



Statistiska centralbyrån Statistics Sweden

# Computer services

Vera Norrman, Statistics Sweden



# Computer Services

**Role and impact of computer services**

**Globalisation**

**Impact on GDP**

**Figures from Business Statistics**

**Product groups 72**

**SPPI as deflator of production value**

**Overview by National Accounts**

**Industry versus product groups**

**Remarks on papers and conclusions**

**Discussion**



# **Role and impact of computer services**

**Provide support to production processes**

**The role is improve efficiency**

**Develop new knowledge**

**Circulate knowledge in the economy**

**Internet makes local business global**

**Productivity improvements**

**IT driven innovations**

**Rapid structural changes in the economy**

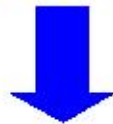


# Globalisation Increase

**Threat or opportunity?**

 Deregulation

Increased competition



Reduced margins



Looking for new markets



# Globalisation Increase

## A more flexible labour market

**Many companies lay off large number of employees**



**Qualified persons apply for less qualified jobs  
Requested salaries lower than at former  
employment**



**Qualified employees available and on “bargain  
discount”**

**Globalisation and digitalisation transforms the  
sales channels**

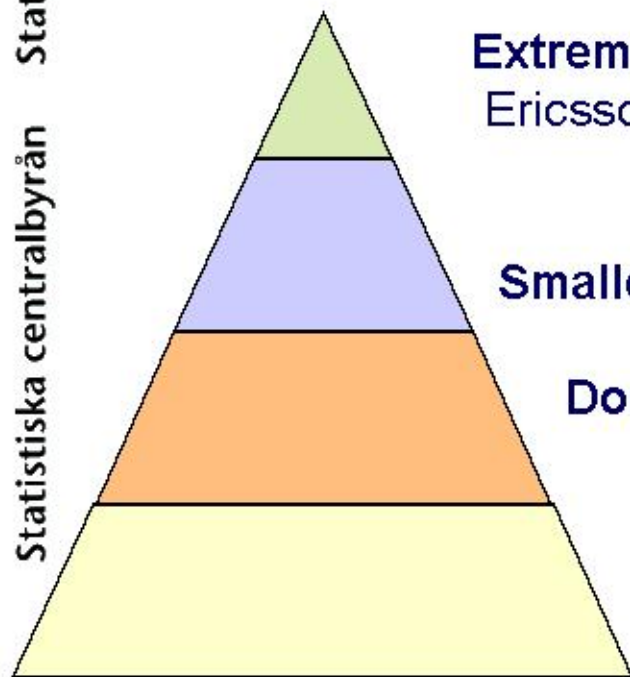


# The Business Structure

Statistics Sweden

Statistiska centralbyrån

## We only see the tip of the iceberg



**Extremely successful global players**

Ericsson, IKEA, H&M, SKF, Skanska, Volvo, Scania, Tetra Pak, Astra Zeneca, Sandvik, ABB

