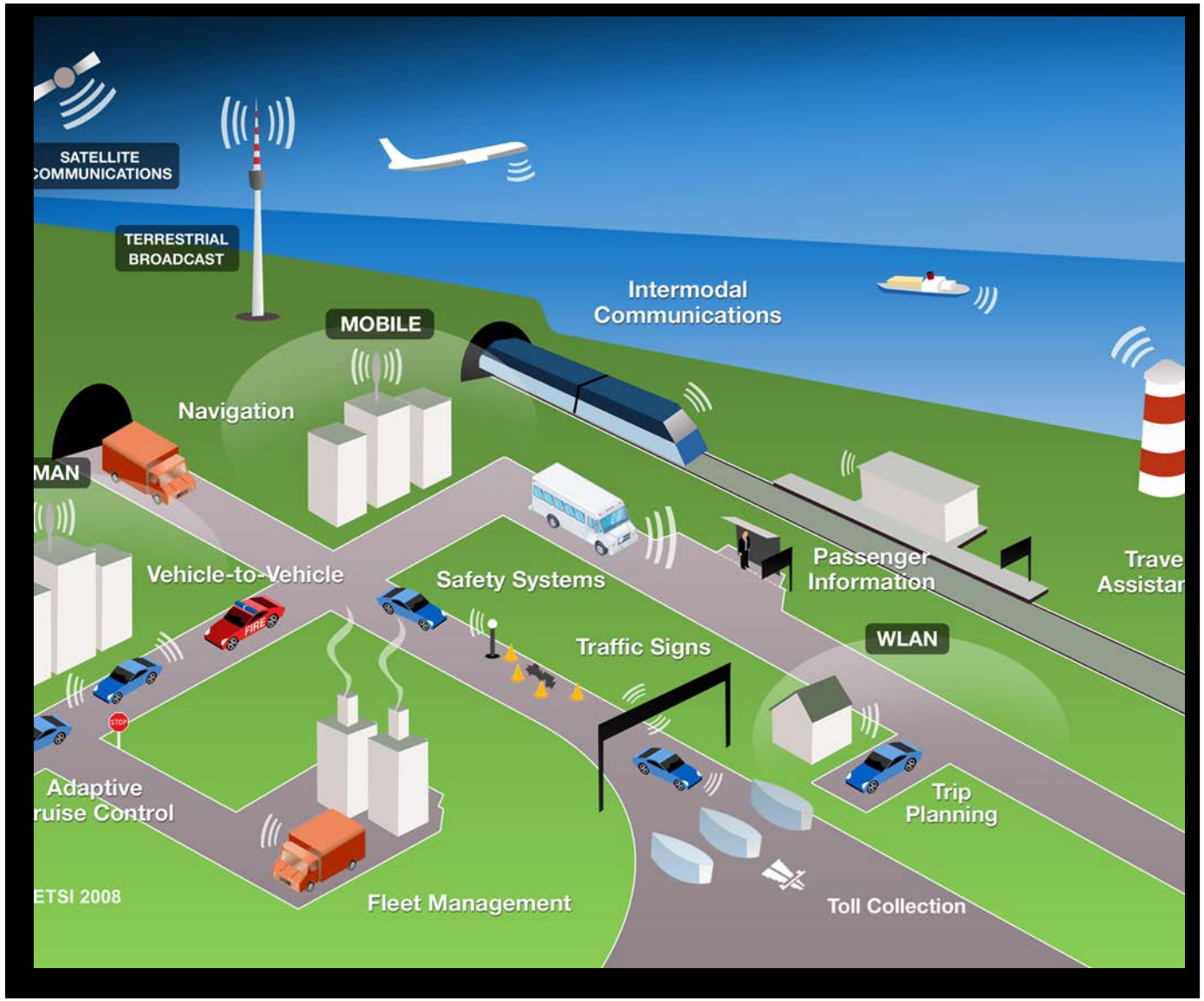
10th Urban Mobility India Conference & Expo 2017

CODATU 2017

“Intelligent Mobility”

