Fixed broadband deployment in the Netherlands:

Success and failure in policy and technology or the paradox of successful competition

Nico van Eijk

Henk Dooresnspleet

Rabobank

Phase 1: pre liberalisation

Telecom infrastructure development:

Like most advanced markets:

- Telephone service dominated > copper local loops
- As of the 1950s all new houses connected to the telephone network
- State owned Incumbent (PTT) monopoly
- Today: approx. 98% of estates connected to the traditional copper access network

Unlike most advanced markets.....

Late phase 1: the Dutch cable

Phase 2 (97–06) European liberalisation

- All restrictions lifted mid 1997
- No licenses, registration only
- Operators were granted rights of way for public networks
- KPN assigned SMP status in several areas: i.e. remedies by regulation

It worked but it took time

Phase 3 (2007-): Broadband & 3-Play

The Everything over Broadband era (EoB)

- 3 play services over DSL
- Roll out of Docsis 3
- DSL competition faded
- Investor led FttH(*) roll out ramped up
- Cable remained unregulated and consolidation moved on

Wrap up NL

- Well connected country; apart from broadband deserts 7-9% of estates
- 'Cat fight' between access technologies owned by incumbent teleco and cablecos: Docsis vs. VDSL/FttH
- FttH proves not to be a silver bullet in the Dutch market

Remarkable but not surprising effect

Fixed line developments in NL

25th European Regional Conference of the ITS

Brussels, 24 June 2014

Fixed broadband deployment in the Netherlands:

Success and failure in policy and technology or the paradox of successful competition

IViR

Nico van Eijk

Henk Dooresnspleet

Rabobank

Phase 1: pre liberalisation

Telecom infrastructure development:

Like most advanced markets:

- Telephone service dominated > copper local loops
- As of the 1950s all new houses connected to the telephone network
- State owned Incumbent (PTT) monopoly
- Today: approx. 98% of estates connected to the traditional copper access network

Unlike most advanced markets.....

Late phase 1: the Dutch cable

Phase 2 (97–06) European liberalisation

- All restrictions lifted mid 1997
- No licenses, registration only
- Operators were granted rights of way for public networks
- KPN assigned SMP status in several areas: i.e. remedies by regulation

It worked but it took time

Phase 3 (2007-): Broadband & 3-Play

The Everything over Broadband era (EoB)

- 3 play services over DSL
- Roll out of Docsis 3
- DSL competition faded
- Investor led FttH(*) roll out ramped up
- Cable remained unregulated and consolidation moved on

Wrap up NL

- Well connected country; apart from broadband deserts 7-9% of estates
- 'Cat fight' between access technologies owned by incumbent teleco and cablecos: Docsis vs. VDSL/FttH
- FttH proves not to be a silver bullet in the Dutch market

Remarkable but not surprising effect

Fixed line developments in NL

25th European Regional Conference of the ITS

Brussels, 24 June 2014

Fixed broadband deployment in the Netherlands:

Success and failure in policy and technology or the paradox of successful competition

IViR

Nico van Eijk

Henk Dooresnspleet

Rabobank

Phase 1: pre liberalisation

Telecom infrastructure development:

Like most advanced markets:

- Telephone service dominated > copper local loops
- As of the 1950s all new houses connected to the telephone network
- State owned Incumbent (PTT) monopoly
- Today: approx. 98% of estates connected to the traditional copper access network

Unlike most advanced markets.....

Late phase 1: the Dutch cable

- Since the late 1960s massive roll out CATV networks
- Licensor: government
- Licensee: municipalities
- In Europe: BE, NL and CH the most densely cabled countries
- Approx. 93% of Dutch households are connected to cable
- Networks kept technological up to date
- Today cable is responsible for NL conformance to Europe 2020 broadband aims

S.....