**Smaller successful international players**

**Domestic companies with little (growing) or no international success**

**Domestic companies, with no int'l aspirations**



# Impact on GDP

**Computer services are complex**

**Investments**

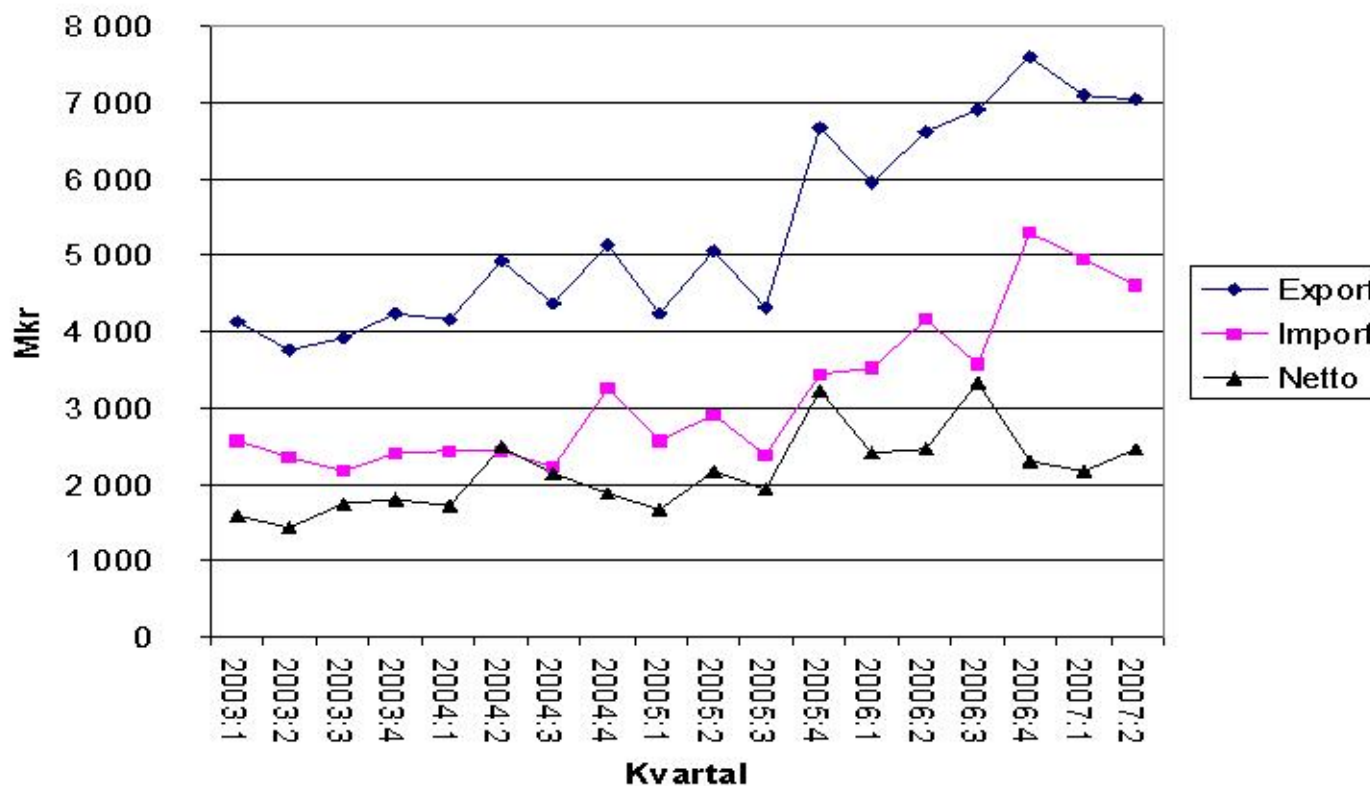
**Export**

**Import**

**Please, pay higher importance to the measurement**



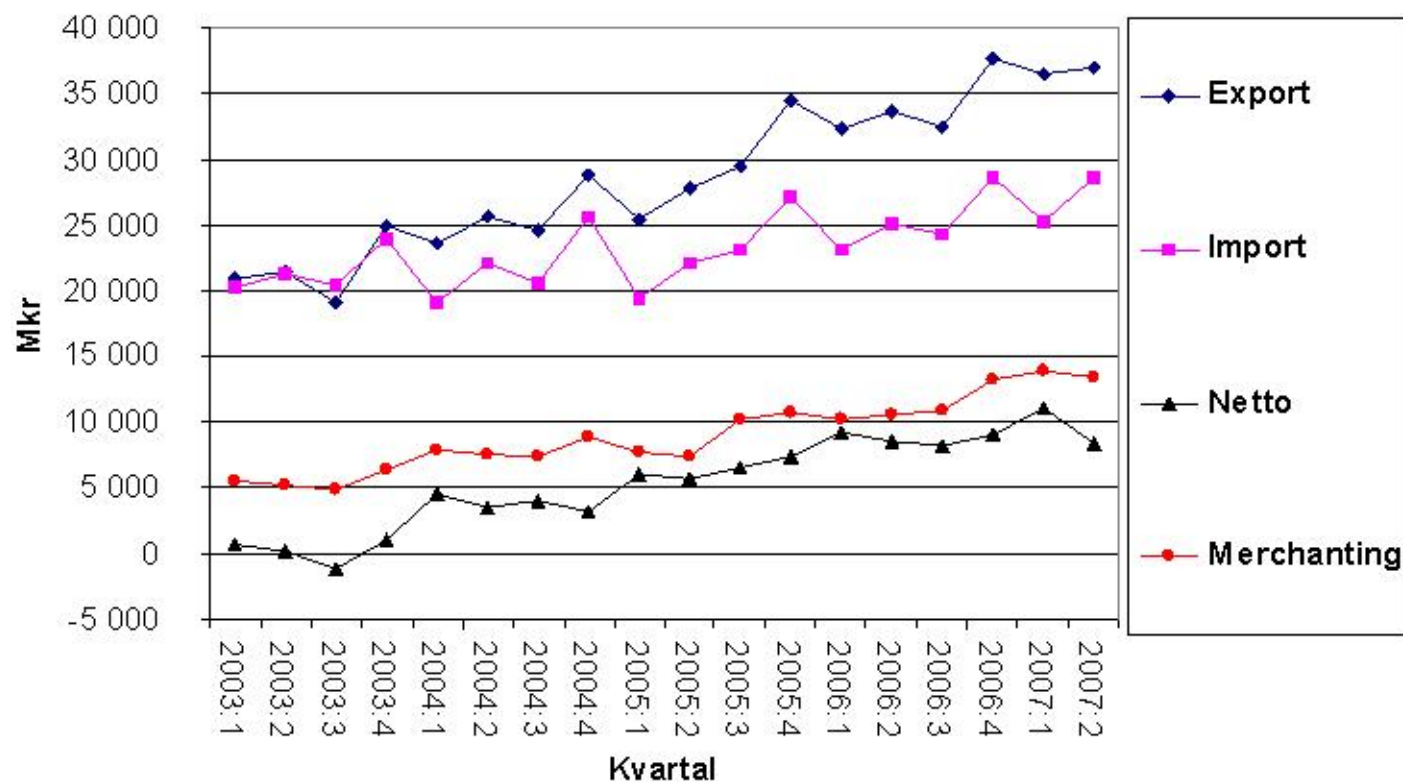
# Computer and consultancy services 2003-2007 (Int. trade)







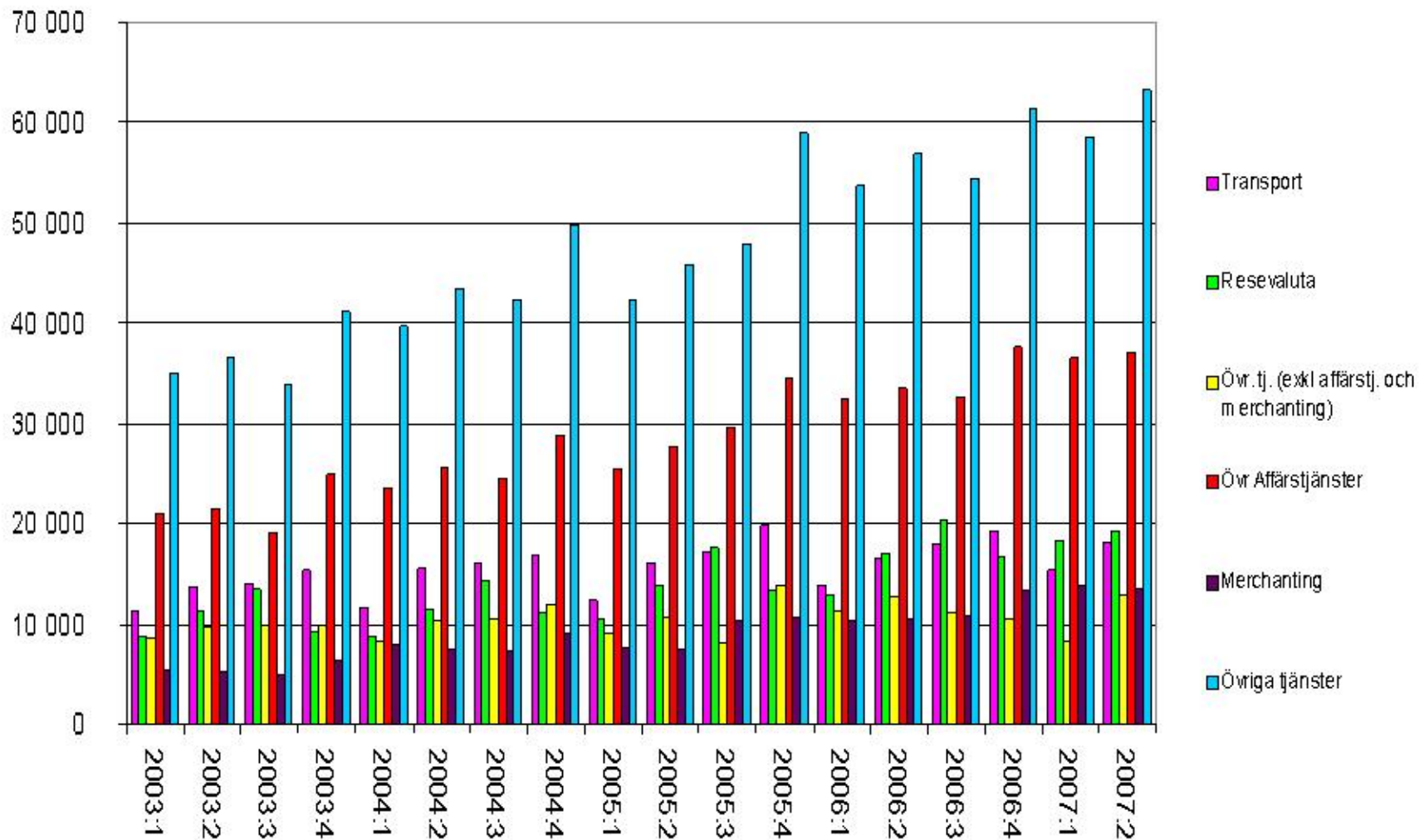
# Other business services and merchanting 2003-2007 (Int. trade)





