# Off to a Chilly Start: two views on TranSantiago, Chile

## A consultant's perspective

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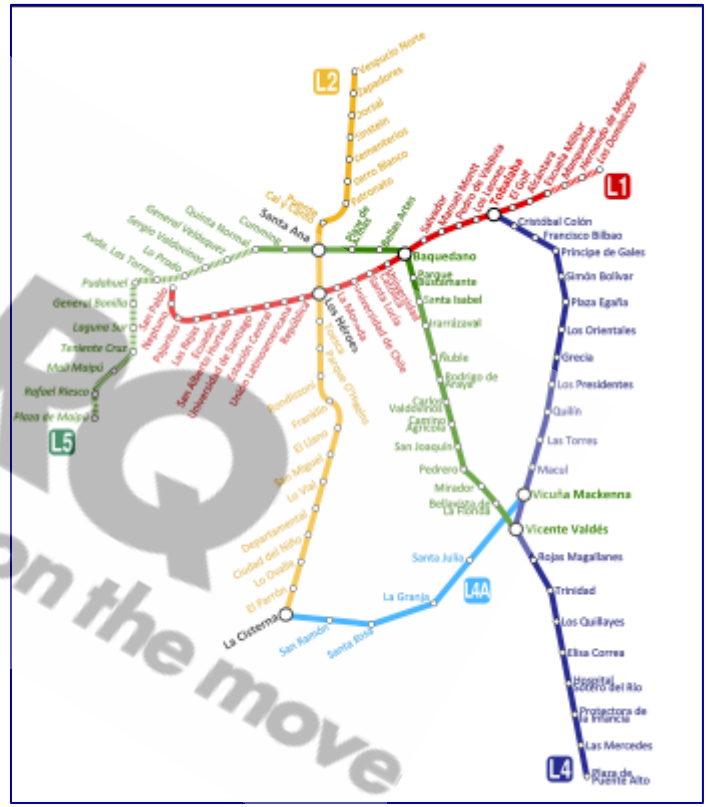
Transforming Transportation, January 2008

# Public Transport in Santiago in 2005:

- Almost 6 million people, low car availability (~85% of users without a car).
- Most PT trips are radial: outskirts of Santiago to activity centre(s)
- Demand for PT is "peaky"
- Some 8,000 buses and a similar number of less formal shared taxis, etc
- Most PT services are end to end with very long routes
- High frequency, poor quality buses, aggressive driving to gain passengers that provide most of the income for drivers
- AM peak hr:
  - 500.000 bus trips, with 30,000 are bus-bus and 25,000 bus-metro
  - and shared taxis 40,000 trips of which 16,000 feed Metro
- Flat fare of US$ 0.50 , no subsidies

# Santiago Metro: 85 kms and 5 Lines

- Moved 1.3 million passengers per day in 2006



# TranSantiago

- A multi-modal Transport Plan
- Part of this plan is the introduction of a new Public Transport system, also called TranSantiago
- Inspired in Transmilenio and Curitiba, based on a trunk-feeder system; it also uses Metro as a strong structuring element
- Designed by Chilean specialists and consultants
- Implemented in 2006-2007, in full from February 2007

# Reality has been a disappointment during 2007: Extreme crowding, especially in the Metro, frustration, low quality of service and a high political cost


Buses


Metro, carries over 2 million passengers per day

# Demonstrations, Official Inquests


**What went wrong?**

# Market and Attitudinal Research on Public Transport services, pre 2005

## Public Transport Users

- **Stated that main problems were:**
  - Informality
  - Rude drivers
  - Accident risk
  - Uncomfortable and poorly maintained buses
  - Dangerous driving to capture passengers at stops
- Did not perceive as a problem:
  - Travel times
  - Wide coverage, end to end services
  - High frequency
  - Seat availability

## Car users

- **Stated that main problems were** :
  - Too many buses on the streets
  - Empty buses during off-peak
  - Dangerous driving
  - Accident risk
  - Poorly maintained and polluting buses
  - Informality
- Did not perceive as a problem:
  - Low cost, no subsidy
  - Wide coverage
  - Travel times