Hyderabad. November 2017

50 YEARS ADB



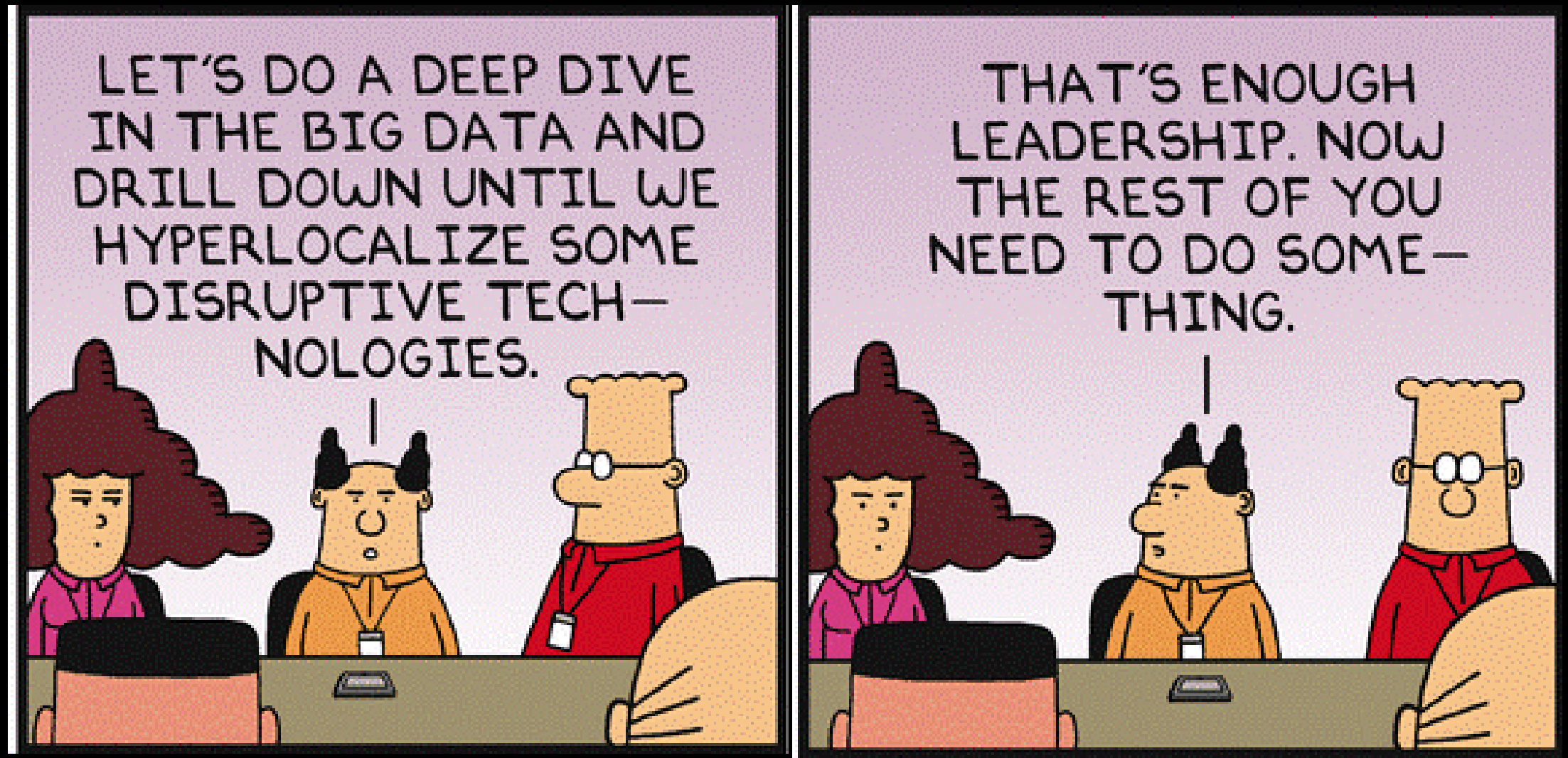
Structure

- Meaning
  - Some Examples
- Requirements
  - Caveats
- Conclusion

Meaning(s) & Examples

Many implications of an open-ended definition

Meaning, or jargon?