# Export of Services 2003-2007

Statistiska centralbyrån Statistics Sweden





# Swedish companies in Japan

---

**120 Swedish subsidiaries in Japan**

**~12,000 No of employees**

**Export 16.8 billion SEK (2006)**

**Total sales in Japan ~40 billion SEK  
(2004)**

**~1,500 Swedish companies selling  
through 3rd parties**





# Figures from Business Statistics

**Main figures**

**Turnover**

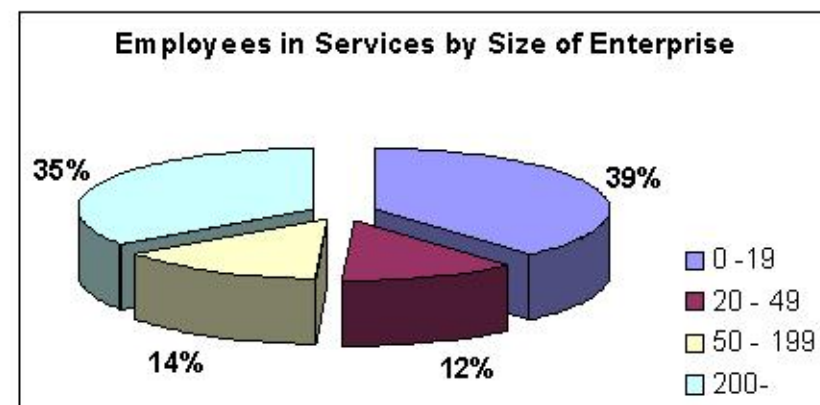
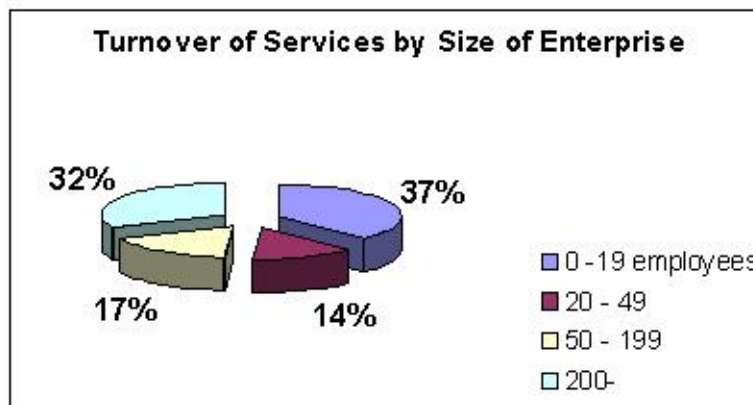
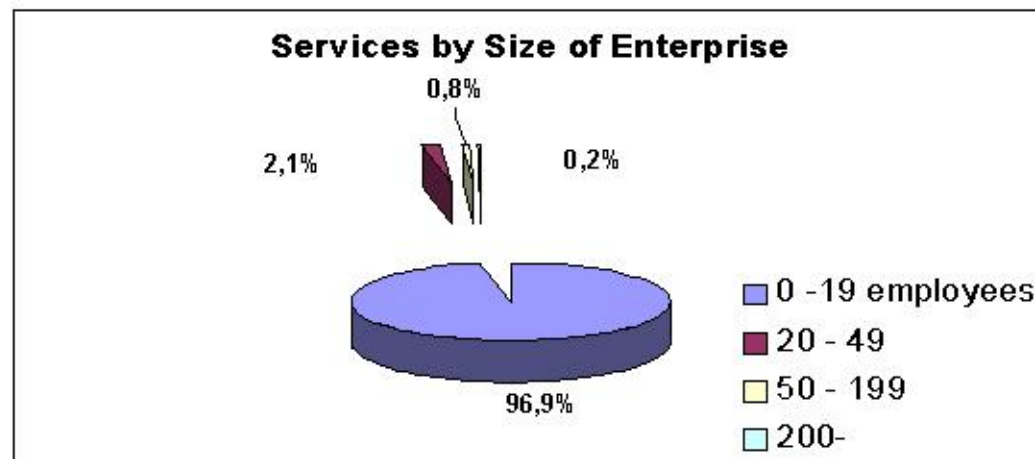
**Turnover by group**