# Design objectives for Transantiago

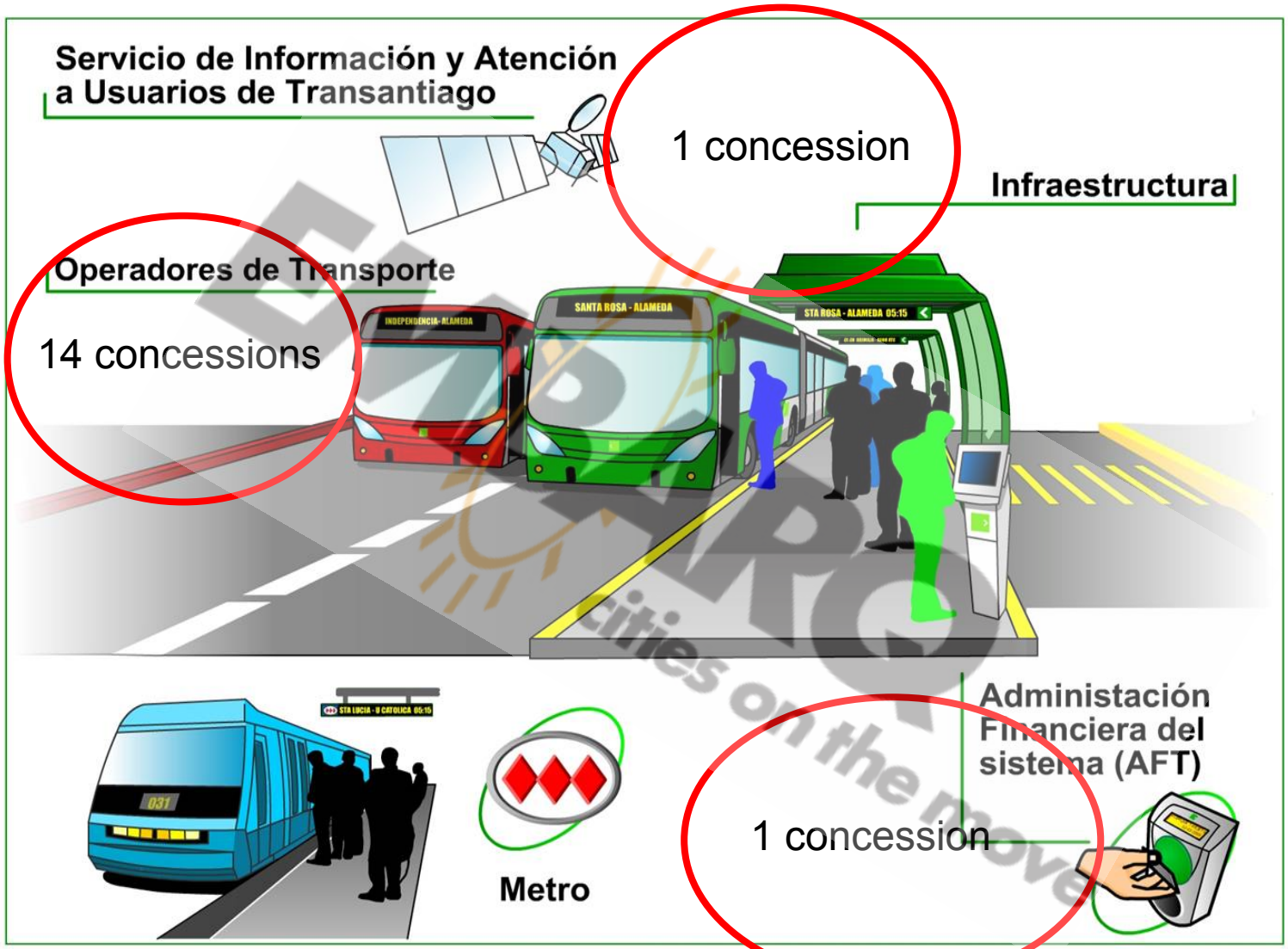
- Design a system that:
  - Offers new buses, professional operators and new labour contracts with drivers
  - **Minimises operating costs without subsidies**
  - Satisfy known demand
  - Implicitly: without major investment in infrastructure

