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Changes and challenges at the Thai telecom market

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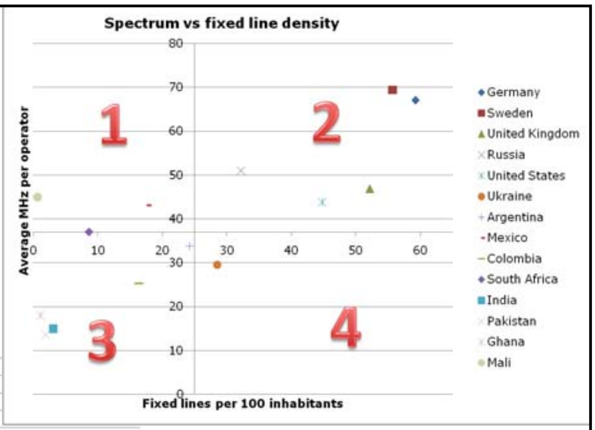
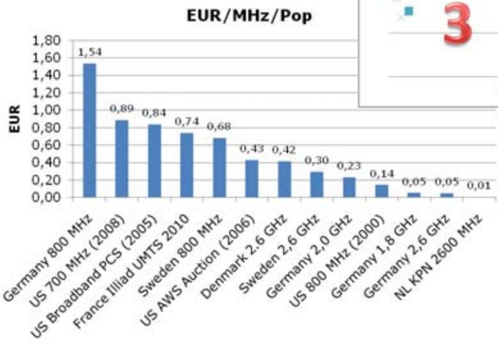
Telecom markets are different

- MHz per operator
- Fixed line penetration
- Spectrum auction prices

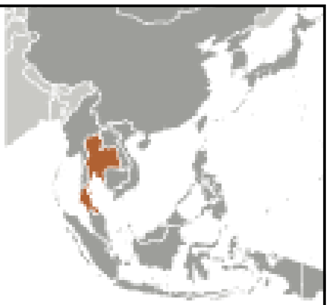


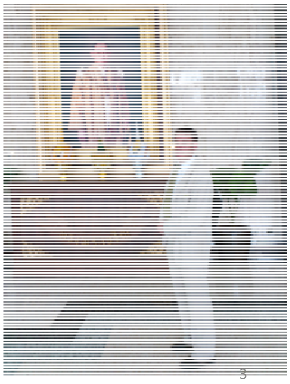


BUT, there are other types of differences

The structure of the Thai Telecom market is different

Thailand





- 67 million inhabitants
- Urban population 34%
- 513120 km2
- GDP per capita (PPP) USD 9400
- Constitutional monarchy
- Fixed telephone lines 6.8 million

- Regulator NBTC
- Two state owned operators
- Three major private operators

Changes and challenges at the Thai telecom market
Where mobile operators pay 25% of the revenues to competitors

- There are two types of operators,
  - two state owned enterprises (TOT and CAT) and
  - a number of private owned mobile operators.
- The private mobile operators operate under concessions and so called “BTO contracts”. Build, Transfer and Operate
- The regulator NBTC has initiated a transformation of the telecom market from a “concession” regime to a licensed spectrum approach
- This talk
  - Focus on the challenges that different operators will face when the market is moving from a concession regime to licensed operation.

Telecom industry 1990-2004
"BTO Contract"

AIS

- ✓ In the past, telecommunications services in Thailand were provided exclusively through two state enterprises, i.e. TOT and CAT. The TOT's primary responsibility was to provide domestic telephone service while the CAT focused on international services. The private sector could only operate within the industry if they worked in conjunction with one of the state enterprises through collaborated partnership in form of Build-Transfer-Operate (BTO) Contract.
- ✓ Mobile operators in Thailand including AIS, DTAC, True Move, DPC all operates under this type of contract, started during early 1990s with the terms of 25-27 years (ended during year 2013-2018)

Under BTO contract, mobile operator is entitled to

- ✓ ***Build*** and raise capital for investment in the cellular network
- ✓ ***Transfer*** the network ownership to agreement's grantor (TOT/CAT)
- ✓ ***Operate*** the network and service commercially
- ✓ ***Share revenue*** with the grantor of 20-30%

Issues

- The Thai market has a complex regulation
- Operators have been prepared to pay 30% of revenues to competitors, invest and then transfer network equipment
- Despite high regulatory cost the mobile market has thrived
- What has made this possible
- What lessons could be made for other markets and the mobile industry?