What does intelligent mobility imply?

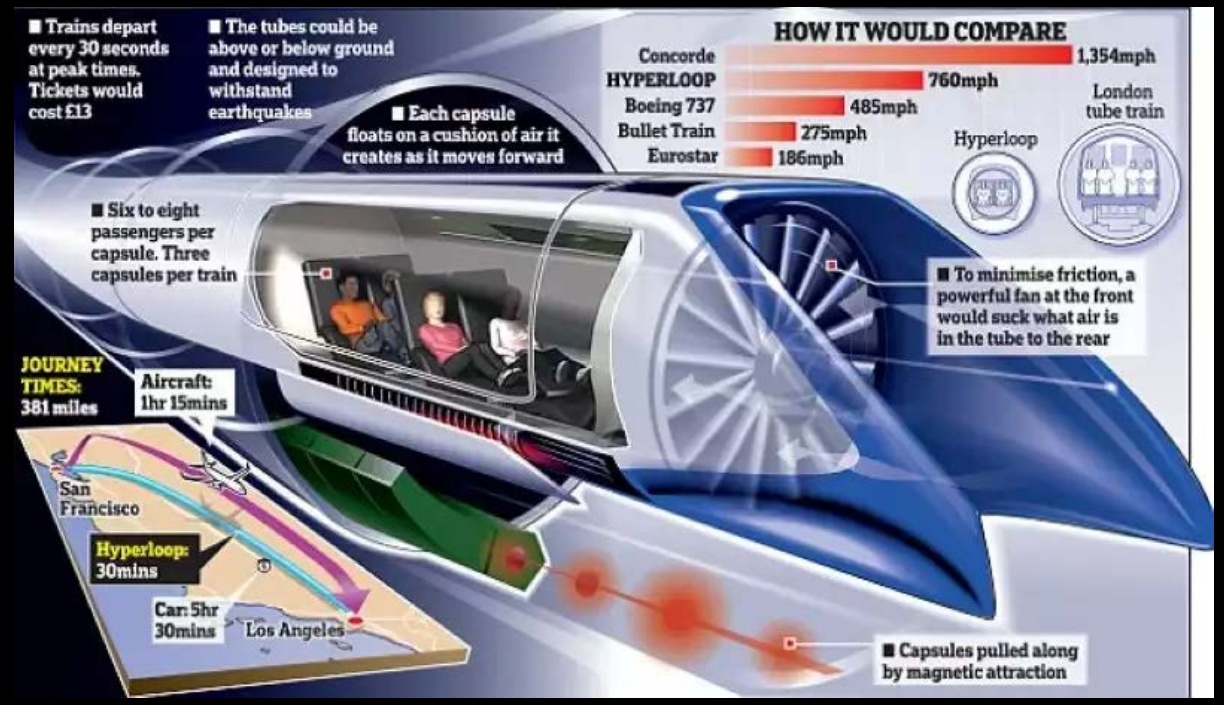
- High tech infrastructure?
  - Hyperloops, pod taxis, intelligent people movers
- High-tech city-level connectivity?
  - Linked multimodal transit, including last mile connectivity
- Individual data connectivity?
  - Apps for individual information and communication – these are already uber-iquitous! (Uber, Grab, Flightaware and a zillion others)

High-tech infrastructure

- Most of it is ‘concept’ or pilot
  - Unclear of what the “costs to scale” would be
  - Or long term sustainability, operational problems, safety, etc.
  - Still, there are interesting concepts and pilots…


BAA Heathrow


gemini
Future Mobility Concept Vehicle for the Metropolitan Area of Singapore
Nano Trike
LAGI
Personal Capsule
LA
Micro Car
LALA