- This led to a system that:
  - Has trunk-feeder structure and feeds metro too
  - Adjust supply very closely to known demand
  - Uses short running to match supply better to "known demand"
  - Low floor buses and high load factors
  - Integrated fare using smartcard "Multivía"

  - Reduces frequencies
  - Requires transfers
  - Increases, or at most retain, travel times

# Three groups of concessions + Metro + Infraestructure?





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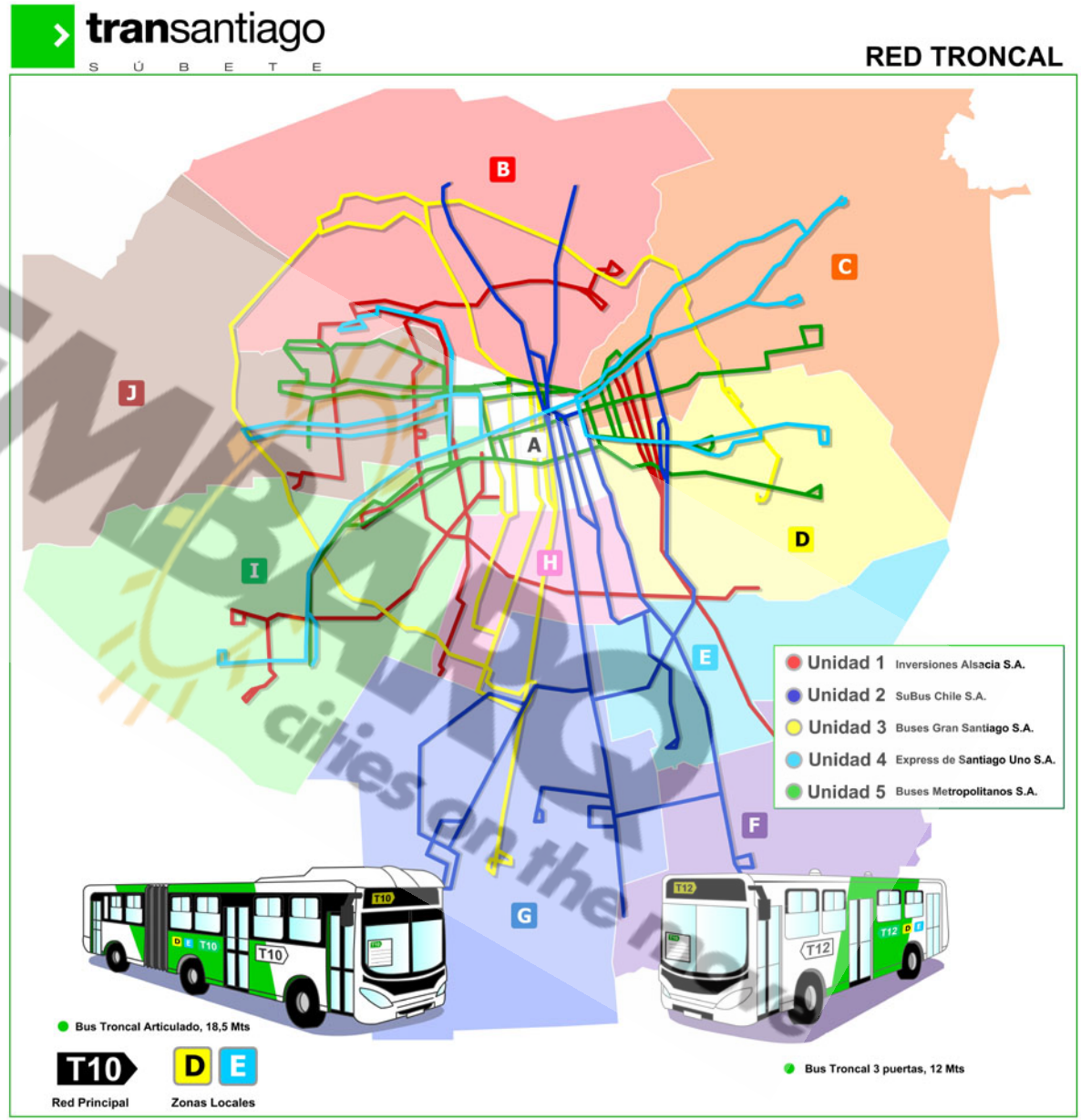
# Trunk routes



