ELECTRONIC PURSES
AND
INTEROPERABILITY

Leo Van Hove
<http://cfec.vub.ac.be/cfec/leo.htm>

“Establishing a Single Payment Area:
State of Play and Next Steps”
9 November 2000
The move toward interoperability

• June 1998 creation of CEPS
• ... 
• May 2000 Korea Electronic Money Forum
• June 2000 CLIP trial during Euro 2000
• June 2000 ERG and Telstra form ECard
• July 2000 PACE project launched
The move toward interoperability

- June 1998 creation of CEPS
- ...  
- July 2000 CB and Proton World join CEPSCO
- August 2000 Modeus adopts Geldkarte technology
- September 2000 CEPS pilot announced to start on 15 January 2001
  Proton + Chipknip + Visa Cash + 4B
“State of Play & Next Steps”

• “State of Play”: why CEPS?
  • From local to global market
  • Need for interoperability in real world
  • Need for interoperability in virtual world

• “Next Steps”: what about Mondex?
  
  Michael Keegan, Mondex CEO:
  “the market is sufficiently large to accommodate both CEPS and Mondex products”
The EP market used to be local, ...

• Banksys (in 1995):
  “surveys show that 99% of EP transactions will occur within 50 miles of the cardholder’s house”

• Wim Philippe of KBC (in 1997)
  “Proton is a *domestic* payment system. We didn’t consider international operability to be a real priority. More than 90% of the demand has to do with domestic transactions”

>> proliferation of incompatible EP schemes <<
..., but now it is global

- Increasing emphasis on Internet

- Mondex repositioned itself

  Keegan (in 1999):
  
  "more opportunity for stored value now on the Internet"

>> ? business environment = ? requirements <<
Main thesis

• Lack of *cross-border* compatibility is no major barrier to the development of EPs as real-world payment systems, …

• …, but it does severely hinder their adoption as Internet payment systems - even on a national scale.
Network externalities: definition

• “the utility that a user derives from consumption of the good increases with the number of other agents consuming the same good”

• Payment cards: indirect network effects
  • No P2P (except Mondex)
  • But: # cards => # merchants => # cards => ...
Network externalities: models

- Rational consumers
- Utility of network good vs. price
  \[ a + b(n^e) \mid p ? \]
- (Expected) installed base crucial
  - Critical mass needed
  - Self-reinforcing once > threshold
The compatibility decision

• Incompatibility may prove to be detrimental
  – Cuts up market (in smaller networks)
  – Creates uncertainty
  – Example: Chipknip vs. Chipper in NL

• Two opposing effects on profitability:
  ⊕ network effect: $b(n) \uparrow$
  ⊗ substitution effect: lower differentiation
The compatibility decision (2)

• In duopolistic framework:
  • Symmetric both will benefit
  • Asymmetric strongest will oppose

• More than two firms
  • Coalitions can be formed
  • Outcome will be partial compatibility
The standardization of EPs

• **Network effect**
  – Depends on strength of externalities
  – Real world national **strong**
  – Real world international **weak**
    • Advent of euro does not justify CEPS
  – Virtual world international **strong**
    • Cuts up Internet into national markets
The standardization of EPs

- Substitution effect
  - Depends on relative strength of players
  - Internet market was symmetric
  - No player confident he could win
  - CEPS = anti-Mondex coalition?
What about Mondex?

• Is there room for more than one EP?
  – Real world national NO
  – Real world international YES
  – Virtual + real international ?

• ‘Tipping’ as in VHS - Betamax battle?

• < > Mondex is not fully incompatible
  – SmartAxis = adapter
  – Importance of installed base
Conclusions

• Little need for CEPS in real world

• Real reason is not euro, but the Internet

• CEPS will dominate

• Survival of Mondex ~ installed base