

Personal Rapid Transit for special applications in Italy

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ULTra PRT, Heathrow, UK

Special applications in Italy

Rimini

Coast-Congresshall-P&R



7km double track
4km single track
8 Stations

Bologna

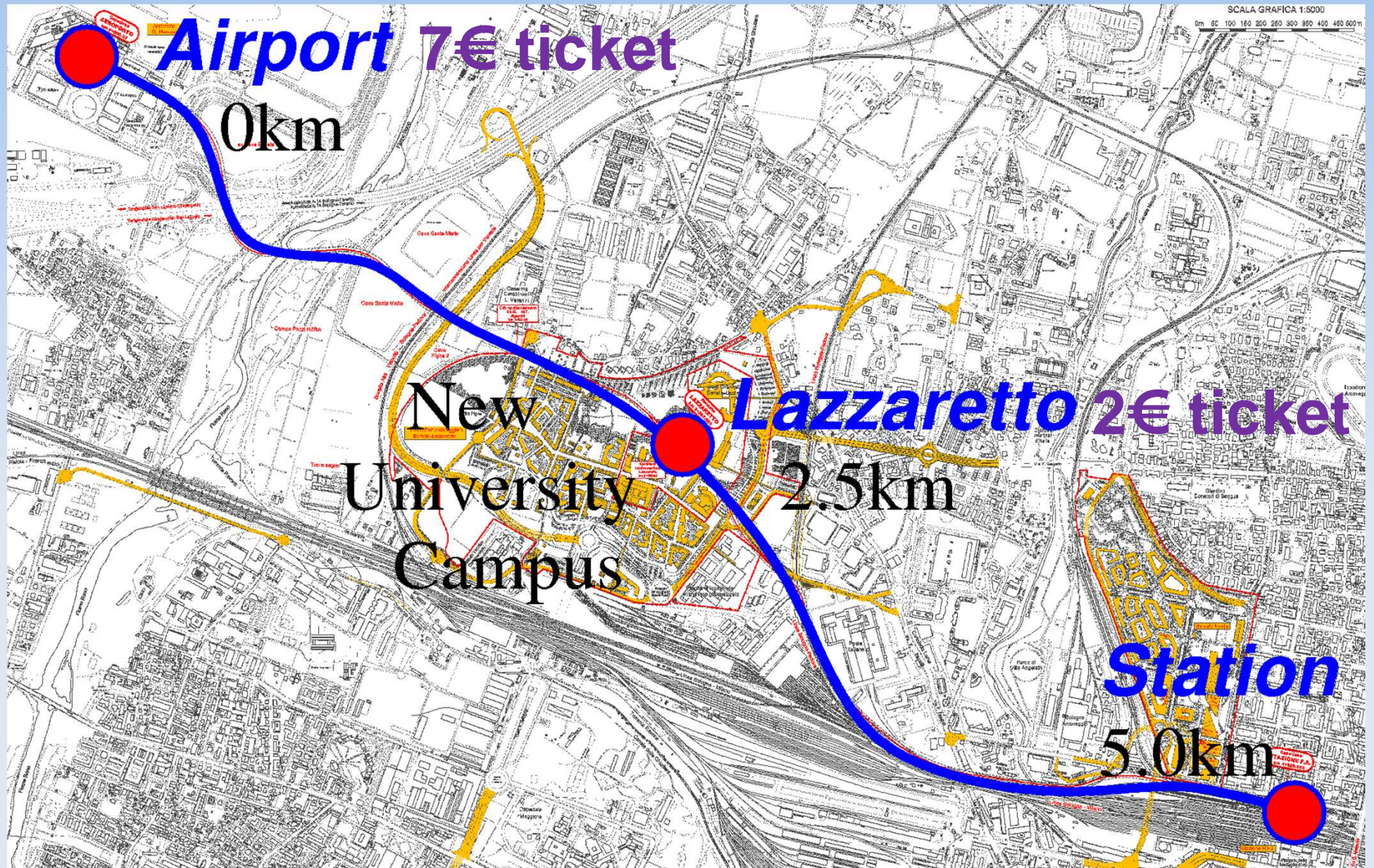
Airport-Campus-Station



5km double track
3 Stations

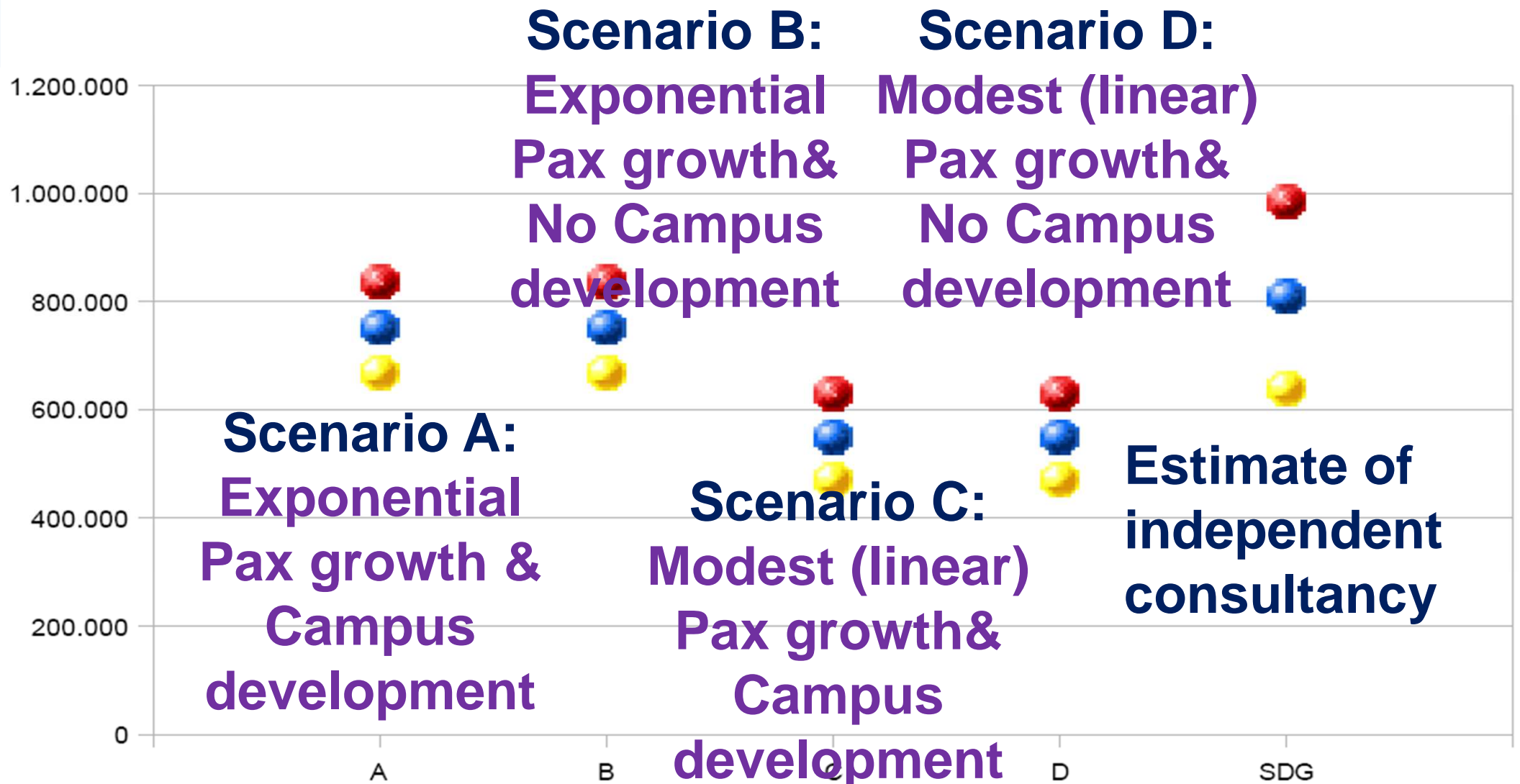