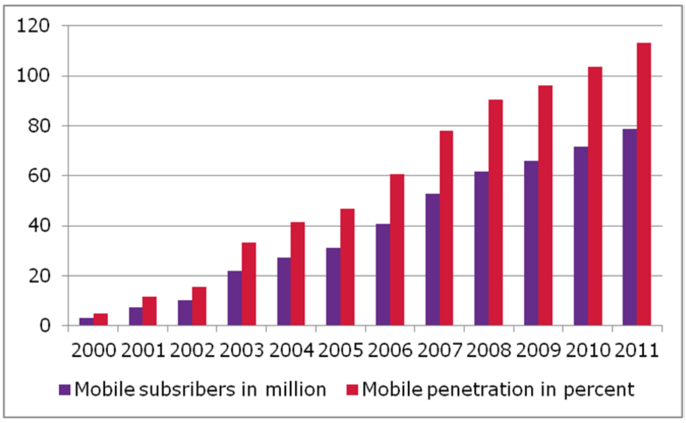
Agenda

Overview of the Thai telecom market and actors

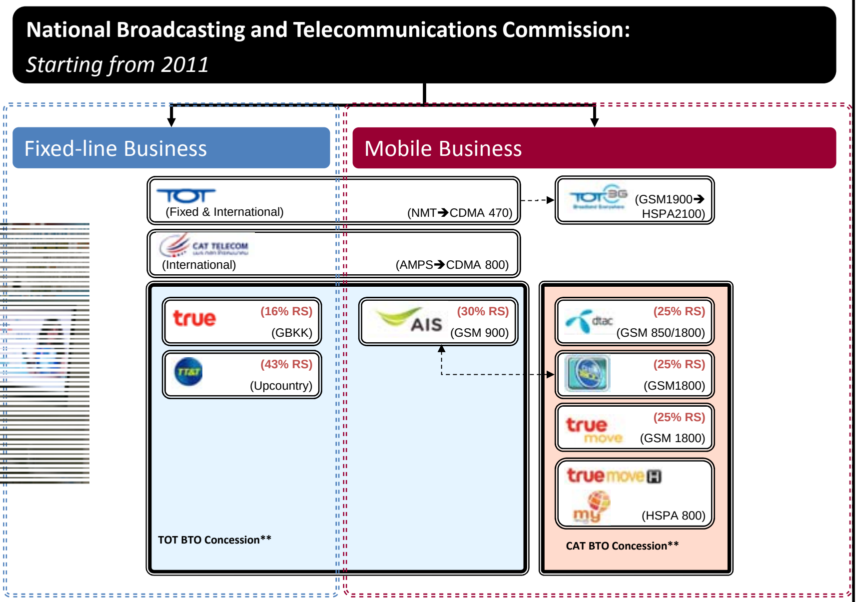
- Why concession?
  - Specifics for Thailand
  - How much money ?
- What if?
  - The Swedish telecom market had developed in a different way
- From concession to licensed operation
  - Challenges for private operators
  - Challenges state owned operators
- Summary

Mobile boom

- Mobile communication was launched in early 90s but it was a slow initial phase as the penetration was 5% in 2000, and then growth took off



Thailand Telecommunication market & actors

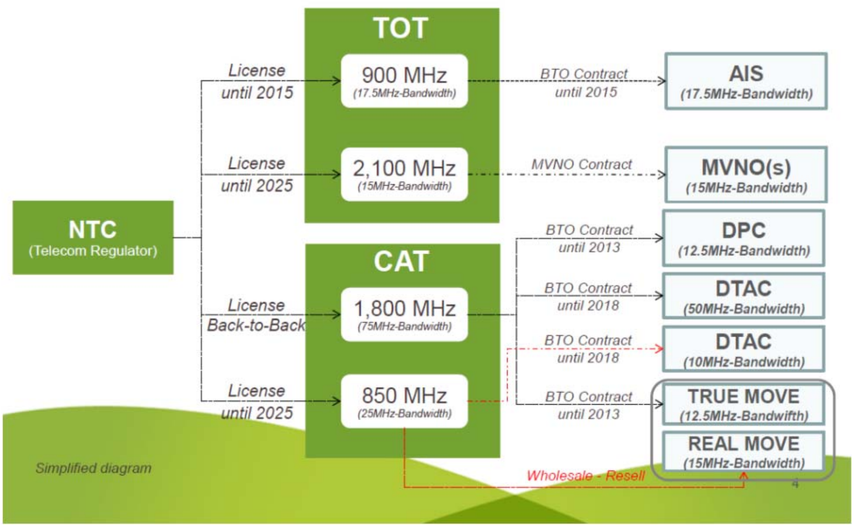


Market shares of mobile network providers

Five active operators, but three dominate the market:

