 day pass (High School & Elementary) <small>(High school must show current valid school I.D.)</small>	\$ 60.00
University or College May - August Semester Pass <small>( must be full time student with current valid school I.D.)</small>	\$ 290.00

KEEP YOUR OLD PASSES FOR INCOME TAX PURPOSES.  
Retain your receipt at time of purchase

dayrider hop on & hop off all day  
unlimited travel on all  
Purbeck Breezer & more buses

£8 adult

£5 child 7-18  
accompanied children under 7 travel free

£18 group  
any 5 people travelling together

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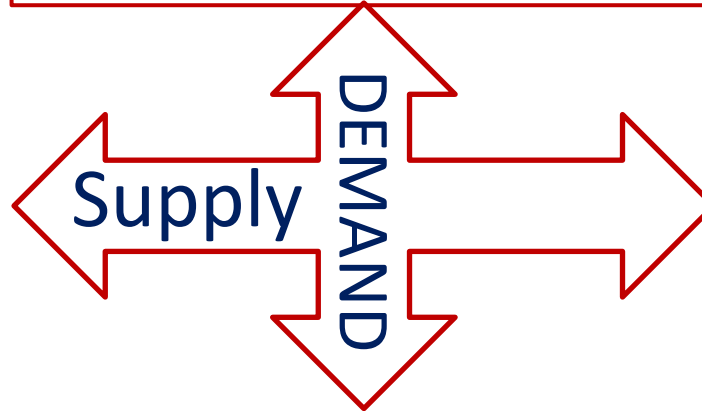
# Transport enterprises key business planning variables