Bologna Station-Airport Peoplemover project



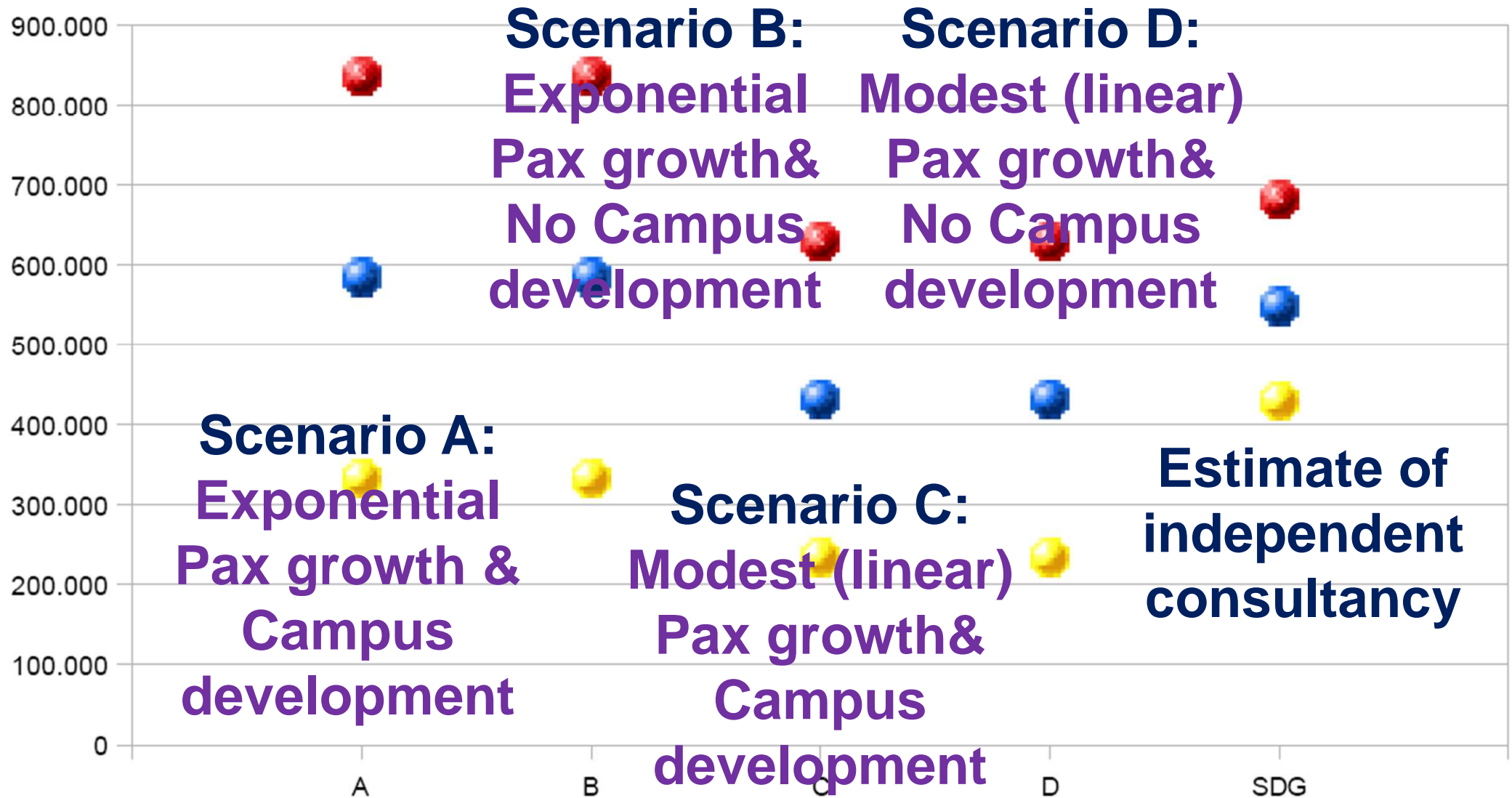
Bologna Station-Airport Demand due to airport pax

Annual demand of airport passengers (arriving from station)