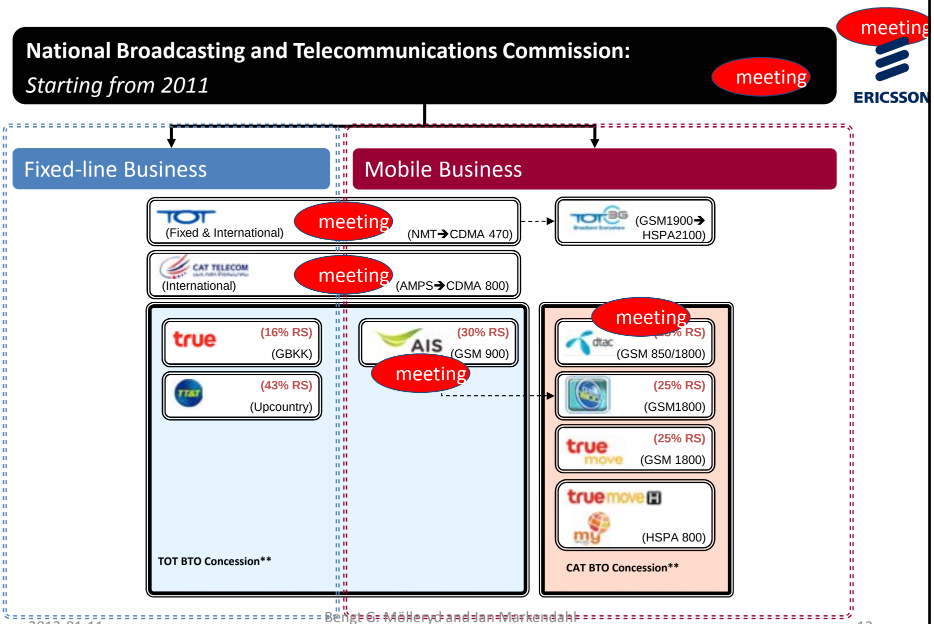
- AIS (43.5 % MS): (BTO concession with ~25% revenue sharing till 2015)
  - Operating at 900 and 1800 MHz bands with GSM/GPRS/EDGE/HSPA
- DTAC (30.2% MS): (BTO concession with ~25% revenue sharing till 2018)
  - Operating at 850 and 1800 MHz bands with GSM/GPRS/EDGE/HSPA
- True Move (23.7% MS): (BTO concession with ~25% revenue until 2013)
  - Operating at 1800 MHz band with GSM/GPRS/EDGE technologies.
- “MY by CAT” and “True Move H” (1.5% MS): (joint marketing and investment partnership between True with CAT-State-own enterprise)
  - Operating at 850 MHz band (migrating from CDMA to HSPA)
- TOT (1.1% MS): (State-own enterprise)
  - Operating at 1900/2100 MHz band with HSPA technology

Mobile spectrum allocation



Meetings with market actors

Thailand Telecommunication market & actors – meetings



Lobby in TOT office one of 11 Buidlings

DTAC office at 44 floor downtown Bangkok

Issues of interest at meetings

From our side

- Moving from concession to a license regime
- General view on the Thai mobile market
- View on the operator market position
- Spectrum allocation and management
  - Spectrum policy, IMT bands
  - More spectrum: 2.6 GHz,2.3 GHz, 700 MHz
- Mobile broadband
  - Services and offers
  - Network deployment; e.g. 3G/4G, Network sharing, hetnets , offloading