**Type of clients**

**Structure of costs**



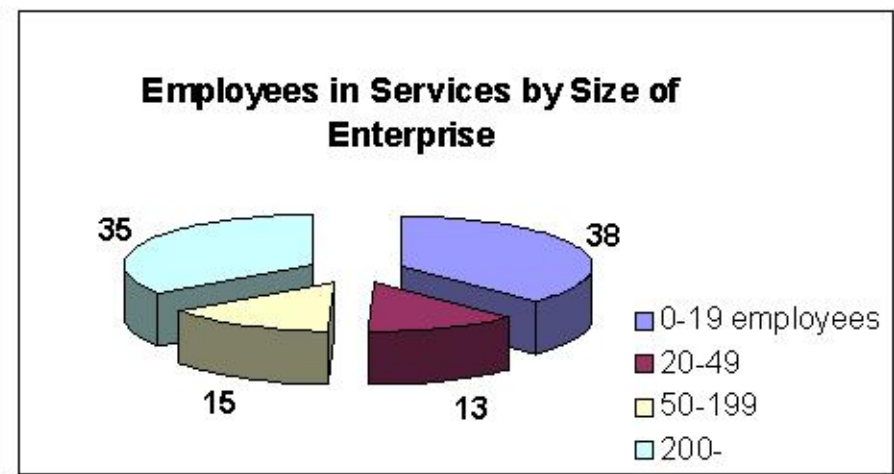
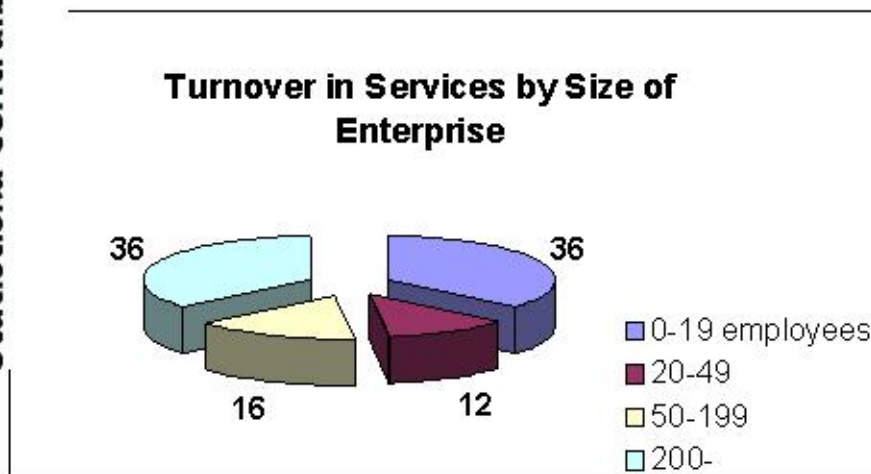
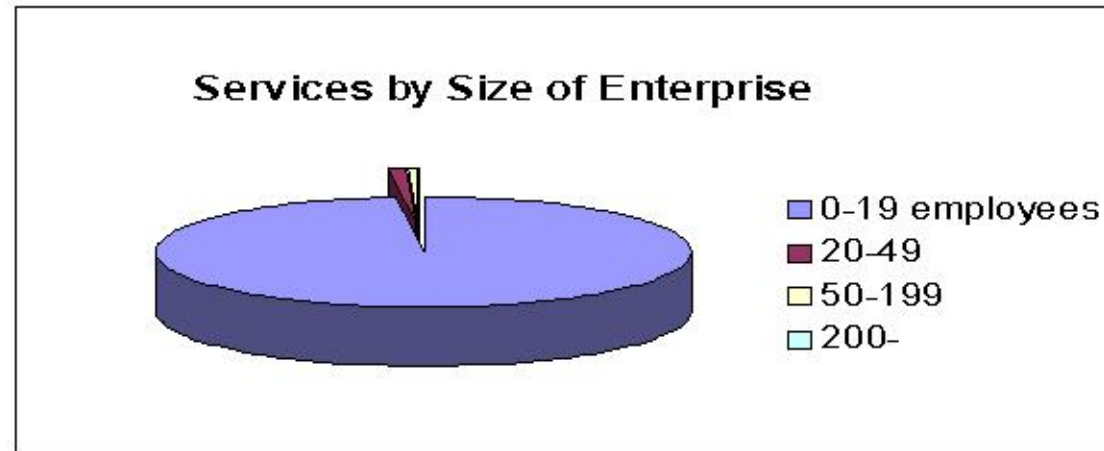
# Private Services in Sweden 2000





# Private Services in Sweden 2005

Statistiska centralbyrån Statistics Sweden

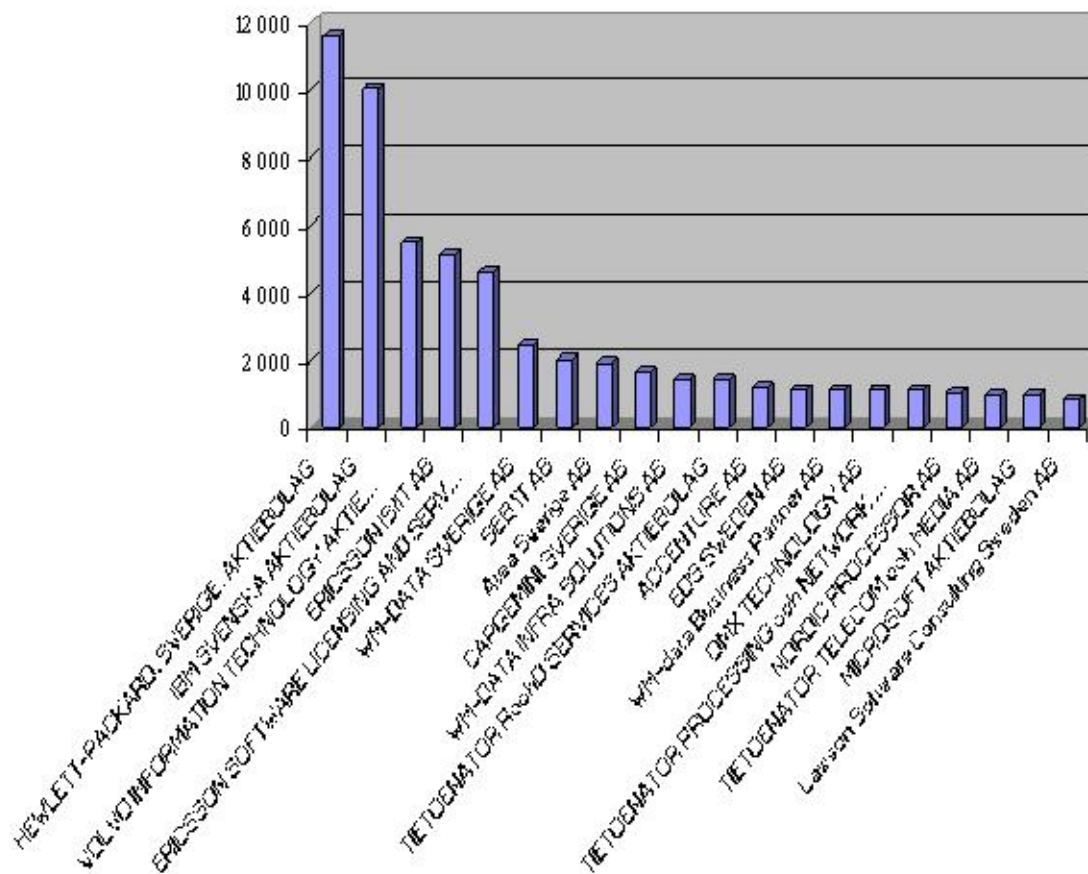




# Computer Services NACE 72 Sweden 2005 (BS)

Statistiska centralbyrån Statistics Sweden

Computer services ( 20 largest companies)