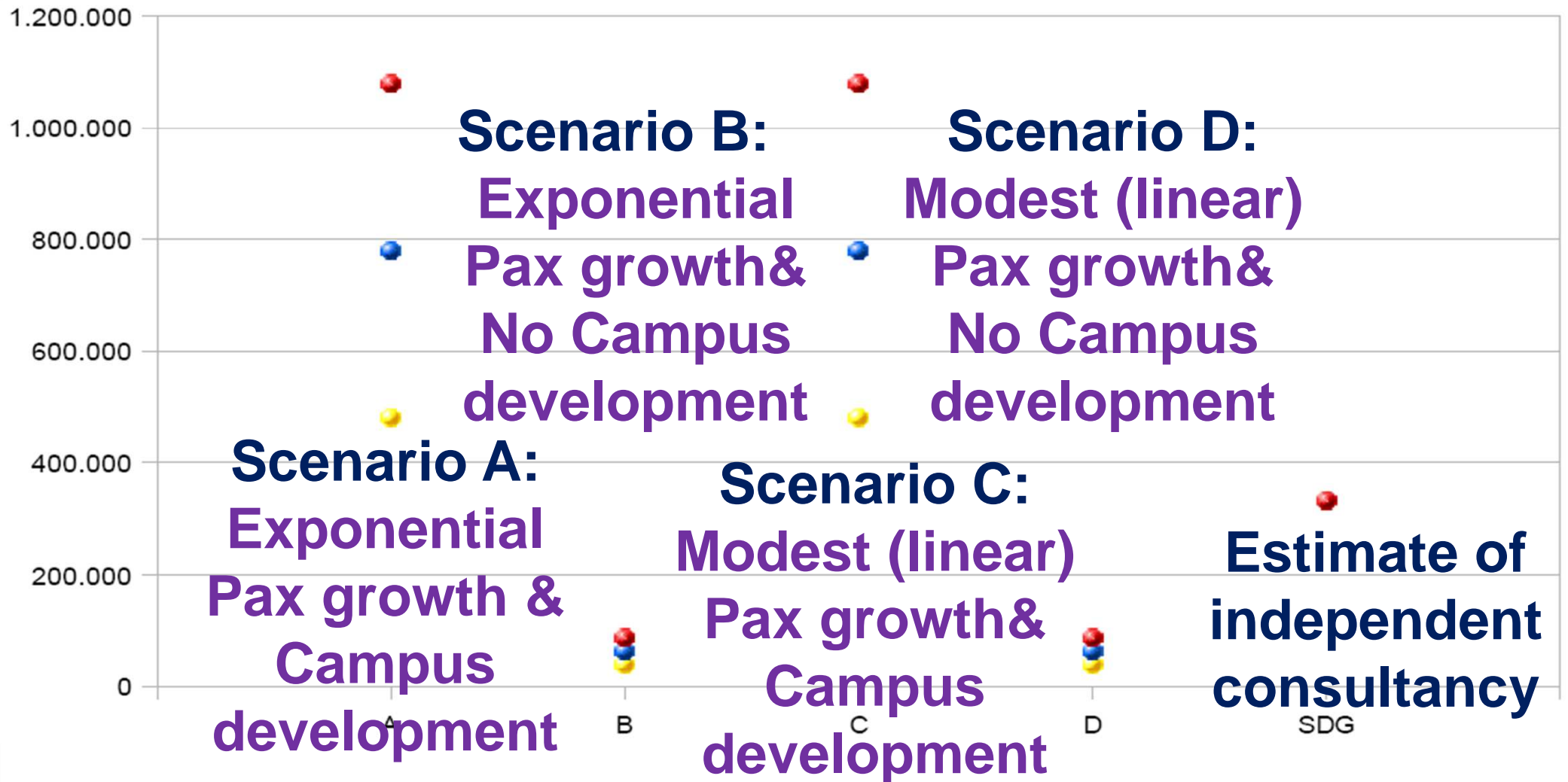
Bologna Station-Airport Annual demand captured