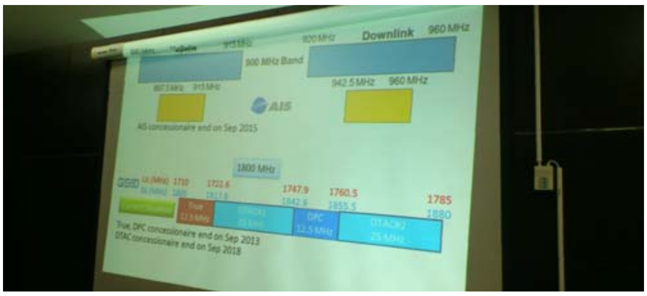
For Thai regulator and operators

- In general to know more about the situation in Sweden and Europe
- Mobile broadband
- Spectrum allocation & auctions
- Network sharing in Sweden
  - what can be shared
  - Impact on competition
- Our view on network and spectrum sharing options in Thailand

Meeting with the regulator NBTC

Discussion items

- Master plan for spectrum, in line with harmonization of IMT-bands
- Spectrum hoarding, e.g. 50% of allocated 1800 MHz band is not used
- 700 MHz internal discussion with broadcasting unit
- Spectrum auction, reserve price (Nera), spectrum cap
- Notifications about roaming and network infrastructure sharing



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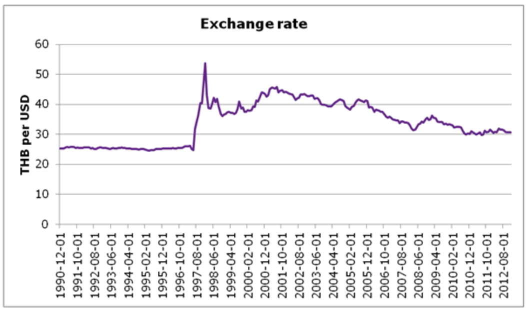
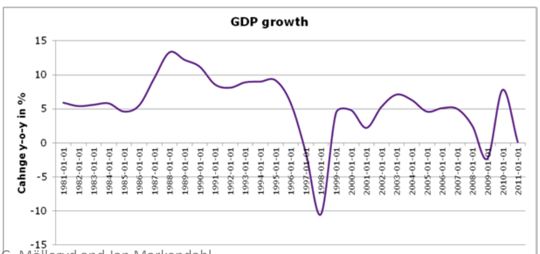
The Asian tiger lost its teeth

- The BTO agreements were made in a time when Thailand was a economic tiger with a GDP growth of ~8% driven by massive inflow of foreign investment capital
- But a growing debt burden during the 90´s trigged the Thai government to drop the fixed exchange rate to the USD which lead to a 60% depreciation of the Thai Baht





Why concession regime?

- In the mid 1960's the Thai government introduced a concession system for petroleum exploration
- The law required that telecom services should be provided by the state, and up to 1990 mobile services in Thailand were provided solely by the two government owned companies TOT and CAT
- Concession facilitated private investors without changing existing laws
- BOT (build-operate-transfer) has been the main vehicle, and it has been widely used for project financing in developing countries

Concession example from Sweden: Arlanda Express

- In 1994, the Swedish state granted a concession to a consortium to build and operate Arlanda Express
- A company A-Train AB was set up and in 1999 the construction was completed
- The right to operate the Arlandabanan is held by the Swedish state but it is leasing back the asset to A-Train AB which has a concession to operate Arlanda Express until the year 2040
- The Arlanda Express is financed through long term loans from the Swedish state as well as banks
- Since 2004, Macquaire European Fund is the solely owner of A-Train
- During 2011 A-Train made SEK 626m in revenues and a net profit of SEK 95m

TOT and CAT

TOT

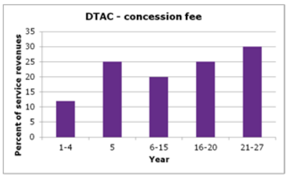
- During 2011 AIS paid approximately THB 33.9 bn (USD 1.1 bn) in concession fees to TOT which represents 60% of TOT's annual revenues.
- TOT has 18000 employees.