Late phase 1: the Dutch cable

- Since the late 1960s massive roll out CATV networks
  - Licensor: government
    - Licensee: municipalities
      - In Europe: BE, NL and CH the most densely cabled countries
        - Approx. 93% of Dutch households are connected to cable
          - Networks kept technological up to date
            - Today cable is responsible for NL conformance to Europe 2020 broadband aims

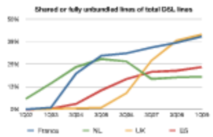
Phase 2 (97~06)
European liberalisation

- All restrictions lifted mid 1997
- No licenses, registration only
- Operators were granted rights of way for public networks
- KPN assigned SMP status in several areas: i.e. remedies by regulation

It worked
but it took time

legislation + **technology** + **services** + **market appreciation**
led to a more or less liberalised environment

- Telephony competition
- Leased line competition (business-retail market)
- Early broadband years
  - Cable domination in this nascent market
  - Thanks to ULL regulation feverish competition kicked off: domination turned to DSL early 00s

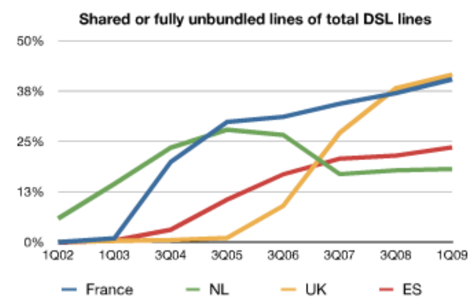


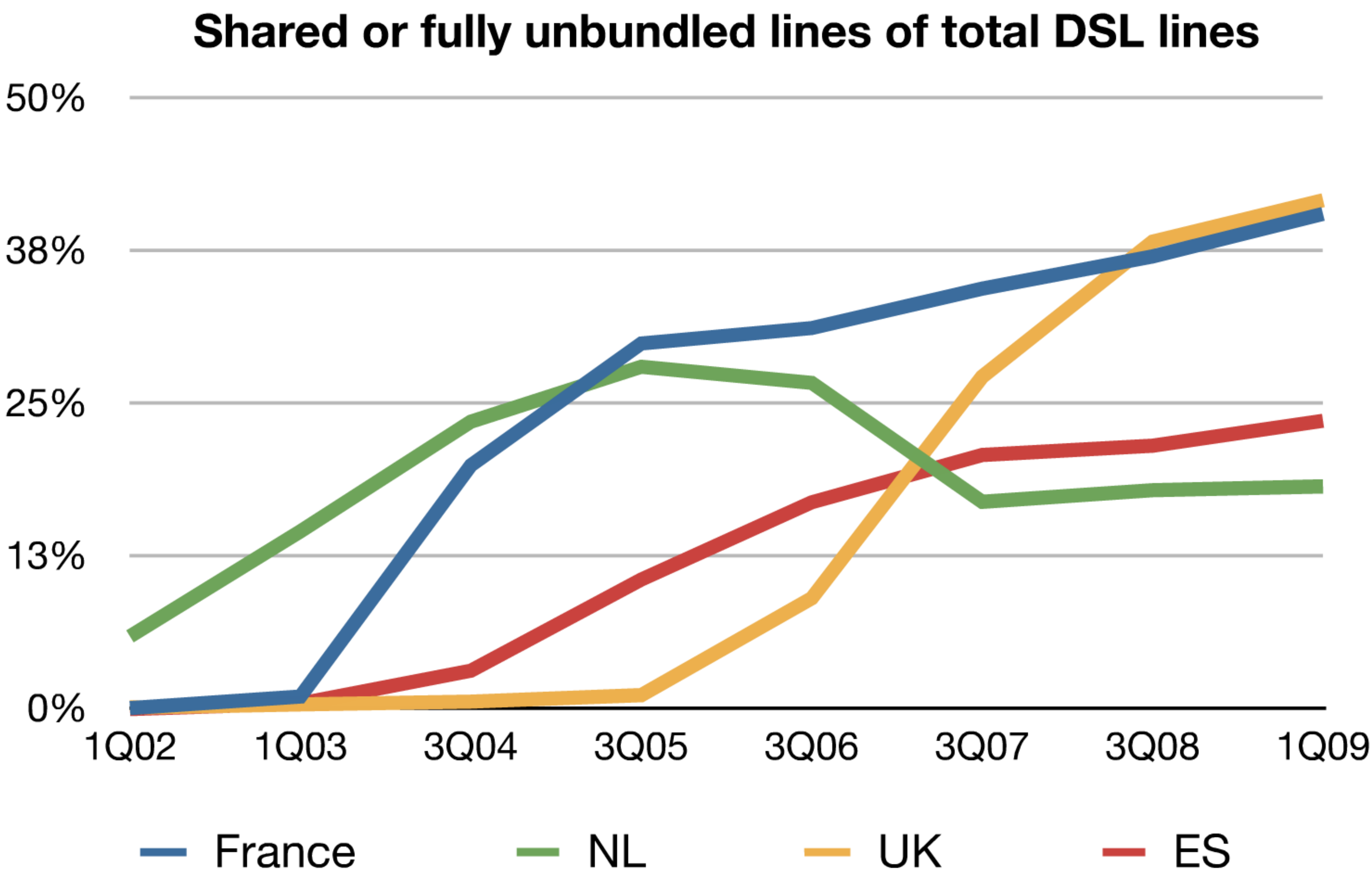
It worked
but it took time

legislation + technology + services + market appreciation

led to a more or less liberalised environment

- Telephony competition
- Leased line competition (business-retail market)
- Early broadband years
  - Cable domination in this nascent market
  - Thanks to ULL regulation feverish competition kicked off: domination turned to DSL early 00s

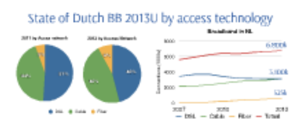



Shared or fully unbundled lines of total DSL lines
50%
38%
25%
13%
0%
1Q02
1Q03
3Q04
3Q05
3Q06
3Q07
3Q08
1Q09
France
NL
UK
ES

Phase 3 (2007-): Broadband & 3-Play

The Everything over Broadband era (EoB)

- 3 play services over DSL
- Roll out of Docsis 3
- DSL competition faded
- Investor led FttH(*) roll out ramped up
- Cable remained unregulated and consolidation moved on



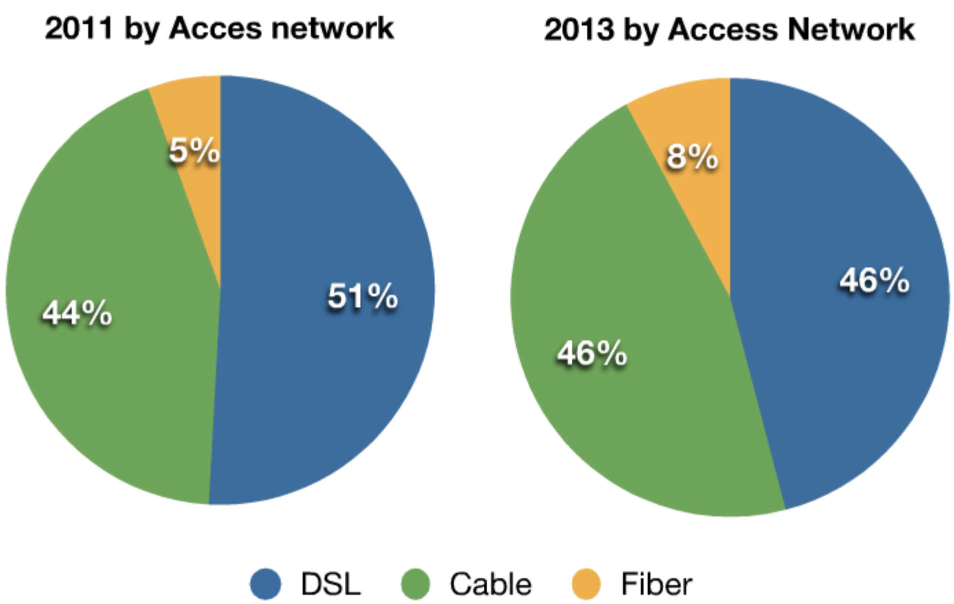
Broadband deficiencies as well.....

