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UITP-BUSWORLD
INTERNATIONAL BUS CONFERENCE
In conjunction with Busworld Europe (Kortrijk) 2017 exhibition

busworld
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20-25 OCT 2017

BRT VS TRAMWAY : PERFORMANCE AND ECONOMICAL ASPECTS

When is bus the right mode ?

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trans missions
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FEW WORDS ABOUT THE STUDY

Conducted by Trans-Missions and TTK for the FNAUT

Trans-Missions (Tours, France) / KCW (Berlin, Germany)

& TTK (Karlsruhe, Germany / Lyon, France)

- French-German consultancy offices on transportation projects for public authorities
  - city/railway transportation contracts
  - transport. and infra. planning (BRT, Tramway, Railway)

For the French passenger association FNAUT

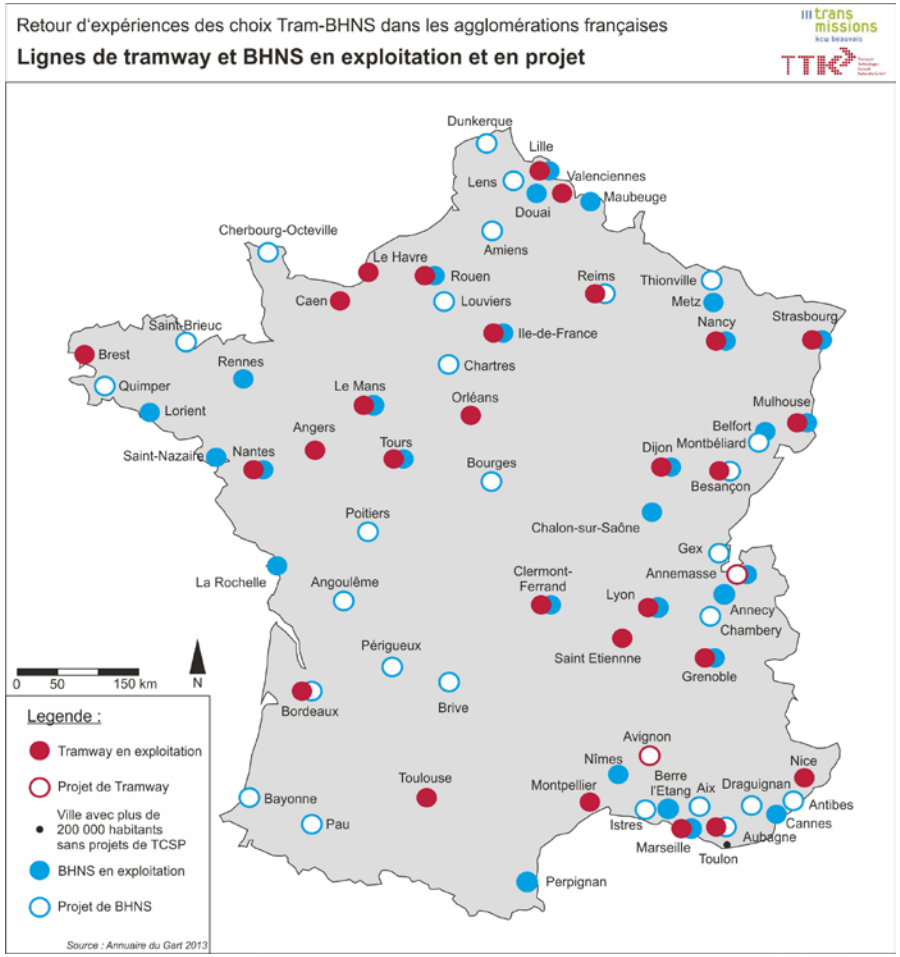
- aimed at assisting decision makers in the development of local transport plans with regards to the strategic choice between tramways and bus rapid transit (BRT).

The study (2016) was based :

- on the experiences of 9 French case studies (6 BRT and 3 tramways) and the expertise of Trans-Missions and TTK
- quantitative analysis of demand (before-after) and project costs (infrastructure, vehicles, operations)
- calculation of lifetime costs with regards to projected usage.

BRT AND TRAMWAYS IN FR.

