3G case studies

overview

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Issues

- Licensing strategies
  - Auction, beauty contest, mixed
- Licensing conditions
  - Competition, ownership, coverage, sharing, standards, timing, etc.
- Spectrum allocation
- Transition to 3G
- Market prospects
Licensing strategies

- Auction
  - Venezuela, Chile?
- Beauty contest
  - Japan, Sweden, China?
- Mixed
  - Hong Kong SAR
Auction and mixed

- **Hong Kong**
  - Pre-qualification process
  - Royalty-based mechanism: licensee pays a percentage of 3G revenues over time
  - First 5 years they pay a fixed minimum

- **Venezuela**
  - Demanded by legislation
  - Auction revenues for Internet development

- **Chile**
  - Undecided. Requires changes in law
Auction implications

- Governments: revenues
- Incumbents: no choice
- New entrants: an opportunity
- Other operators: high risk
- Users: might bring higher prices
- Society: efficient allocation of resources
Beauty contest

● Sweden
  ➜ Telecom Bill – auction not to be used when licensing spectrum
  ➜ Licensing to be based on “grounds of fact”
  ➜ Pre-qualification and beauty contest
  ➜ Pace of roll out and geographic coverage
  ➜ A leader in hardware and service development

● China
  ➜ Operators to pay for spectrum [benchmarked]
Beauty contest implications

- Subjective, unreliable, non-measurable, inefficient allocation of resources
  - Sweden [paper]
- Transparent, measurable, fast, cheap, quick net and service roll out, no damage on operator’s investment capabilities, auction or lottery considered non-objective criteria
  - Sweden [case study]
Licensing conditions / requirements

- **Competition**
  - A license for a new entrant (?)
- **Ownership**
  - No cross ownership
- **MVNOs**
  - Enforced or market driven
- **Market / geographic coverage**
- **Cost sharing**
- **Standards**
- **Timing**
Expanding competition

- 3G licensing seen as an opportunity to expand effective competition
- Likelihood according to market structure and current conditions
  - Venezuela = likely
  - Chile = unlikely
  - Japan = through open network access (?)
  - Sweden = likely
  - HK = through open network access (?)
Reserving for new entrants

- **Sweden**
  - No reservation, yet entry of 2 new operators

- **Japan**
  - No reservation, no new entrants. Three local incumbents. No foreign carriers [vodafone]

- **Venezuela**
  - Four licenses, one reserved for a new entrant

- **Chile**
  - Four licenses, reservation not decided
Controlling ownership

● **Sweden**
  ➞ Control of more than 20% of shares in any of the other applying operators/consortiums

● **No such requirement on**
  ➞ Japan
  ➞ Hong Kong
  ➞ Venezuela and Chile
Enforcing VMNOs?

- **Hong Kong**
  - Up to 30% of network capacity should be opened for VMNOs
  - Operators asked for 20% to avoid competitor’s access to more than 100% capacity due to aggregation
  - Wholesale prices for VMNOs by commercial negotiations, but subject to NRA intervention

- **Sweden**: allowed – 30 in Feb 2001

- **Chile and Venezuela**
  - Left to commercial negotiations
Licensees

- Japan (3)
- Sweden (4)
- Hong Kong (4)
- Venezuela (4)
- Chile (4)
- China (?)
- Ghana (?)
Coverage

- **Japan**
  - 50% of population in the first five years
    - [DoCoMo to cover 97% of pop. by March 2004]

- **Sweden**
  - 30% of population by each carrier – remaining
    70% can be covered through roaming agreements with other operators

- **Hong Kong**
  - Set by regulator, linked to performance bonds backed by bank guarantee
Cost sharing

- **Sweden**
  - Yes to increase pace and reduce cost of rollout
  - Carriers will have to reach agreements [infrastructure roaming]
  - Alliances in the months following the licensing

- **Collusion: threat to effective competition**
  - An issue for the telecom regulator?
Standards

- **China**: an industrial 3G strategy and its global integration dilemma
  - Huawei – 97 patents – CDMA
  - ZTE (cdma2000) and Datang (TD-SCDMA) – gov support

- **Hong Kong**: any standard if compatible among each other and with backward compatibility existing 2G systems

- **Europe**: ETSI’s 3G handset standards recommendations

- **Japan**: WCDMA and cdma2000

- **Chile, Venezuela and Ghana (?)**: a commercial decision of the operators – but affected by spectrum allocated to 3G
Market share evolution of Chinese domestic vendors

Source: Ministry of Information Industry, China
Timing of licensing

- Japan (done)
- Sweden (done)
- Hong Kong (Q4 01)
- Venezuela (Q1 02)
- Chile (Q2 02)
- China (???)
- Ghana (?)
Spectrum allocation

- Chile
  - Core IMT 2000 bands occupied by PCS
  - Then 1710-1850Mhz up & 2110-2170Mhz
  - Waiting for regional trends and USA

- Venezuela
  - Core IMT2000 bands vacant
  - No constraints on timing due to spectrum allocation

- For small markets spectrum allocation is related to economies of scale
  - potential bidders
  - availability and cost of hardware
  - services, applications, and content
Transition to 3G

- China
  - WAP 2% of mobile subscribers – per minute charge
  - Monternet great success – move to packet switching – January 2001 GPRS
  - SMS: 56 m/M in Q1 00 to 192 m/M in Q4 00

- Venezuela and Chile
  - Gov. & operators
  - Demand for mobile [voice vs. data] – different in each country

- Japan
  - I-mode then 3G
Business case for 3G

- High income economies
  - Japan, Sweden, HK: a natural transition demand driven

- Profitability
  - Took 10 years for GSM in Sweden to become profitable

- Developing countries
  - Ghana, Chile, Venezuela, China: not so clear [individual users of broadband mobile services]. Supply playing an important role
Charging for services

- **Charging schemes**
  - Per minute, per packet, per service, flat rate, per access time

- **Emerging approaches**
  - Japan: per packet
  - Sweden: range of pricing arrangements

- **WAP**
  - Poor performance because it is charged by time and it is expensive

- **Always on – packet switched**
  - Lower rates, but charges by packet not transparent, difficult to monitor by user
Cost of terminals

- **Cost of terminals**
  - **Sweden:** US$ 400 sales price
  - **Availability? The vicious cycle.**
  - **Equipment supplier financing**

- **Subsidizing terminals**
  - **Some operators in Sweden have decided that they will not subsidize 3G terminals**
  - **The Chilean experience**
Summary

- Chile
  - Spectrum dilemma
- China
  - Standards – industrial policy
- Ghana
  - Market size and purchasing power
- Japan
  - Services and prices
- Sweden
  - Market structure and service strategies
- Venezuela
  - Timing and design of license
THANK YOU!