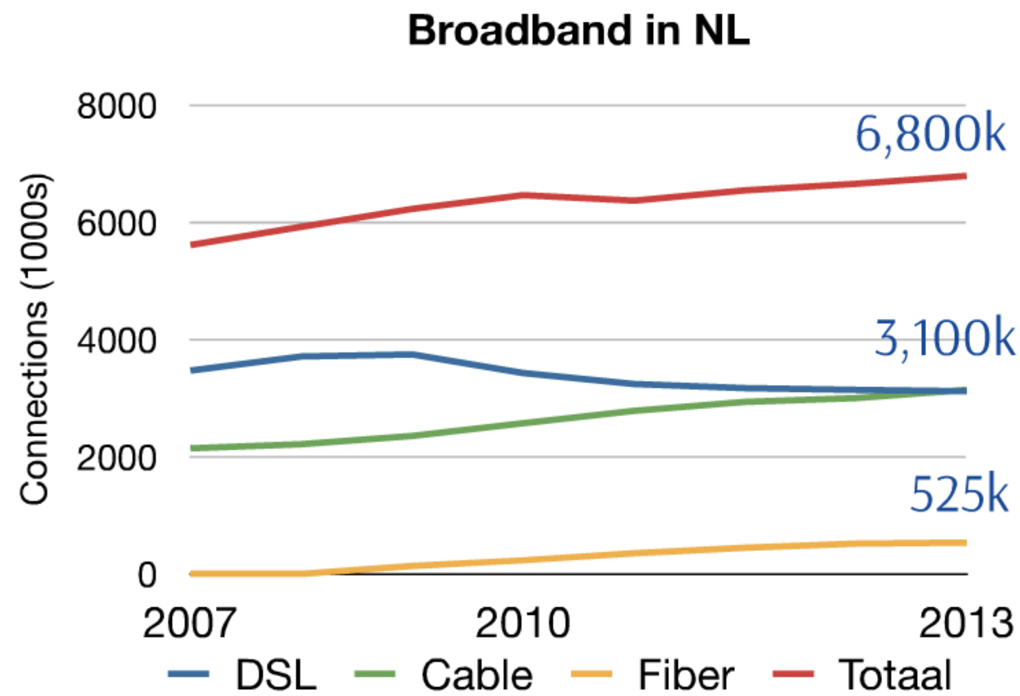
Some areas remained in the broadband dessert

- Rural estates: business and residential
- ~500k rural
- ~1500 business parks

No hi-way railway or other corridor

State of Dutch BB 2013U by access technology

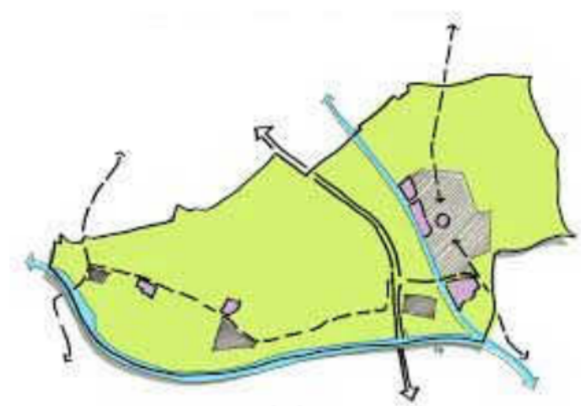




Broadband deficiencies as well.....