Annual demand airport passengers captured from other modes



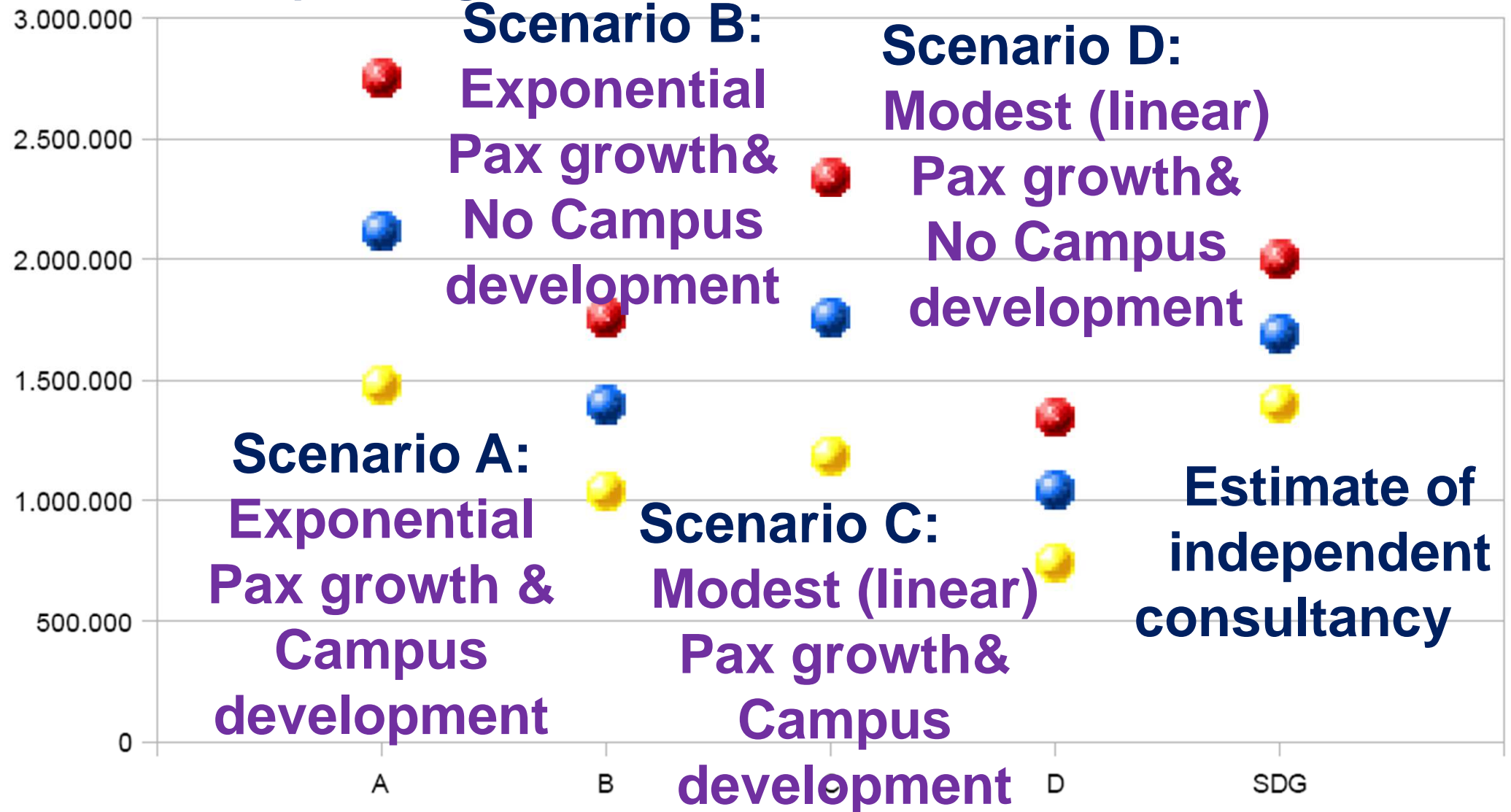
Bologna Station-Airport Annual demand campus