## ➤ 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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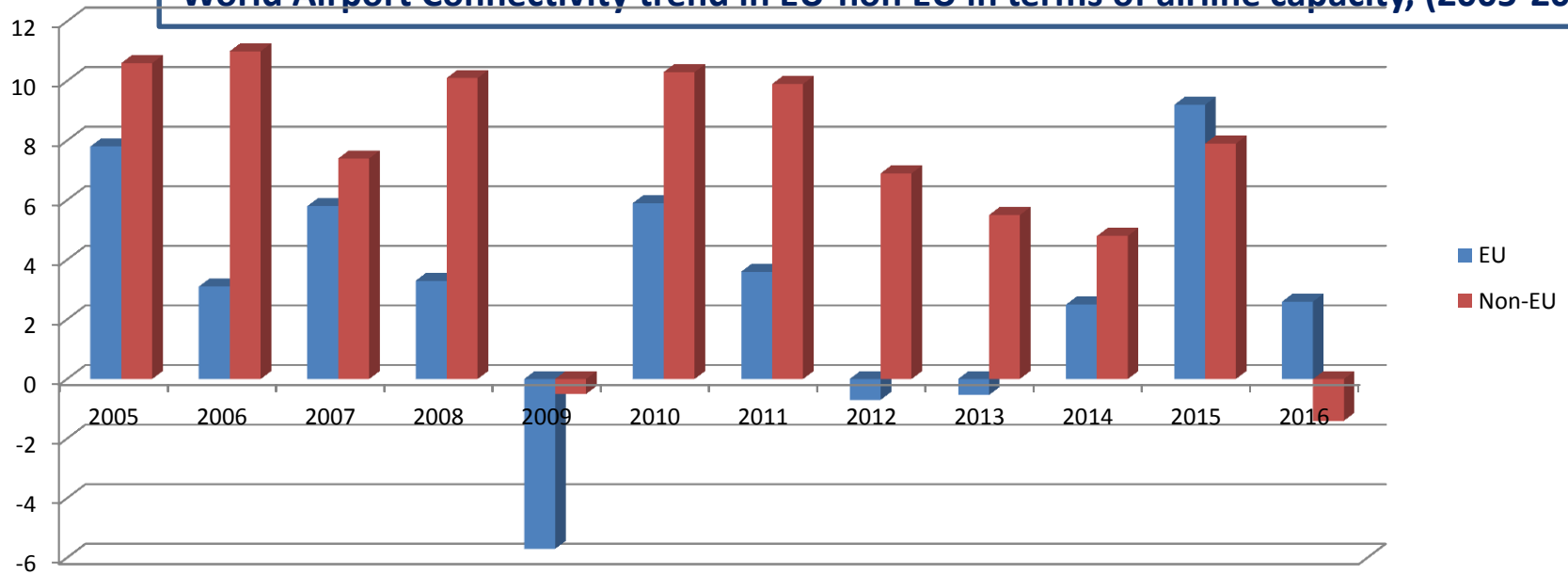
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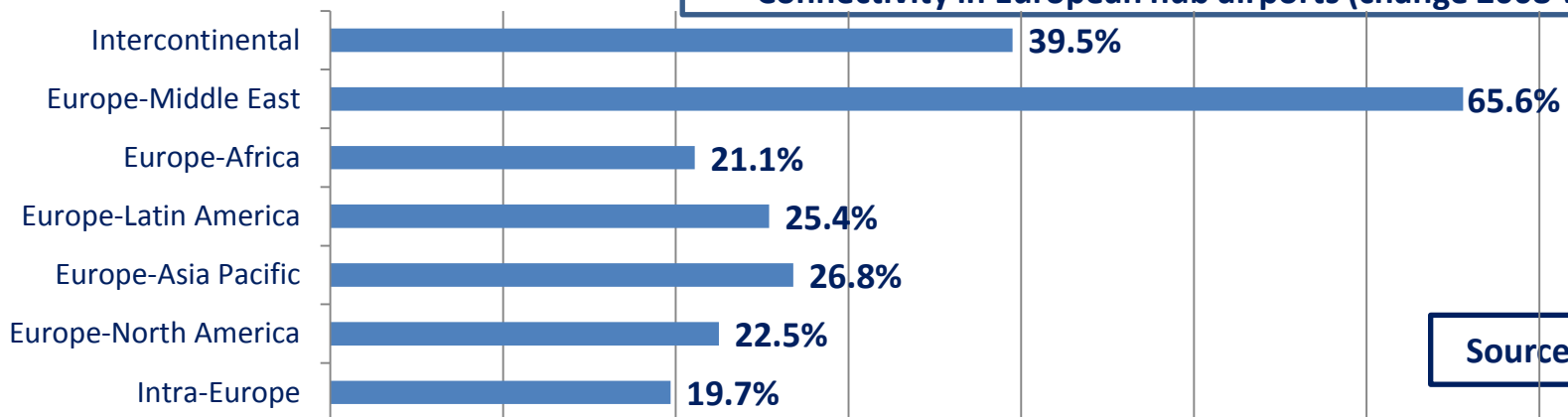


# Business analytics: Analysing trends and prospects

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



**Connectivity in European hub airports (change 2008 vs 2016)**



Source: ACI, 2016

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# From service delivering to data economy ....

***“Data are to this century what oil was to the last one: driver for growth”***

**The Economist (May 6<sup>th</sup>, 2017)**

## **The digital universe (zettabytes: 10<sup>21</sup> 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 devices holding 100 petabytes (10<sup>15</sup> bytes)

**Source: company report; (2016)**

**Amazon, Alphabet and Microsoft** together racked up nearly 432 bn in capital expenditure and capital lease in 2016; up 22% from the previous year

**Source: Wall Street Journal**

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# Transport and data economy ....