## **Industry 72, main figures by BS, 2005**

**31,422 number of enterprises**

**89,800 number of employees (3.5 %)**

**147,900 turnover, billion SEK (2.7 %)**

**Operating profit 11 percent of  
turnover**

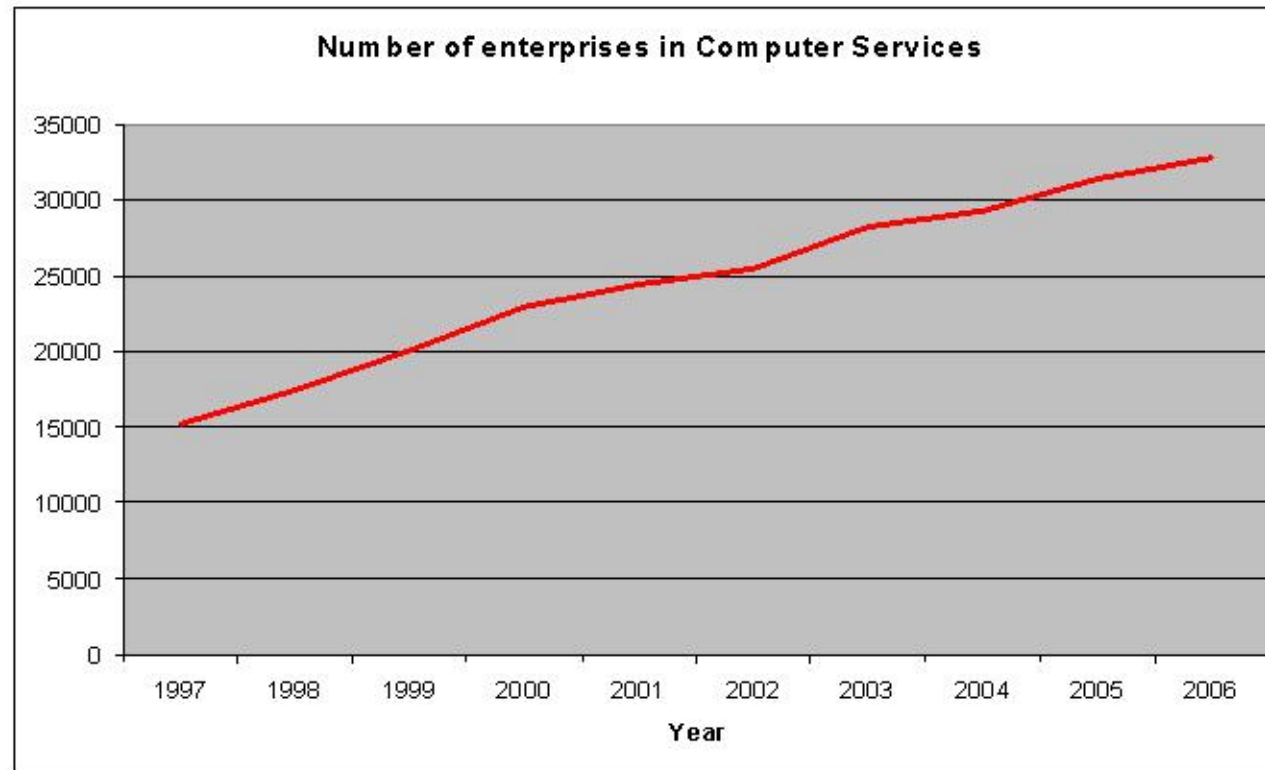
**Labour cost 18 percent of turnover**





# Computer Services NACE 72 Sweden 2006

Statistiska centralbyrån Statistics Sweden

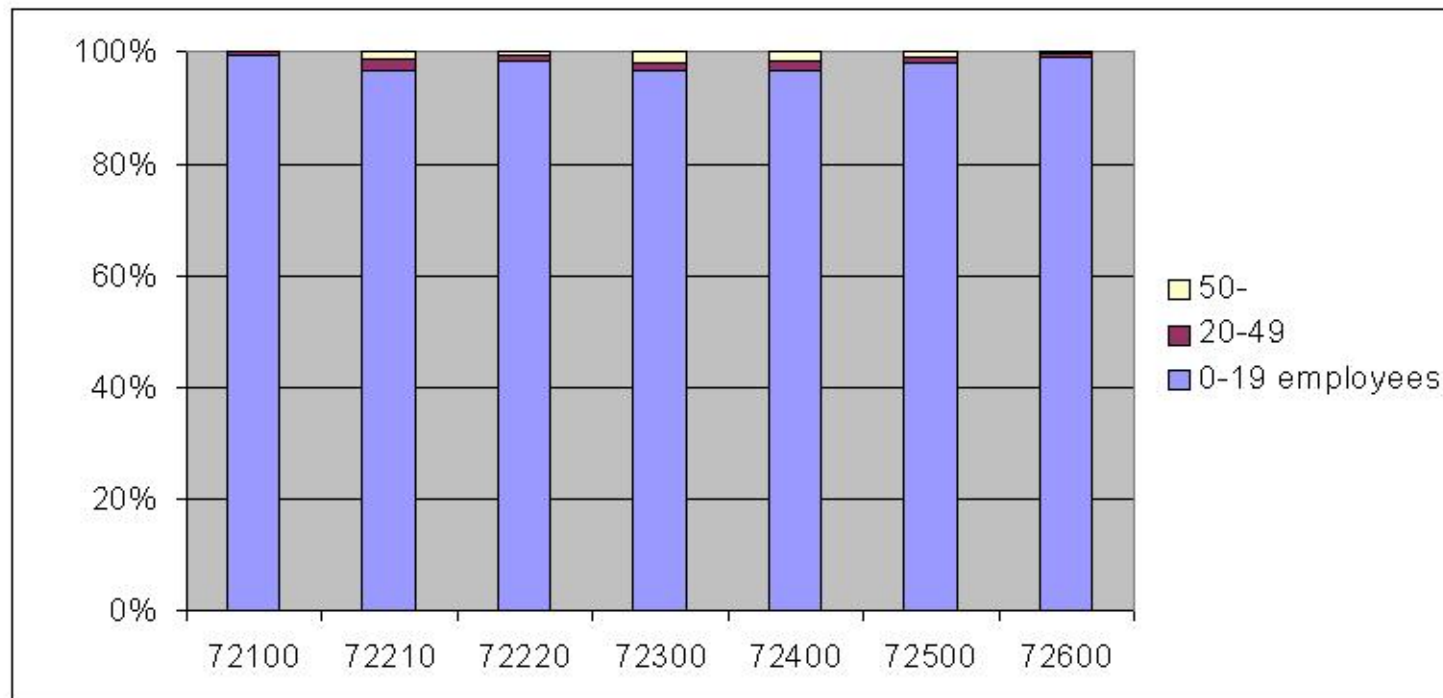




# Computer Services NACE 72 Sweden 2005

Statistiska centralbyrån Statistics Sweden