Some areas remained in the broadband dessert

- Rural estates: business and residential
- ~500k rural
- ~1500 business parks



No hi-way railway or other corridor

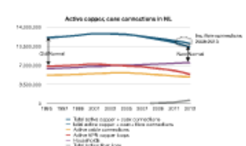
Wrap up NL

- Well connected country; apart from broadband deserts 7-9% of estates
- 'Cat fight' between access technologies owned by incumbent teleco and cablecos: Docsis vs. VDSL/FttH
- FttH proves not to be a silver bullet in the Dutch market

- 7,5 mn households
- 8.3 mn premises
- ~17.2 mn local loops
- Coverage of premises:
  - 98% xDSL
  - 90% Docsis 3
  - 25% FttH/O
- 90% of HH subscribed to a BB-service
- EU 2020 target: ***check***

Remarkable but not surprising effect

Consumers and businesses decommission one connection
+
Increasing access network stock
=
i.e. increasing vacancies



ies

n

- 7,5 mn households
- 8.3 mn premises
- ~17.2 mn local loops
- Coverage of premises:
  - 98% xDSL
  - 90% Docsis 3
  - 25% FttH/O
- 90% of HH subscribed to a BB-service
- EU 2020 target: ***check***

Remarkable but not surprising effect

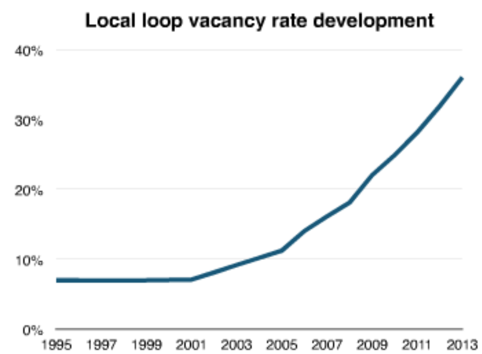
Consumers and businesses decommission one connection