Trains depart every 30 seconds at peak times. Tickets would cost £13
The tubes could be above or below ground and designed to withstand earthquakes
Each capsule floats on a cushion of air it creates as it moves forward
HOW IT WOULD COMPARE
Concorde 1,354mph
HYPERLOOP 760mph
Boeing 737 485mph
Bullet Train 275mph
Eurostar 186mph
Hyperloop
London tube train
Six to eight passengers per capsule. Three capsules per train
To minimise friction, a powerful fan at the front would suck what air is in the tube to the rear
JOURNEY TIMES: 381 miles
Aircraft: 1hr 15mins
San Francisco
Hyperloop: 30mins
Car: 5hr 30mins
Los Angeles
Capsules pulled along by magnetic attraction

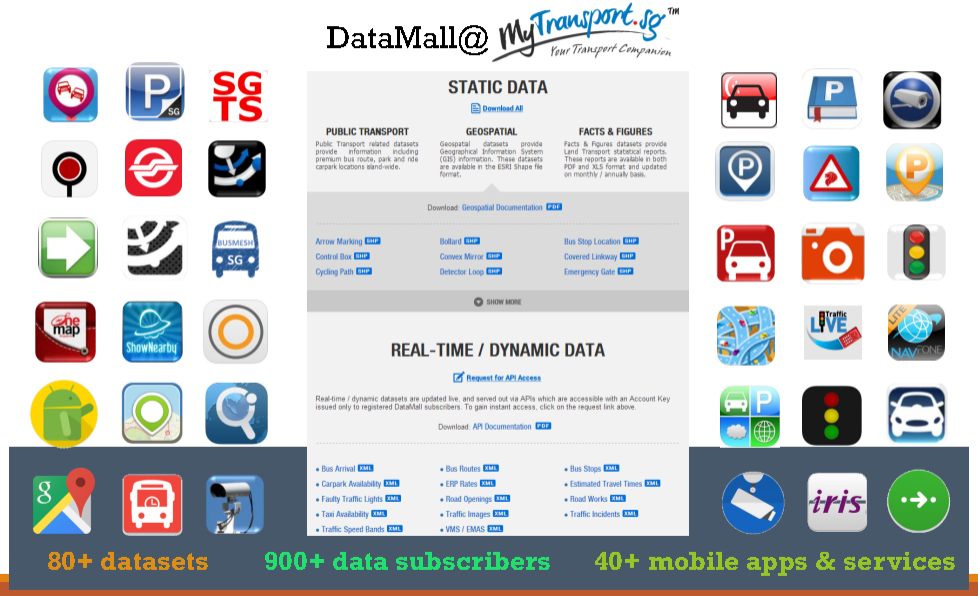

DUBAI

High-tech City-level Connectivity

- From multi-modal to “highly connected multi-modal”
- In principle, this is not difficult to do
  - Many cities (internationally!) do have a reasonably well functioning multi-modal system
  - If one considers cab or ride aggregators, then maybe some cities (Singapore, London?) are quite close to this
- But the “intelligent” (data and communication) is secondary to the existence of arterial and feeder systems