## The size of enterprises





# Turnover by product in Computer Services Industry 2006 (BS)

**72 100 – 72 600**

**76 %**

**Renting of machinery and equipment**

**Telecommunications services**

**Education**

**Wholesale and retail trade**

**Sales of other services**

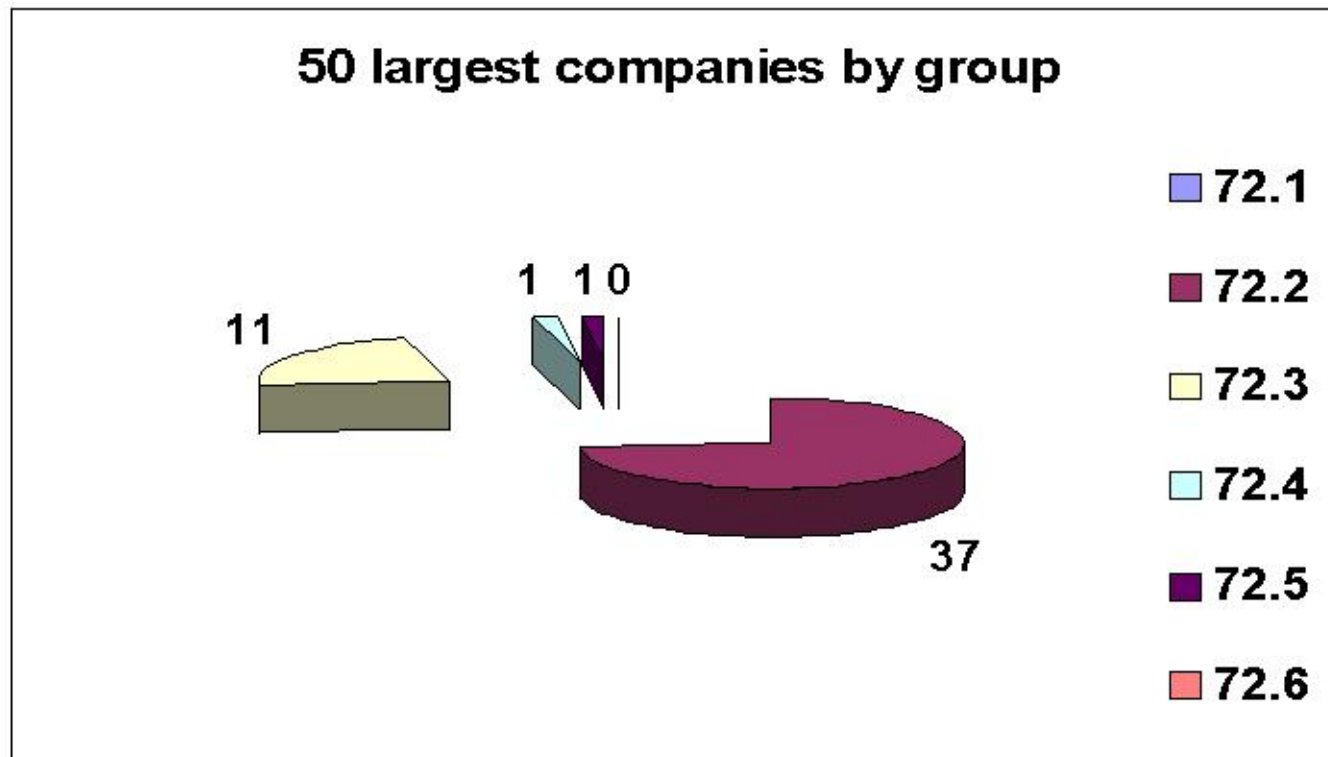
**Others**

**Total**

**24 %**



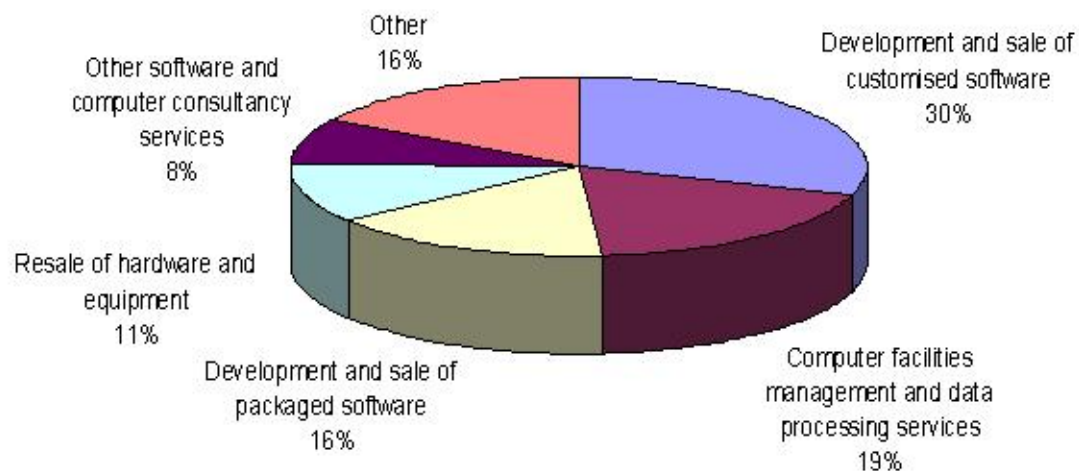
# Computer Services NACE 72 Sweden 2005 (BS)