Annual passenger from and to University campus



Bologna Station-Airport Annual total demand

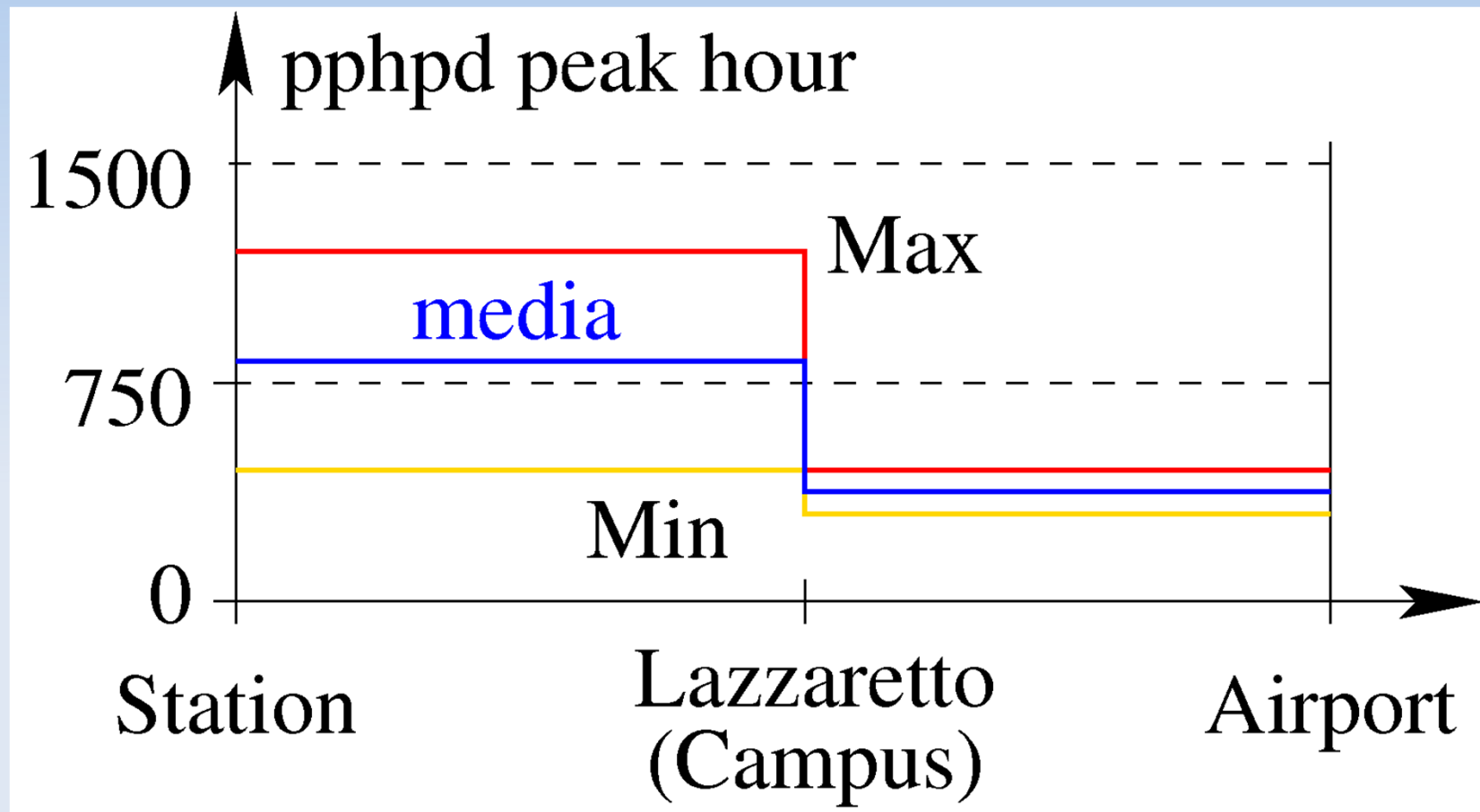
Annual total passenger demand



Bologna Station-Airport

Peak hour demand flows

Scenario A: Peak hour demand



Bologna Station-Airport Transport offer - infrastructure

Intamin P30/70 (Minimetro, Cableliner)



- ❖ 2 trains, 50-70pax
- ❖ Steel box monorail
- ❖ 5km single track +
bypass at campus
(single track for cost reasons!)

ULTra PRT (2getthere, Vectus PRT)



- ❖ 125 vehicles, 4 pax
- ❖ Flat concrete beams
- ❖ 5km double track +
turnaround at campus

Bologna Station-Airport Transport offer – service

Intamin P30/70



- ❖ Fixed schedule at 7.5 min intervals
- ❖ Collective, stand./sitting
- ❖ 1 intermediate stop at campus
- ❖ Avg.wait + trip-time 10min 45 sec

ULTra PRT



- ❖ On demand, zero wait (105 sec peak hour wait)
- ❖ Individual, always seated
- ❖ Direct service non-stop
- ❖ Avg.wait + trip-time 9 min, 44sec (11 min 29sec peak hour)

Bologna Station-Airport Transport offer – Capacity

Intamin P30/70



- ❖ 400 pphpd
@ 50 pax per train
- ❖ 560 pphpd
@ 70 pax per train
(no luggage room)