Example: Singapore Smart Mobility 2030

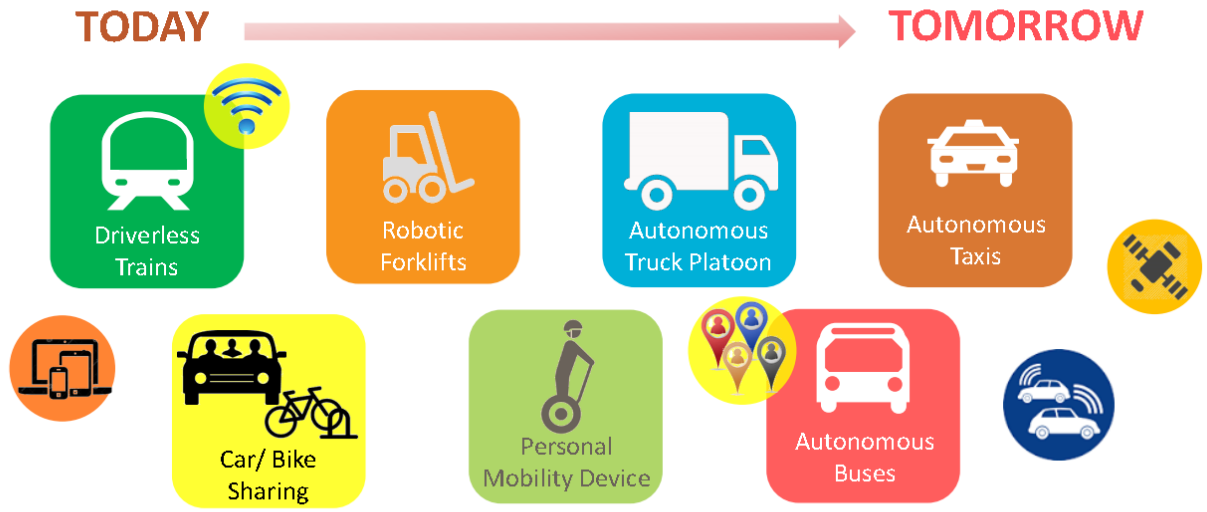
Open Innovation Platform



Referenced from Land Transport Authority of Singapore

https://www.nscs.gov.sg/public/download.ashx?id=1005

Future Mobility – What will it be?



Individual Data Connectivity

- This is a disaggregated system where either the city authorities or private sector make data available for individuals to access and plan trips
  - Maybe have some limited inter-modal tickets along main arteries
  - An example would be
    - Ride aggregators (Uber, Grab)
    - Traffic mappers: Google maps, Waze
    - Bus, train and flight tracking apps
    - Single point tickets for bus and train (Oyster)

Individual Data Connectivity… (2)

- However, while this is ‘smart’ in some way, for an individual to plan time and resources, the ‘additionality’ is quite limited
  - At this level, many cities may claim to be “smart” – not by design as by technology and disruptors
  - No real integrative or timing mechanism
    - Glorified “timetable” and communication system

Defining “intelligent mobility”

- Based on (ii) High-tech city-level connectivity
  - *Using data analytics, information, and communication technology to create and extract efficiencies and economy in transport systems*