# Computer Services NACE 72 Sweden 2005 (BS)

Computer services (turnover by sub-classes), Sweden, 2005





# Computer Services NACE 72

## Expenditure structure, 2005 (BS)

**The seven main costs represent 96 percent of all costs**

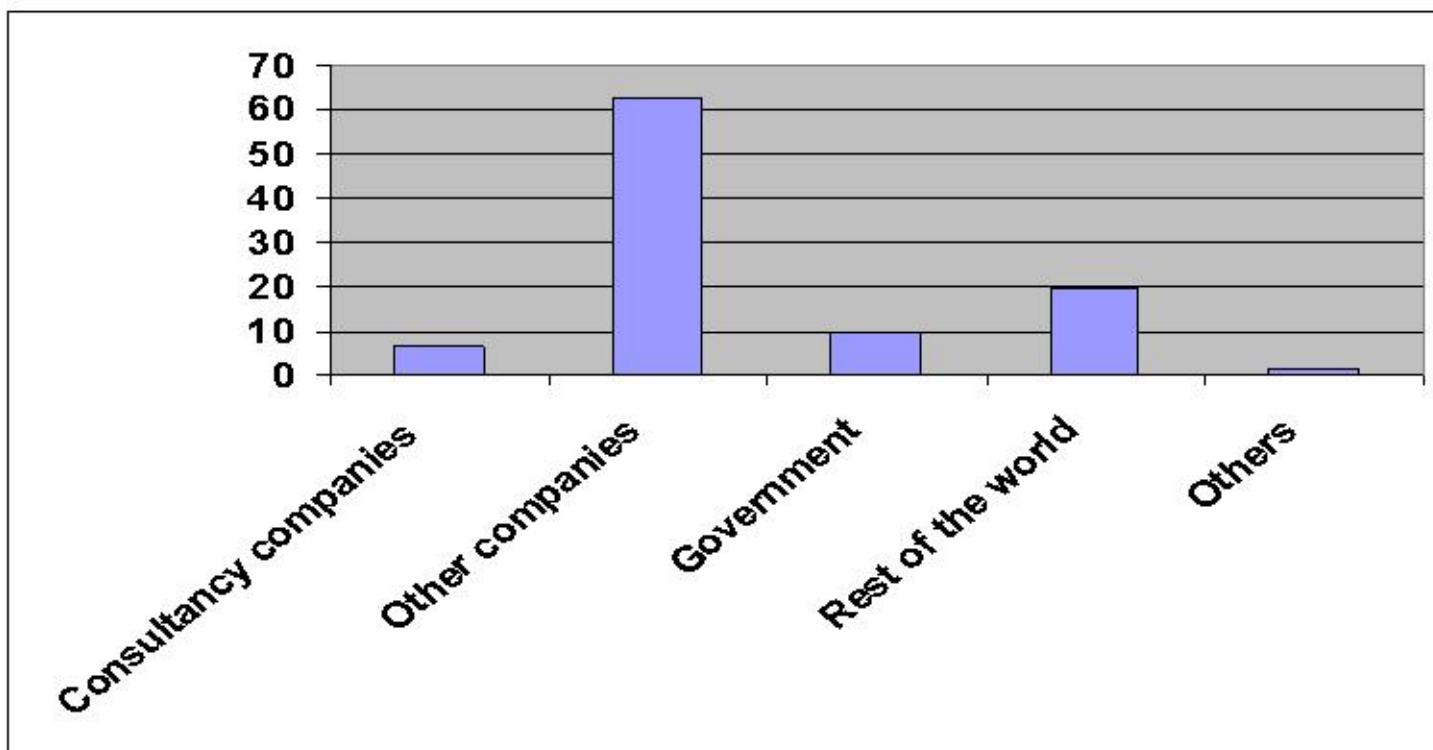
<b>Other costs</b>	<b>26</b>
<b>Subcontract work and raw material</b>	<b>24</b>
<b>Goods for resale, excl merchanting</b>	<b>23</b>
<b>Purchased services and cost of administration</b>	<b>10</b>
<b>Rent for premises</b>	<b>6</b>
<b>Temporary manpower</b>	<b>4</b>
<b>Computer programmes</b>	<b>3</b>



# Computer Services NACE 72 Sweden 2005 (BS)

Statistiska centralbyrån Statistics Sweden

## The distribution by type of clients





# National Accounts product groups 72

<b>7220</b>	<b>Software Supply</b>
<b>7220EG</b>	<b>Software for own use</b>
<b>72500</b>	<b>Maintenance and repair services</b>
<b>72A</b>	<b>Other data processing services</b>
	<b>(72.1+72.3+72.4+72.6)</b>