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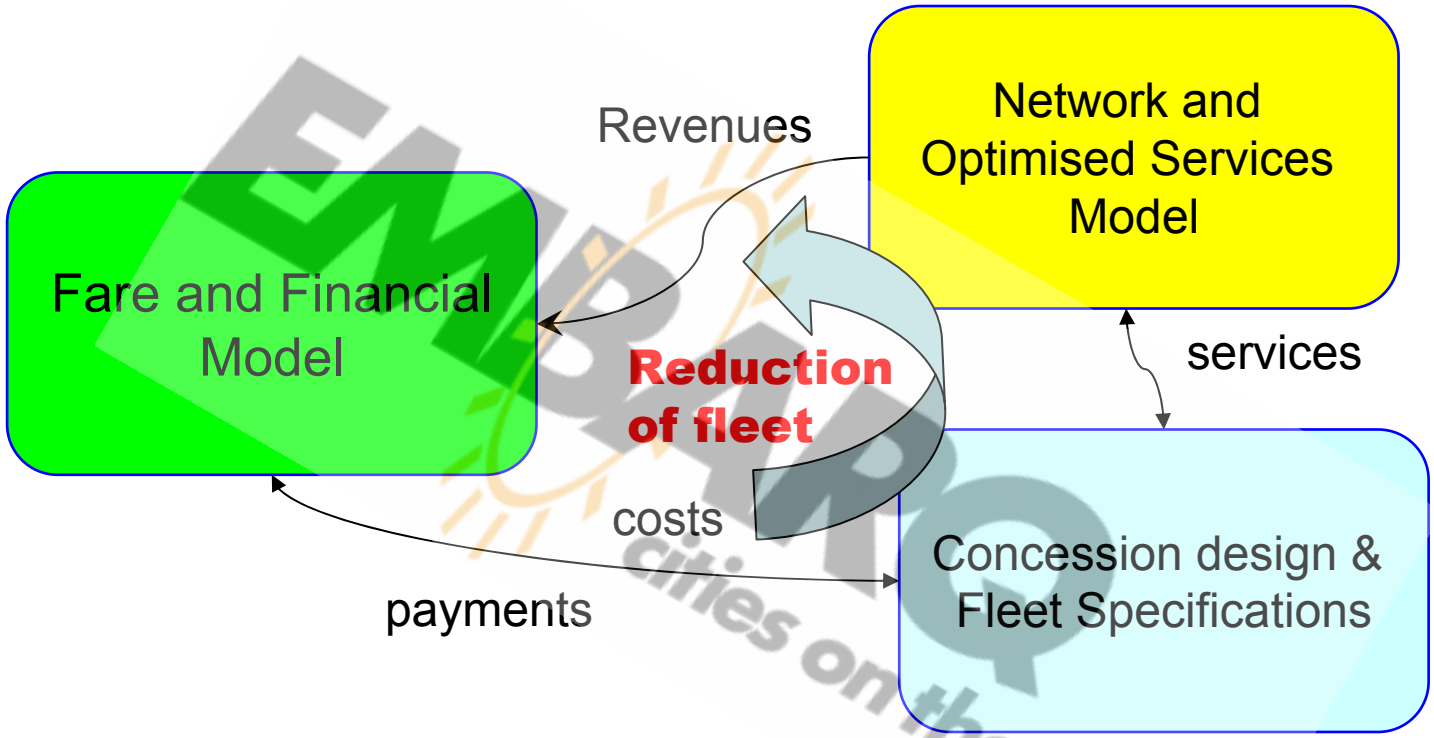