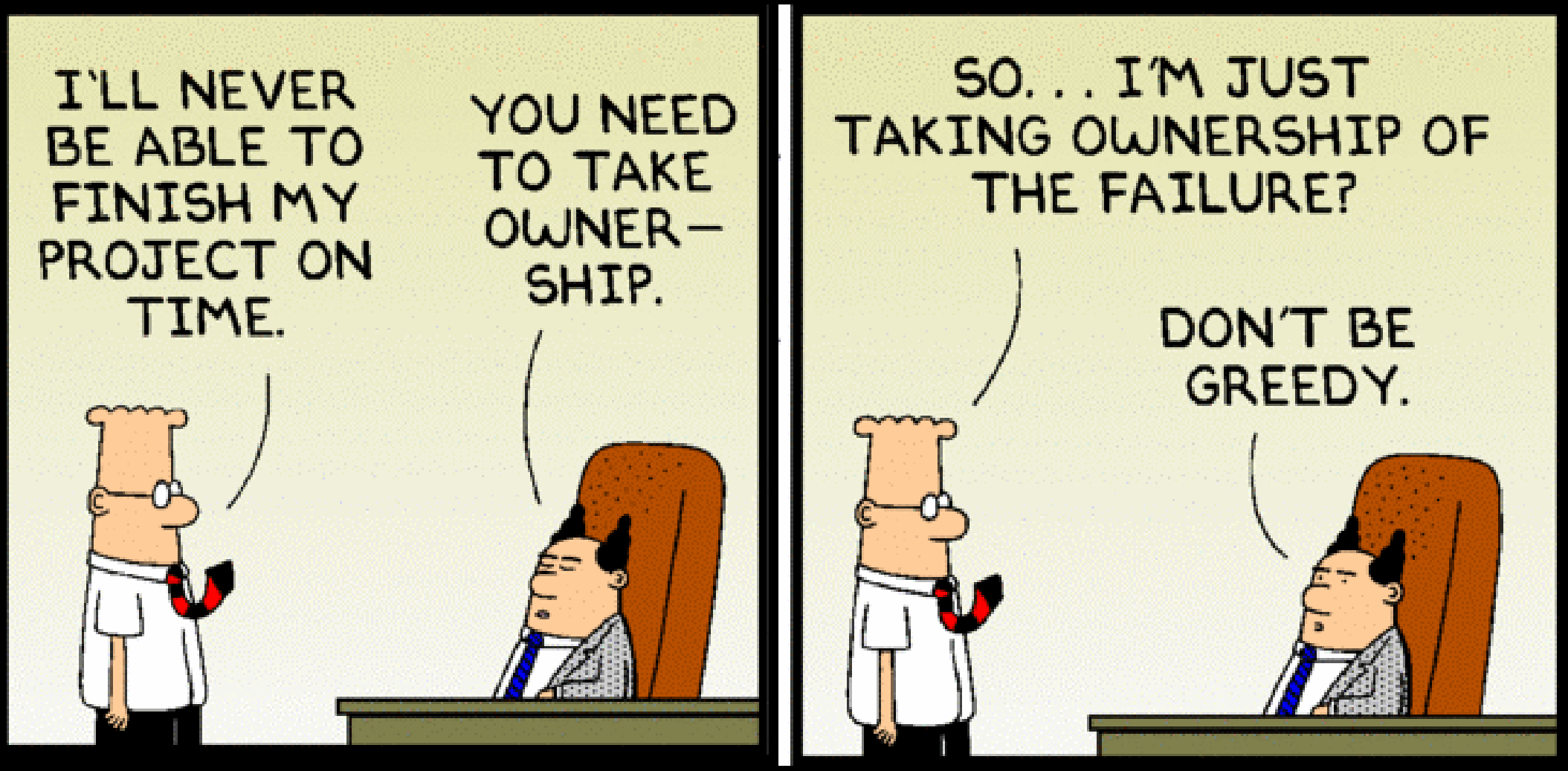
Requirements and some caveats

Easy to get carried away!

The foundation is “mobility” not just “intelligent”

- Basic arterial and feeder infrastructure is the key requirement
  - A “force multiplier” to zero is zilch
- So, the metro, suburban rail, urban roads, buses, and their respective stations and physical linkages are required
  - A tendency to lose sight of the physical (and therefore more difficult) aspect in a technology wave
  - Of course, data and simulation should be used for planning the physical infrastructure