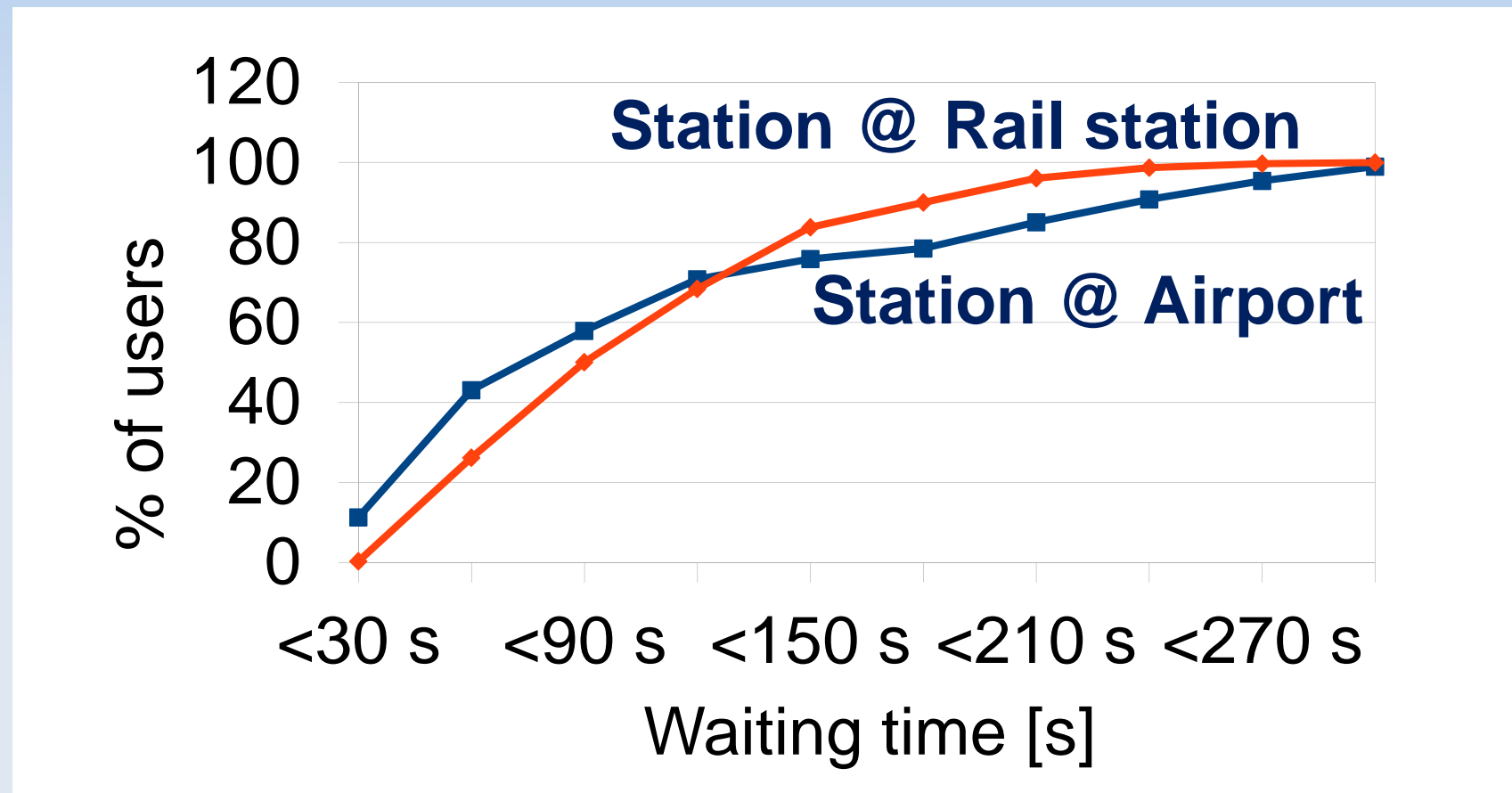
ULTra PRT



- ❖ 400 pphpd, 125 vehicles
@ 1 pax per vehicle
- ❖ 1600 pphpd, 125 vehicles
@ 4 pax per vehicle
- ❖ 2400 pphpd, 6sec headway
@ 4 pax per vehicle

Bologna Station-Airport PRT waittime micro-simulations

% of users served as a function of waiting time
(from accessing platform, queuing, to door opening)
during peak hour with 125 vehicles and 400vphpd



Conclusions

In 2009, the selected APM (Intamin P30) has been the most economic solution.

Today, a PRT solution (with less than 10 Mio€/km system costs) would be more favourable for the following reasons:

- ❖ Higher service quality (individual, seated, non-stop)
- ❖ Shorter wait times and shorter total trip times during off-peak (almost equal during peak hours)
- ❖ Higher crash load capacity (2400 vs 560)
- ❖ Higher future ridership by expanding the network and by offering **non-stop services to more destinations** (car-parks, P&R, 2nd terminal, exhibition)
- ❖ Less visually intrusive infrastructure

Thank you !

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