2017 : operated or projected lines



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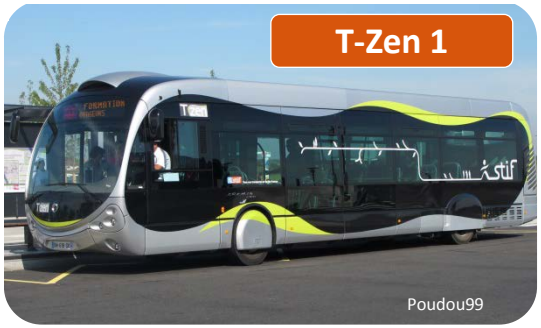
THE 9 CASE STUDIES

6 BRTs, 3 Tramways, with different characteristics



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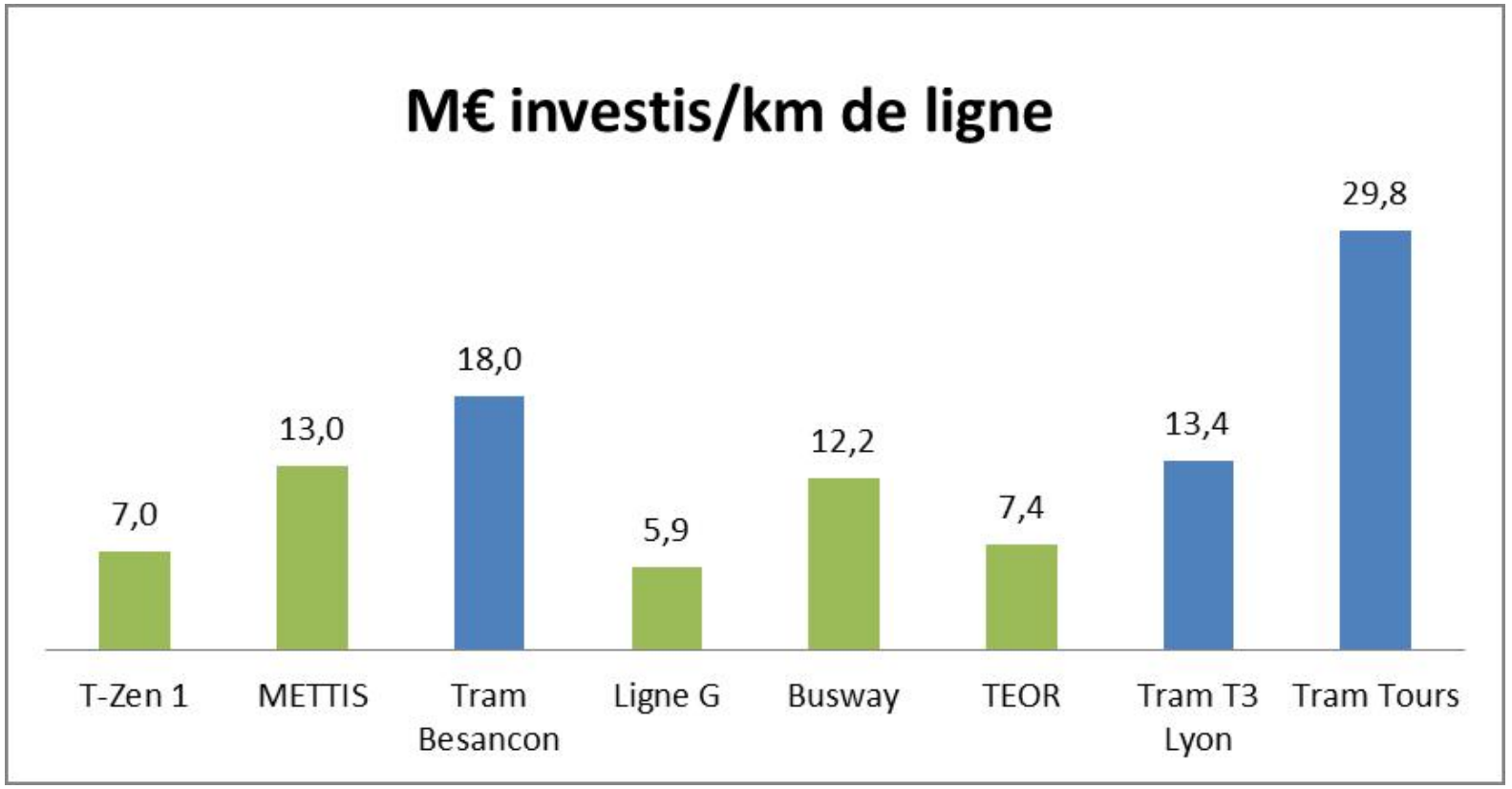
COSTS ASPECTS