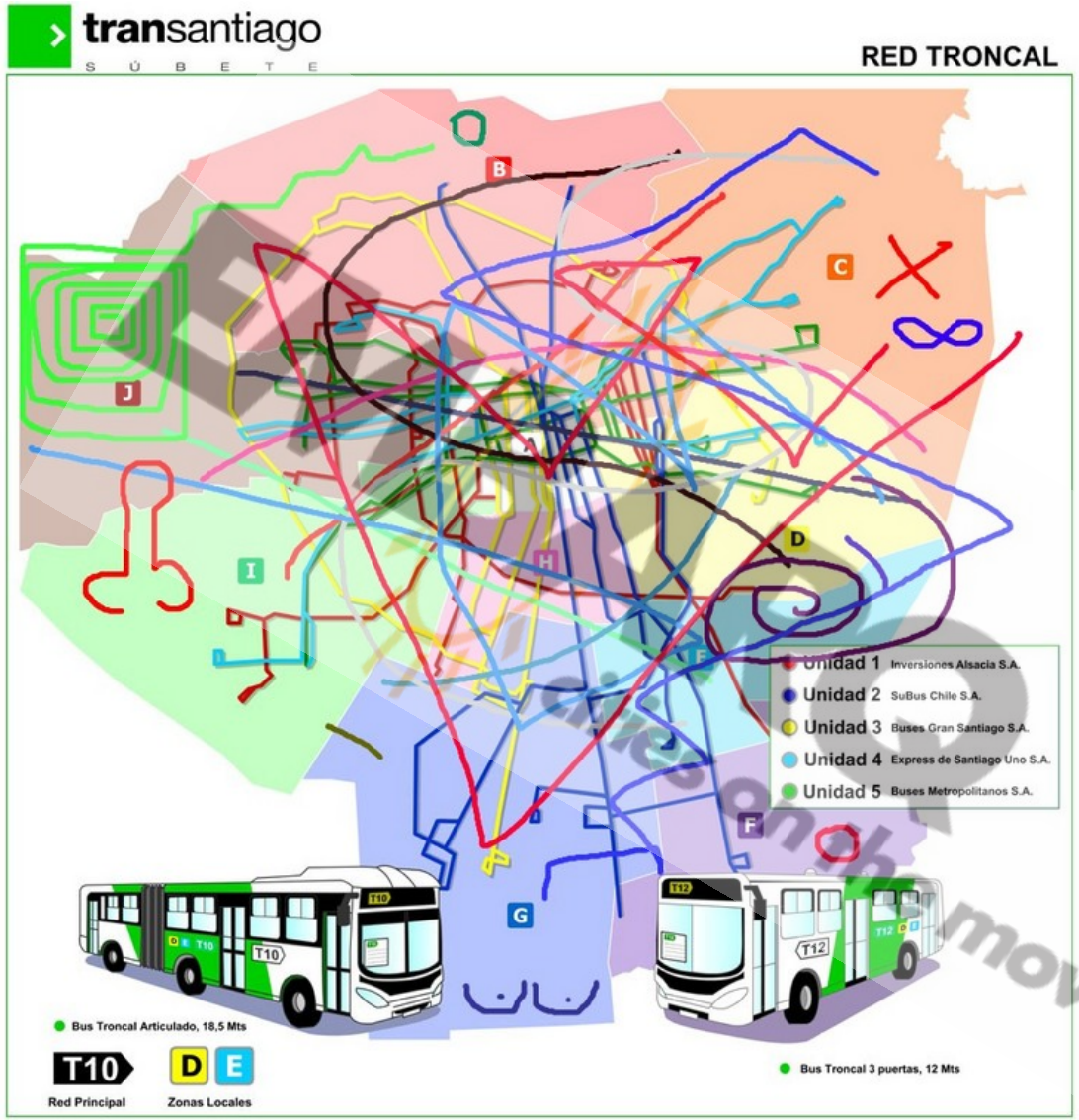
# Business model