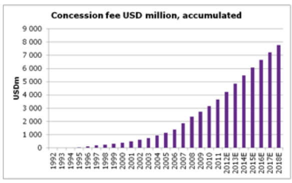
CAT

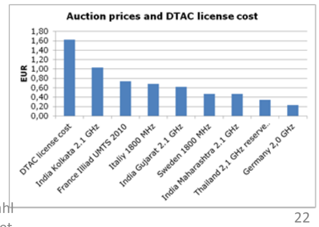
- DTAC paid THB 14.6bn (USD 480m) in concession fees in 2011 to CAT which represents 28% of CAT's annual revenues.
- On top of this AIS contributes with revenues from DPC, and True Move delivers revenues from a BTO contract
- CAT has approximately 6000 employees

Total Access Communication Company

- DTAC launched a analog AMPS 800 in 1991 and GSM 1800 in 1994
- Telenor acquired 40% of the company in the year 2000 for NOK 6.5 bn
- Concession fee has gone from 12% to 30%
- Based on data from annual reports 1992-2011, and expected revenues up to 2018 we estimate the accumulated license cost to THB 255.6 bn (USD 7,76 bn, EUR 6.4 bn)
- Based on access to 2 x 59 MHz it translates into a license cost of EUR 1.62 per MHz/pop, which is higher than auction prices paid in Europe and India





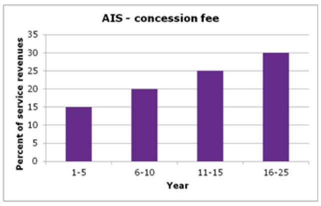


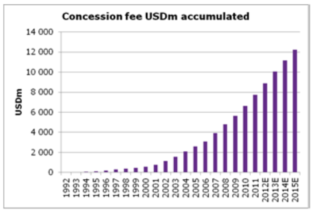
FX EURTHB	39,94
Concession fee accumulated EURm	6 400
Spectrum MHz	59,00
Population	67,00
License cost EUR/MHz/pop	1,62

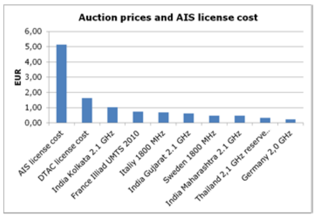
Advanced Info Services

- AIS entered a 25-year BTO contract with TOT to operate a 900 MHz GSM network in 1990
- Concession fee has gone from 15% to 30%
- Based on data from annual reports 1992-2011, and expected revenues up to 2015 we estimate the accumulated license cost to be THB 412,8 bn (USD 12.2 bn, EUR 10.3 bn)
- Based on access to 2 x 30 MHz it translates into a license cost of EUR 5.14 per MHz/pop, which is significantly higher than auction prices paid in Europe and India

FX EURTHB	39,94
Concession fee accumulated EURm	10 336
Spectrum MHz	30,00
Population	67,00
License cost EUR/MHz/pop	5,14







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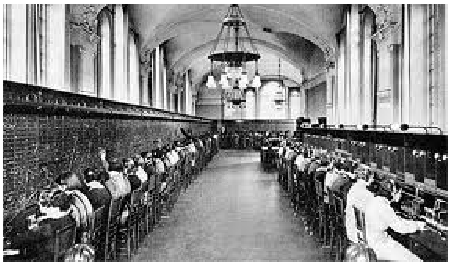
The Swedish Incumbant Telia previously Televerket and Telegrafverket



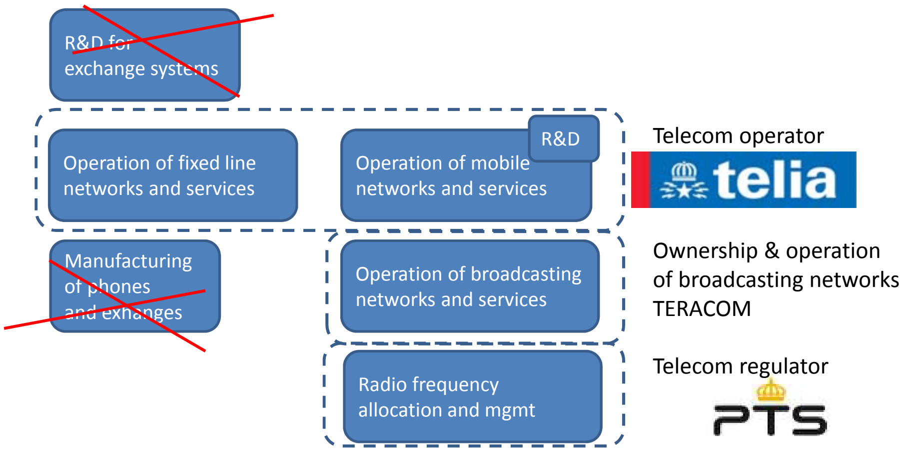
In the 80´s - Many different activities

- R&D for exchange systems
- Operation of fixed line networks and services
- Manufacturing of phones and exhanges