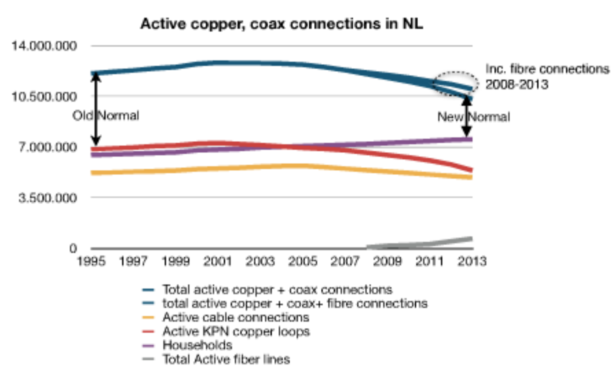
+

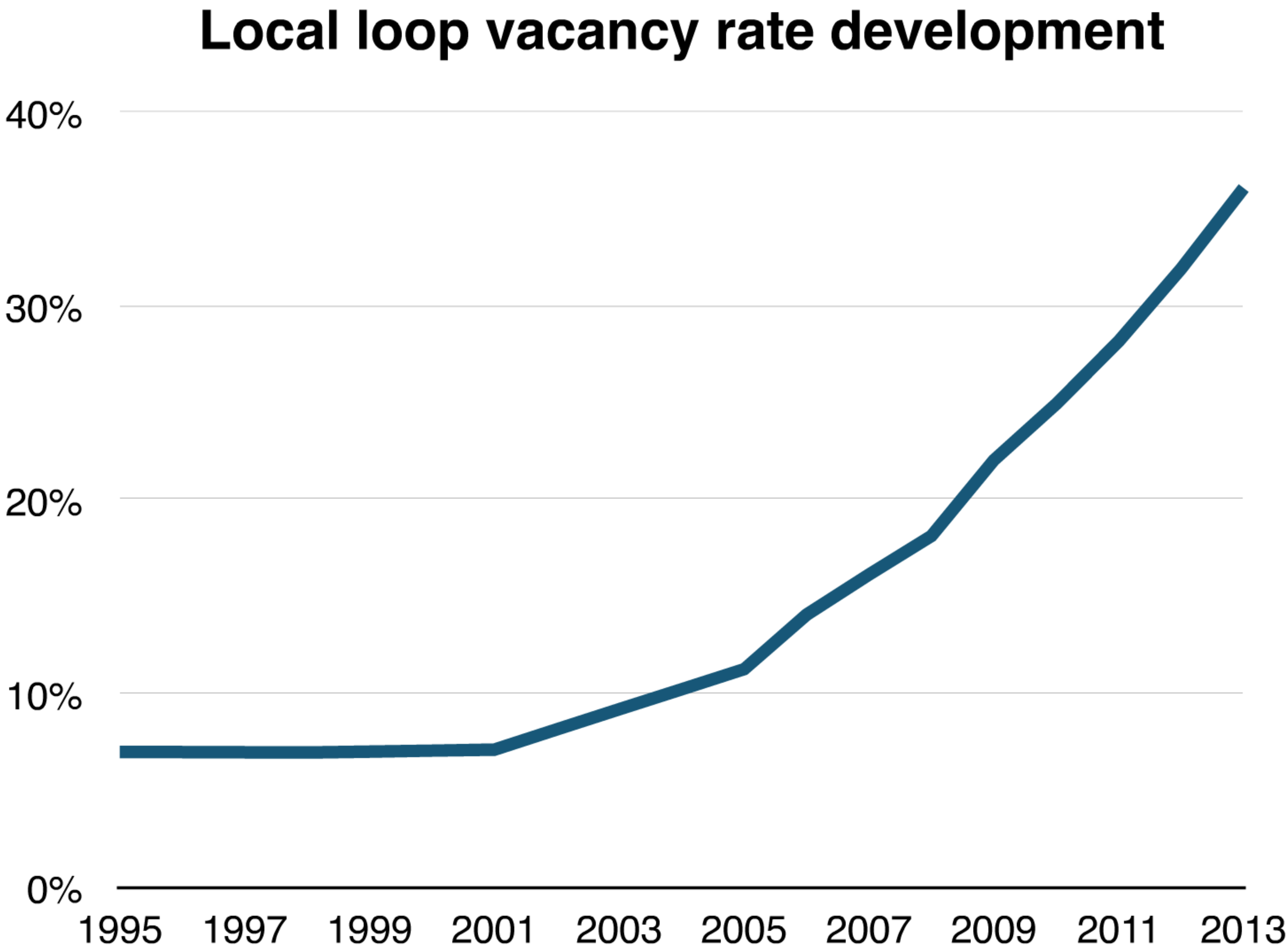
Increasing access network stock

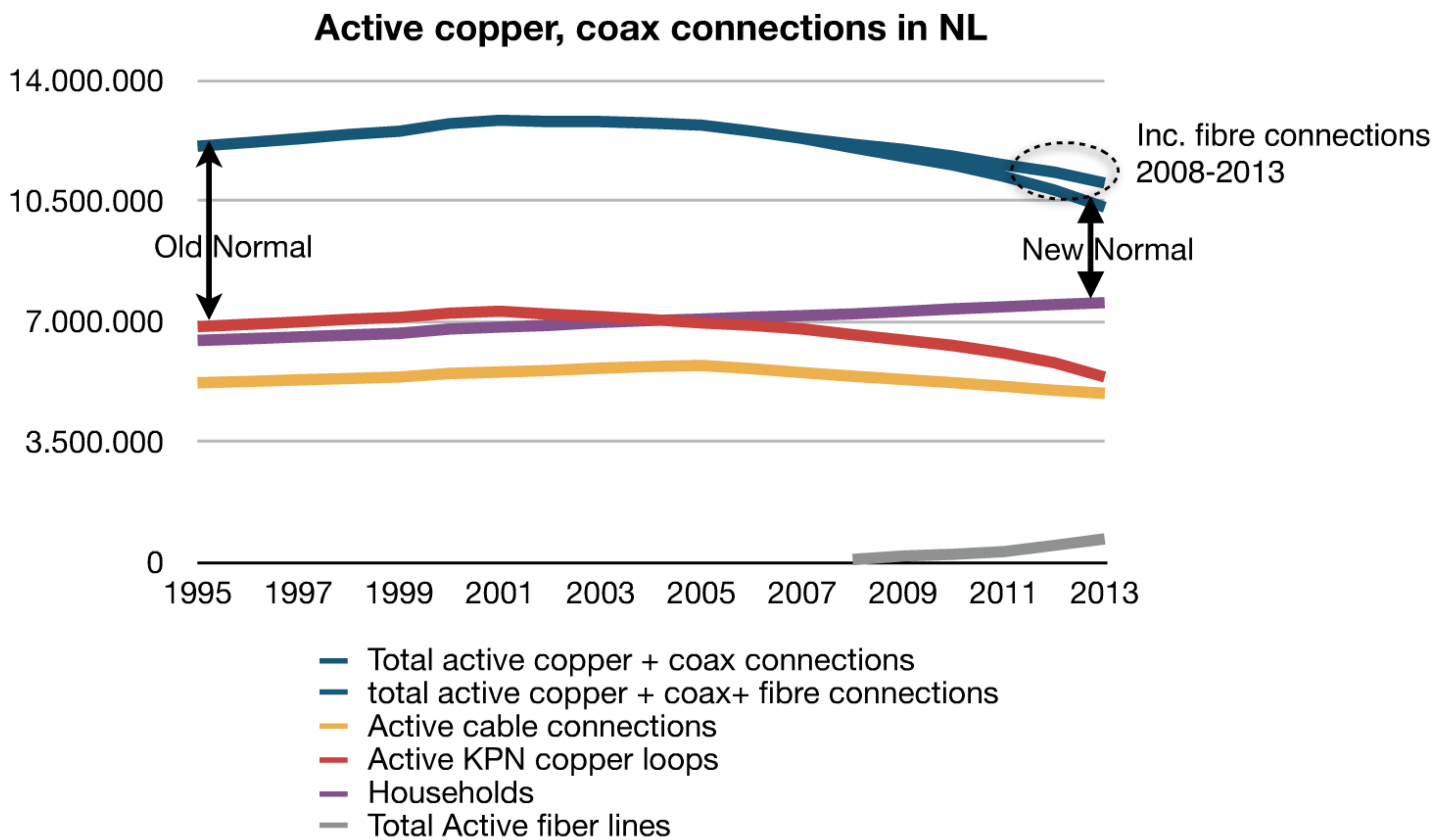
=

i.e. increasing vacancies






Local loop vacancy rate development
40%
30%
20%
10%
0%
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013