Ownership

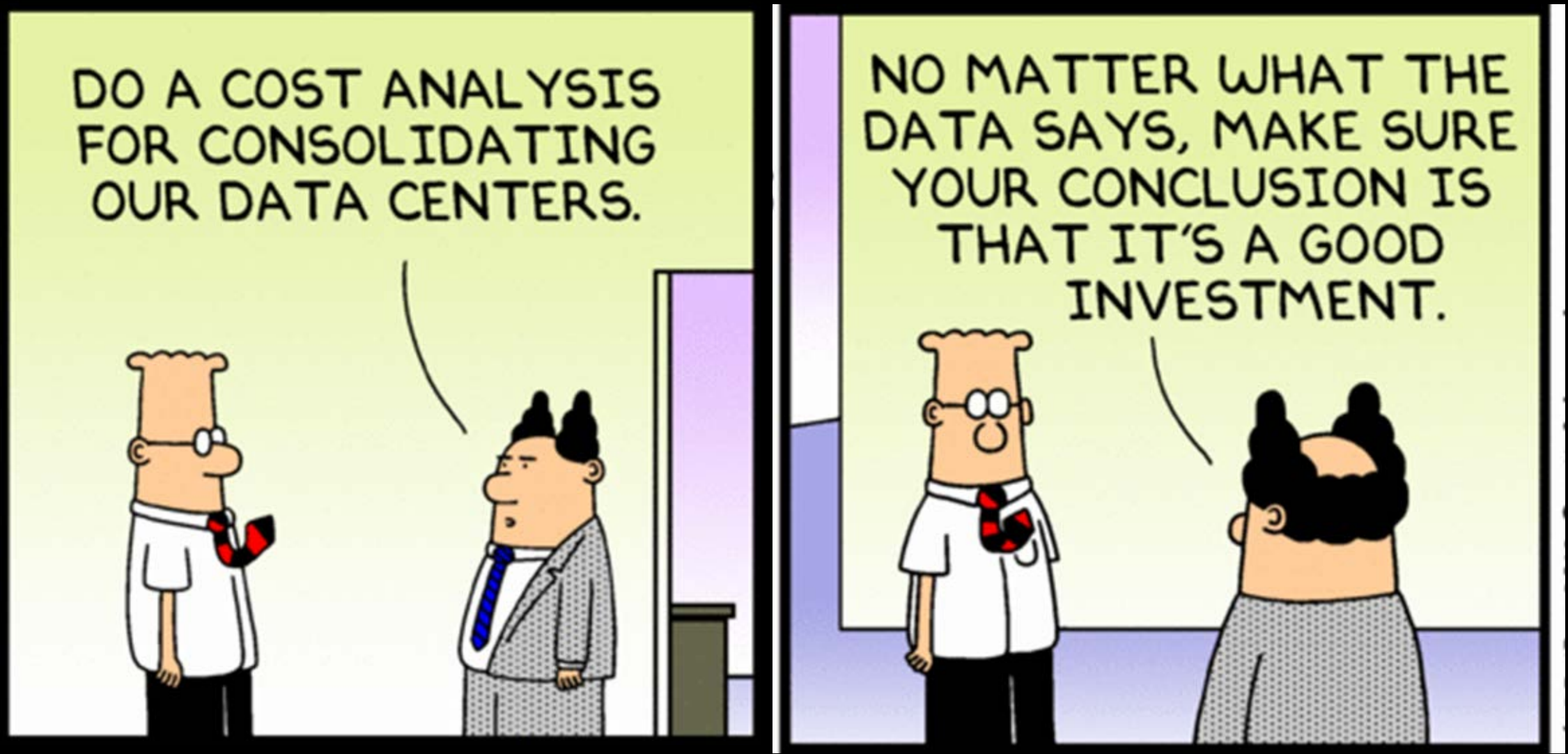

I'LL NEVER BE ABLE TO FINISH MY PROJECT ON TIME.
YOU NEED TO TAKE OWNER-SHIP.
SO... I'M JUST TAKING OWNERSHIP OF THE FAILURE?
DON'T BE GREEDY.

Who owns the city transport system?

- Is disaggregated ownership the key to efficiency?
  - Metro, suburban rail, buses owned by different agencies
    - Local feeders maybe privately run
  - How does this jigsaw fit for “intelligent mobility”
    - Is a unified “planning” authority the answer, or are finances and ‘teeth’ also required

Conclusion

Last words


DO A COST ANALYSIS FOR CONSOLIDATING OUR DATA CENTERS.
NO MATTER WHAT THE DATA SAYS, MAKE SURE YOUR CONCLUSION IS THAT IT'S A GOOD INVESTMENT.

No getting away from ‘transport’

- Physical infrastructure – the roads, rails, stations, interchanges – are absolutely essential
  - And of good ‘quality’ that can take advantage of technology
- This would require planning, finance, implementation, time and effort to set up

Retrofitting

- Most cities do not have the luxury of wholistic initial planning and need to retrofit systems into existing situations
- This is more difficult in many ways, and would also require some form of centralized authority with overriding planning and implementation powers

(my view) On pilots and new solutions

- Indian cities need huge scales and economic means of transport
  - Not sure if pilot or emerging new technology solutions will meet either scale or economy
- Also, advise caution on "*we will do this awesome technology for free – just give us the permissions and right of way*"
  - "right of way" and opportunity costs are significant
  - Also, the physical infrastructure created would be quite difficult to unwind…

Thank you!

ధన్యవాదములు...