Related to wireless networks and services

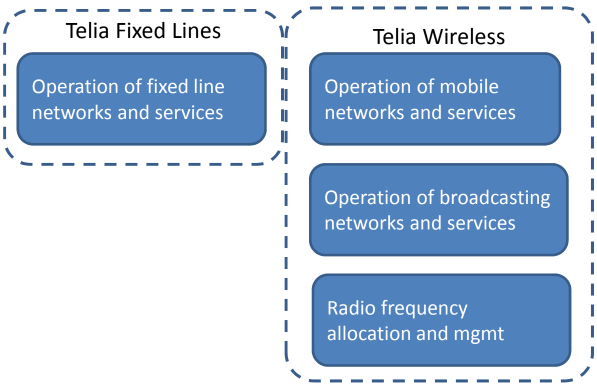
- R&D for radio communication
- Operation of mobile networks and services
- Operation of broadcasting networks and services
- Radio frequency allocation and mgmt

What happened?



What IF?

- Telia had been both operator and regulator??



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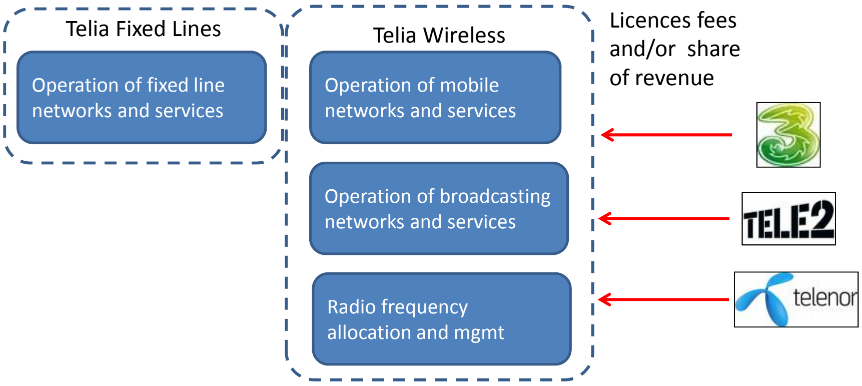

What IF?

- Telia had been both operator and regulator??
- Would we have seen
  - a big Telia main office in Farsta with 25 000 employees?
  - And many local Telia companies (teleområden)

- Note!
  - In the end of the 80´s ”Televerket” had around 45 000 employees in Sweden
  - Today Telia has less than 10 000 employees in Sweden
  - TeliaSonera globally has around 30 000 employees

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Challenges for private operators

- Separate business for concession and licensed operation
- Customers to be moved from concession to licensed operation
- How to handle spectrum during transition phase
- Example of issues
  - E.g. 3G users of DTAC will be moved from 850 MHz to 2.1 GHz band
  - 850 MHz coverage characteristics are good, but regulatory cost negative
  - Migration to 3G will evacuate 1800 MHz spectrum
- How to use network sharing
- How to cooperate with TOT/CAT and use existing infrastructure

Challenges for state owned operators

Currently

- Low market shares for mobile
- 3G operation difficult/expensive, TOT unable to establish a mobile network
- Can TDD and FDD be mixed at 2.3 GHz
- TOT/CAT get revenues from private operators but do not contribute in the value chain

Foreseen

- How to handle spectrum during a transition phase
- Migration to a license regime
- Options for future business: IF spectrum is acquired
  - Offer services to consumers, i.e. to get customers, increase market share
  - Focus on wholesale business, sell capacity to MVNOs
- Options for future business: IF spectrum is NOT acquired
  - Offer services using existing infrastructure
  - Be a tower company
  - Sell all infrastructure
- What to do with all employees
  - Unions are strong

Summary and main observations

- Spectrum and regulatory issues
  - Underutilization of spectrum
  - How to handle spectrum during a transition phase
  - Socioeconomic value of mobile broadband (700 MHz)
- Business logic behind CAT+TOT unclear
  - Incentives and design of the concession regime
- State owned operators have problems
  - Low market shares
  - TOT unable to establish a mobile network
- Challenges when migrating to a license regime
  - Parallel businesses for private operators?
  - To move customers from concessions to licensed “networks”
  - The future role for state owned operators

Thanks for your attention

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