No government subsidies
No major infrastructure improvements
Use of modern technology (GPS, SmartCards)

# Implementation

- Concession awarded in 2006, partial implementation and then…
- in February 2007 the system is implemented in a "one-day big bang"
- Severe teething problems
  - SmartCard does not work well
  - Information system is poor and incomplete
  - Chaos, frustration, incidents
  - Metro is very overloaded
  - Severe political backlash: President loses 20 percentage points in approval rate



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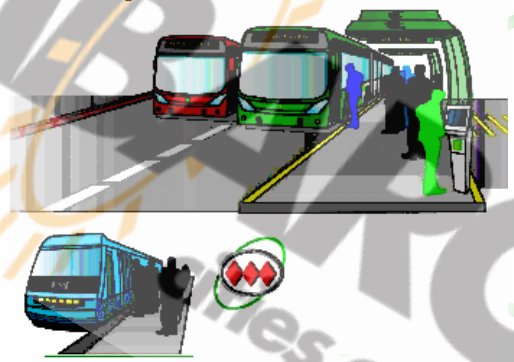
# User benefits?

**Fewer buses but more cars**

Less pollution

Less congestion

Greater safety



**For cars?!**

More equitable system

Modernity

?

?

Better service

**Longer travel times, + more walking**

# Critical problems

- **Service coverage and comfort**: despite the new buses, these are overloaded, offer fewer seats, sometimes passengers cannot board them and this increases delay: fragility of the new system
- **Walking and Travel times**: these have increased although a few people with trips along a trunk route now have somewhat faster services
- **Transfers**: more transfers than before thus increasing travel time and uncertainty
- **"One-Day Big Bang",** a very risky strategy that nobody has got right yet
- **SmartCard:** initially a significant problem; seems to work OK now

# Lessons from TranSantiago

## A personal perspective



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# Lessons

- Transantiago was not a good idea poorly implemented. It is a poor idea badly implemented.

- High performance bus systems
- Implementation
- Political processes
- Technological progress and consultancy markets

# 1. BRT design

- High performance is not the same as trunk-feeder services
- Trunk-feeder structure will only improve services if the infrastructure and operation design permit significant saving on the trunk section to compensate for transfers
- Add low costs via tailoring service closely to "known" demand and this creates a major problem

- If major protected bus infrastructure is not possible it is better to think about open rather than closed systems
- There are many ways to design high performance bus systems; Latin America provides most of the expertise required.

# The route and service design model

- Based on the strategic network model, ESTRAUS, without enough detail for route design and model user requirements
- A clever and advanced optimisation mechanism
- Where operating costs overwhelm user costs
- Ignores practical issues, believes in the "modelled demand"
- Moreover, the model was poorly used to design the concessions.
- More detailed models, supported by surveys and street-smart experience should be used; leave optimsation routines for academic papers

- **Public Transport systems are much more vulnerable to errors and overloads than road traffic; they require redundancy (should not be designed by those who never use them regularly)**

# 2. Implementation

- NEVER TRY TO IMPLEMENT A RADICAL NEW ROUTE SYSTEM IN ONE DAY
- There is a lot to be learnt from pilot studies and gradual change
- Users need time to adapt to new systems, but they need to go to work every day
- Implementation must be thought from the user point of view, not the convenience of a clever concession system
- The resources required for good implementation are easily underestimated at a significant political cost

# 3. Political processes

- There is a significant political risk in introducing a major new Public Transport scheme. Presidente Bachelet has paid a significant price for this.

- It is unwise to label as "enemy" whoever expresses a dissenting view.
- Clever advisors are not enough; experience is necessary; if they are not available locally, import them from elsewhere.

- The importance and dangers of an attractive narrative
  - The use and abuse of "spin"
  - Consultants can be tempted to use a similar narrative without due analysis and experience
  - But this is not enough to solve transport problems

# 4. Technological progress and consulting skills

- The international reputation of Chilean Transport academics was very high; this led to a consulting style that valued analytical brilliancy over experience and pilot studies.
- Consulting based on "Technical Studies" and arms-length advice is insufficient to deal with real problems.
- A "solution oriented consultancy" is needed, capable of critical and creative thinking; developing this type of consulting in a young country takes time and an open market.
- **There is no free lunch, c**lever technology is no substitute for sound investment in BRT infrastructure.

# Conclusions

- I hope that TranSantiago will eventually get better, but at a very significant monetary, social, political and policy cost .
- These costs were avoidable; TranSantiago was an unnecessary self-inflicted injury.

- Be careful what you ask in a market survey; it may just confirm your prejudices.
- A trunk-feeder service may only improve services if there is sufficient investment in the trunk infrastructure and good operational design.
- Avoid models without experience.
- Public Transport require more redundancy than traffic systems.
- Transparency is valuable; ignore constructive criticism at your peril.

# Many thanks