## Data collection

- Operator
- Cloud

Technology  
to collect



## Data Analysis

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

Providers



## Data use

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

Platforms



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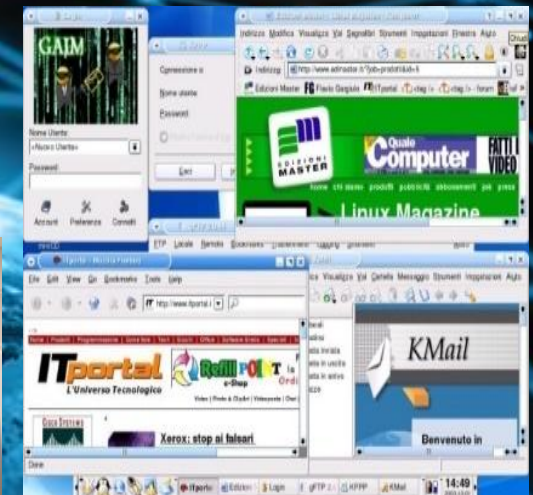
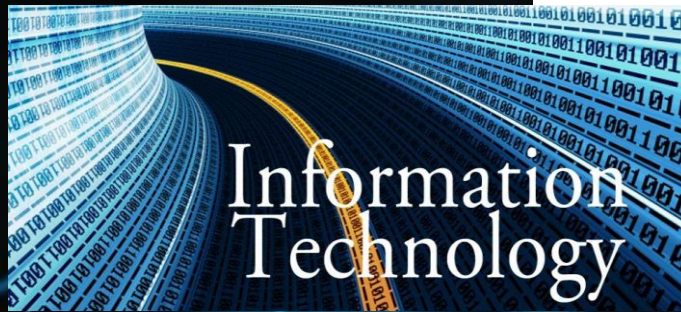
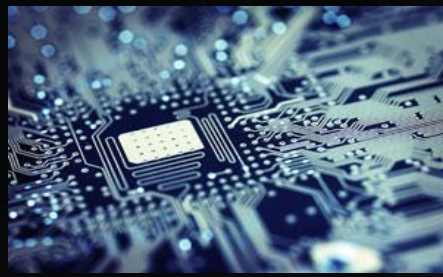
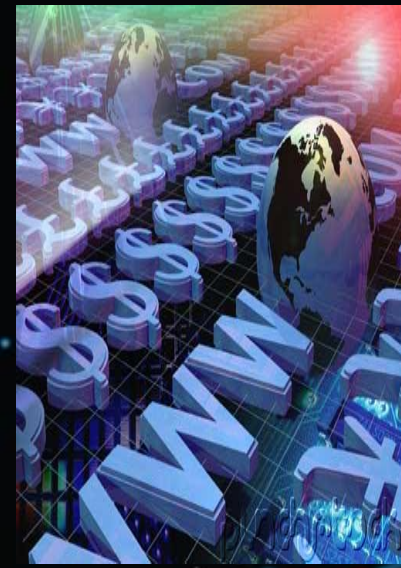
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# Idea drivers



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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?



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# 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

Technology

## 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

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# 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*



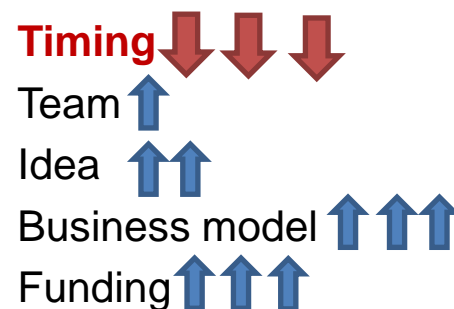
## Key drivers

- Low cost
- Safety
- Environmental friendly

## Key barriers

- Legislation
- Regulatory Framework
- Security/Control

## Drones



# Who invest?

Source of Funding	FY 2007	FY 2006
	Number Checked Yes as One of Sources of Funding	
No External Funding	86	57
Own Institution	51	26
SBIR/STTR	42	32
Friends and Family	135	94
Individual Angels	82	49
Angel Network	32	26
State Funding	63	36
Venture Capital	88	85
Corporate Partner	33	25
Other	47	28
Total Start-ups Formed	555	462
In Home State	402	344

From 2007 AUTM survey

## Hard sell

Capital invested in startup IT companies, \$bn

- Angel investors
- Early-stage venture capital
- Later-stage venture capital



Source: PitchBook

\*To November 1st



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# 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**

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

# 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**

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



**IDEA**  
C E N T E R



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# 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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