Millions of € invested per kms of line



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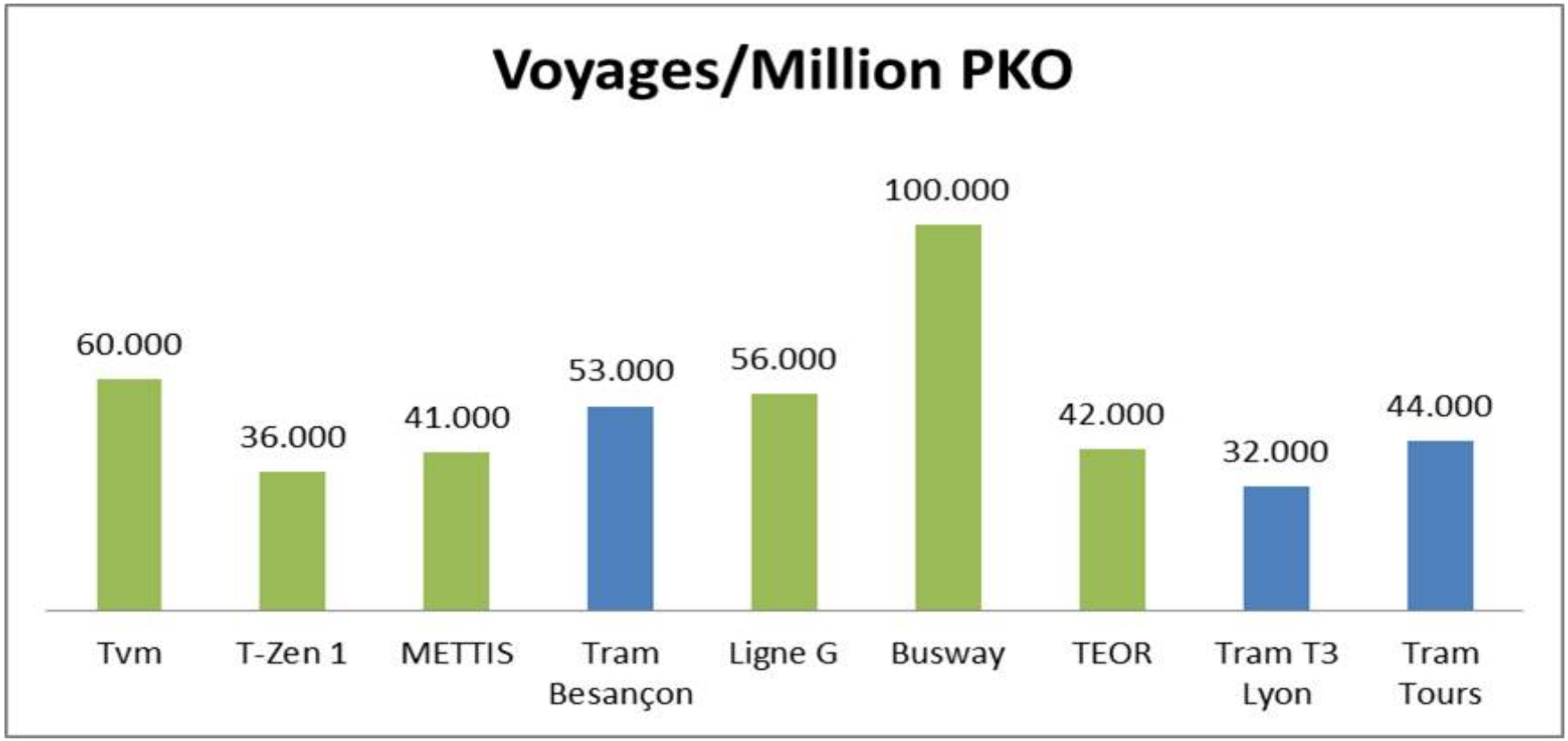
COSTS & PERFORMANCE

Trips per Million Available Km Place (Cap x Op. K)



