



***Effects of eCommerce on
energy consumption in the
Netherlands***

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Background

Novem:

conducted a research on the effect of different government policies on the energy consumption

NEA, together with ECN, has analysed the effect of different policies on the energy consumption.

One particular policy: stimulation of use of ICT

Research question

What is the effect of ICT use on energy consumption in the Netherlands?

Methodology:

- define ICT use
- consider direct effects only

ICT use

- Telecommuting
- Teleshopping
- eCommerce
- Videoconferencing / email
- Fleet management systems
- Route navigation
- Dynamic traffic management

Types of effect

- Substitution;
avoiding transport due to ICT
- Efficiency;
better use of capacity and infrastructure
- Generation;
more transport due to ICT

Types of effect (2)

	Substitution	Efficiency	Generation
Telecommuting	●		●
Teleshopping	●	●	●
eCommerce	●	●	●
Videoconferencing/email	●		●
Fleet management systems		●	
Route navigation		●	
Dynamic traffic management		●	●

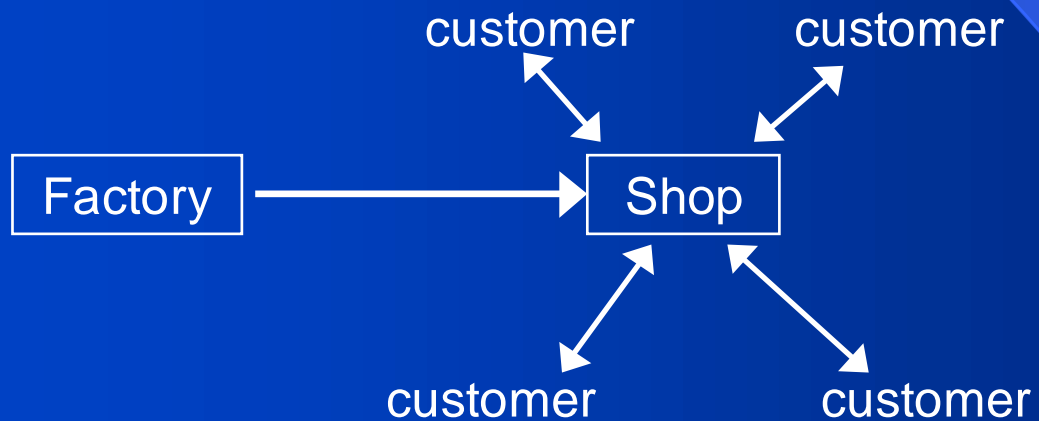
Teleshopping

Teleshopping is not only shopping on the Internet,
but also:

- mail order
- TV shop

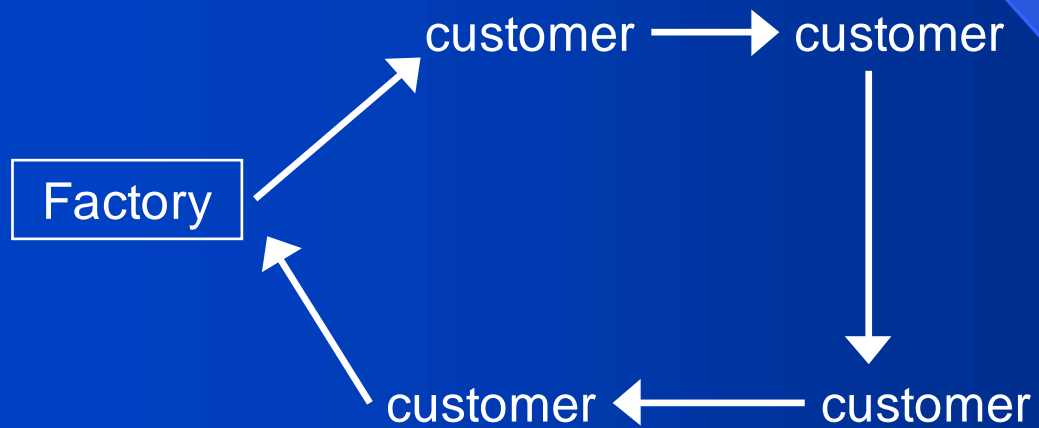
Teleshopping (2)

Old situation:



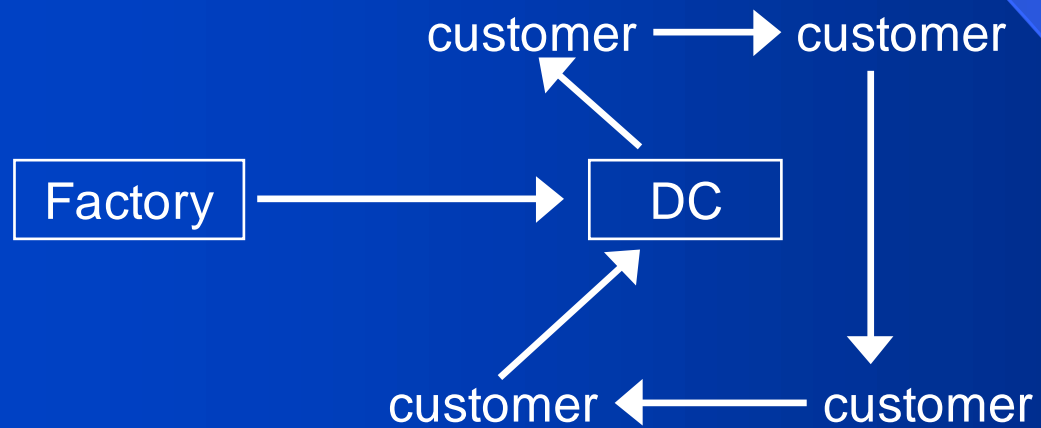
Teleshopping (3)

New situation:



Teleshopping (4)

New situation (alternative):



Teleshopping (5)

Positive effects:

- more efficient transport, due to round trips
- potential savings of 20% to 40 %

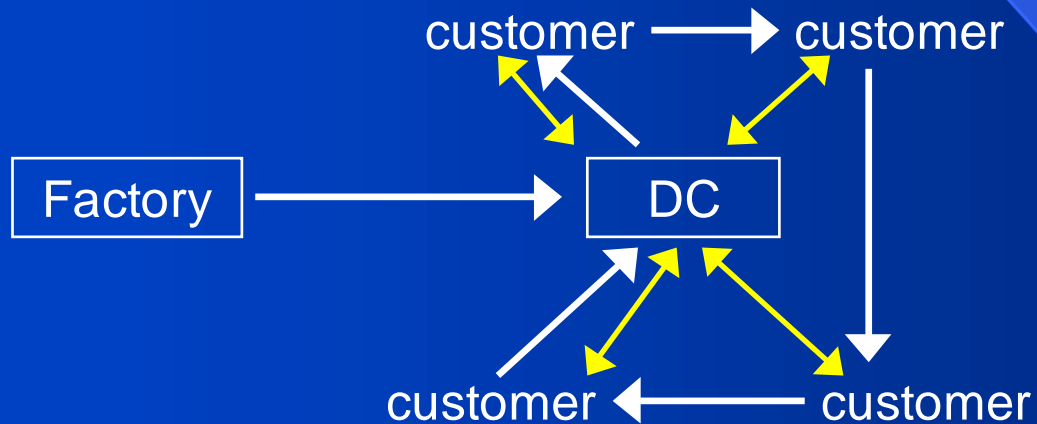
Teleshopping (6)

Negative effects:

- average shipment size is low
- more frequent deliveries
- smaller vehicles
- transport over longer distances
- small delivery time windows
- combined shopping; traditional shopping *and* teleshopping

Teleshopping (7)

Combined shopping



Leads to more transport!

Teleshopping (8)

Net effect of teleshopping on total transportation is difficult to estimate.

eCommerce

Only consider Business-to-business (B2B)

It is difficult to define B2B eCommerce. In the research NEA has used the following definition:

eCommerce (B2B) is the exchange of information between companies, through dedicated communication networks or through the Internet.

eCommerce (2)

eCommerce has many different effects on the energy consumption.

Limitation of research:

only consider direct effects on transport.

eCommerce (3)

History:

- before eCommerce there was EDI (Electronic Data Interchange)
- EDI is exchanging information between companies in a standardised format through dedicated communication networks.
- Disadvantage of EDI:
 - high cost
 - large impact on organisation

eCommerce (4)

History:

- Advantages of EDI:
 - less mistakes
 - information sooner available
 - administration becomes easier
 - less paperwork
 - less cost for mailing and phoning
- Last 5 years; EDI has been replaced by Internet

eCommerce (5)

Use of eCommerce in transport:

- freight exchange systems
- efficient customer response / less inventory

Net effect:

- quality of service increases
- reduction in transport?

Results

- Hardly any literature
- Very little practical results available
- rough estimation NEA:
teleshopping and eCommerce lead to a small
reduction in the energy consumption

Conclusions

- Very difficult to quantify the effects of eCommerce on the energy consumption
- There is a need for more practical results

Thank you for your attention!