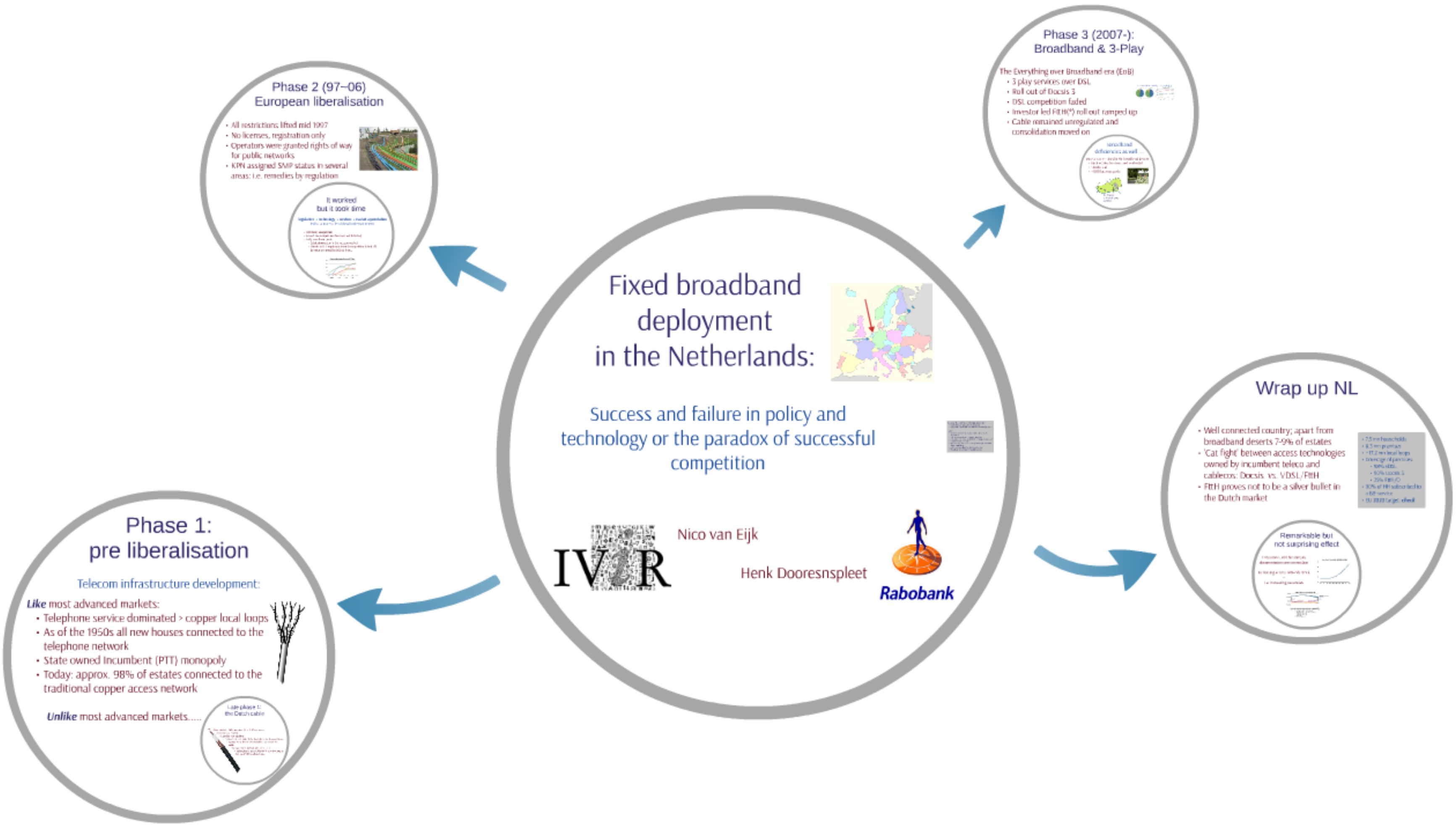

Active copper, coax connections in NL
14.000.000
10.500.000
7.000.000
3.500.000
0
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
Old Normal
New Normal
Inc. fibre connections 2008-2013
Total active copper + coax connections
total active copper + coax+ fibre connections
Active cable connections
Active KPN copper loops
Households
Total Active fiber lines

Success: NL, a BB front runner rgd. penetration

- Cable roll out (late 1960s liberalisation)
- Aggressive applications of EU liberalisation (phase 2)

Failure:

- No additional competition: it's still cableco's vs. incumbent
- FttH is mainly about customer retention
- KPN follows a mixed FttH/VDSL strategy and slowed down FttH roll out pace
- Financial dynamics of local loop don't sync well with listed companies
- Sufficient incentives to invest are lacking
- Readjustments of policy (goals) needed



Fixed line developments in NL

25th European Regional Conference of the ITS
Brussels, 24 June 2014