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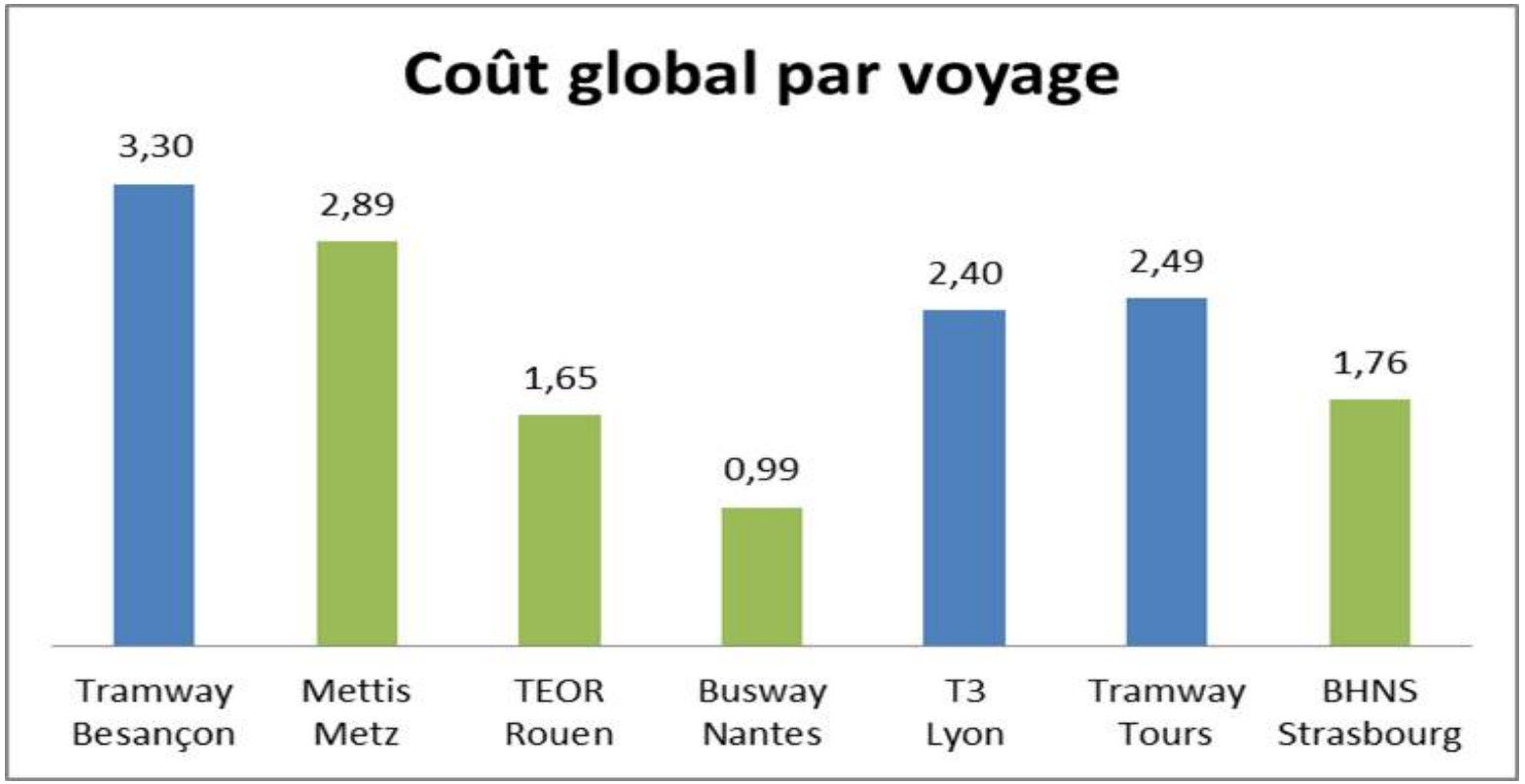
COSTS & PERFORMANCE

Global cost per trip



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FOR DECISION MAKERS

Which frequency for which demand per veh. cap.

fréquence sur la ligne (minutes)												
fréquentation par jour	15000-22500	20000-30000	25000-37500	30000-45000	35000-52500	40000-60000	45000-67500	50000-75000	55000-82500	60000-90000	65000-97500	70000-115000
Charge maximale HP sens le plus chargé	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500
BHNS 18 m	5:43	4:17	3:25	2:51	2:27	2:08	1:54	1:42	1:33	1:25	1:19	1:13
BHNS 24 m	7:16	5:27	4:21	3:38	3:07	2:43	2:25	2:06	1:57	1:47	1:39	1:31
Tramway 24 m	6:54	5:12	4:12	3:25	2:54	2:36	2:12	2:03	1:52	1:45	1:34	1:28
Tramway 32 m	10:24	7:48	6:14	5:12	4:27	3:54	3:27	3:07	2:49	2:36	2:24	2:13
Tramway 44 m	15:36	11:42	9:21	7:48	6:40	5:51	5:12	4:40	4:15	3:54	3:36	3:20

FOR DECISION MAKERS

Not the same attractiveness for users

Model (Hypothesis)	Tramway	BRT
Demand on the corridor	15,000 trips per day	
Mode effect [case studies + office experience]	**+100%**	**+40%**
Demand on the project	30,000 trips per day	21,000 trips per day
Length of the veh. (cap)	32m (190 pl.)	24m (138 pl.)
Infra. costs (LCC)	€20 M per km (50 a)	€10 M per km (50 a)
Operat. costs	€8 per km	€6 per km
Veh. costs (LCC)	€2,5 M (35 a)	€0,8 M (12.5 a)
Cost per trip	**€3,0 per trip**	**€3,8 per trip**

FOR DECISION MAKERS

Key-parameters to make the decision

- BRT and Tramway have their relevance zones, for French references, they have a superposition between 30.000 and 45.000 passenger a day of the line
- To adapt the capacity of the offer (frequency, cap. veh.) with the middle-term projection demand. BRT or Tramway generate construction because of the permanency of the infra.
- The more attractive the system is the more demand will be generated.
- BRTs and Tramways have different capacity limits
- Think about the Life Cycle Costs infra. and veh. + maintenance in the next 50 years and not the investment at year 1.