## 4 National Accounts product groups within 72 of industry 72

**7220 Software supply and other related services 57%**

**7220EG Software d own use 3%**

**72A Other comp services 27%**

**72500 Maintenance & repair 3%**

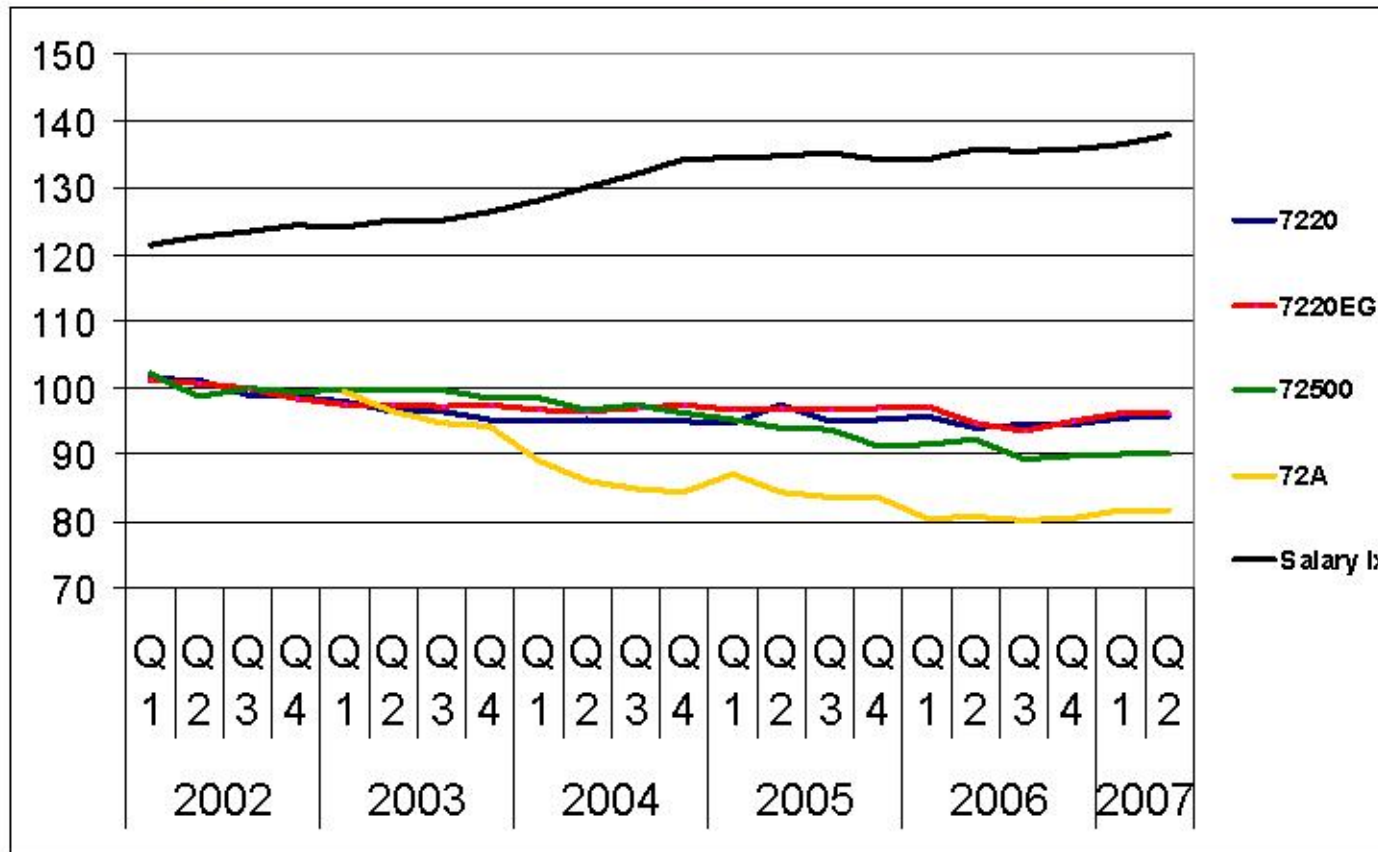
**7220 + 7220EG + 72A + 72500 = 90%**

**SPPI cover all (methods A/B) 90%**



# 4 SPPI for product groups

## Computer consultancy and related services





# SPPI for services (Sweden)

---

**Definition: Producer price index for services (index for B2B, B2G, B2C), an average per period**

**Client: Swedish National Accounts**

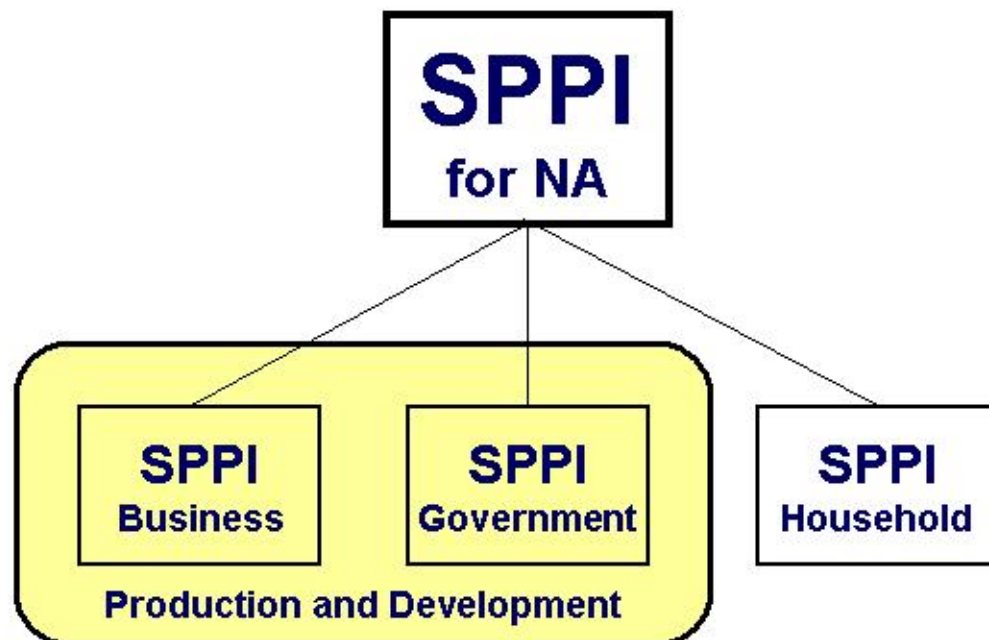
**Purpose: to calculate the production of services at fixed prices at product group level (130)**

**Period: quarter, year**





# National Accounts, main client (Sweden)



**PPI for services  
quarterly  
base: y-1  
45 d**

**Product group  
level  
e.g. 72A, 741,  
60240**





# A, B, C methods

---

**A method: most appropriate methods**

**B method: those methods which can be used in case an A method cannot be applied**

**C method: those methods which shall not be used**





## **PPI for services and EU-regulation 2223/96, annex A**

---

**2004: Real estate, Rental services**

**2005: Post&tele, Bank, Insurance,  
Support to B&I, Computer services**

**2006: R&D (market), Other business  
services, Education (market),  
Health&social services (market)**

**+ export and import of services**





# **SPPI Key procedures of the production (Sweden)**

---

**New annual PPS sample**

**Updating of the weight structure annually**

**Updated questionnaires every year**

**Ongoing methodological re-development of industry indices every 3rd to 4th year**



## Differences within NA using SPPI contra wage costs index (Sweden)

### Computer services

<i>Y</i>	<i>Q</i>	<i>WI</i>	<i>TPI</i>	<i>Diff</i>
2003	Q1	100,12	98,10	-2,0
	Q2	100,01	97,05	-3,0
	Q3	99,89	96,55	-3,3
	Q4	100,65	95,91	-4,7
2003		<b>100,17</b>	<b>96,90</b>	<b>-3,3</b>
2004	Q1	103,54	101,98	-1,6
	Q2	104,29	103,33	-1,0





# **Software supply 7220, 7220EG**

**Average invoiced hourly rate/Q for**

**Project manager**

**System analyst**

**IT architect/system designer**

**System programmer/programmer**

**System engineer**

**5 experience levels**



# **Other data processing services**

## **72A**

Statistics Sweden

Statistiska centralbyrån

**Support services**

**Supervision of servers**

**Information storage**

**Supervision of data communication**

**Back-up services**

**Placement of computers**



# **Maintenance & repair 72500**

**Maintenance, repair and installation  
of  
computers  
printers  
servers**



# **Towards model pricing**

**Review 2006 consisted of**

**Studies of international experiences**

**Analysis of industry structure**

**Company visits**

**Review of**

**Representative services**

**Categories of services**

**Pricing methods**

**Price models**

**Sampling methods**

**Sample sizes**



# Sampling

**Ips sampling**

**Rotation**

**Cut-off-limit**

**Weights**



## **Computer services by National Accounts (4 product groups within 72)**

<b>Production</b>	<b>87 percent</b>
<b>Import</b>	<b>8</b>
<b>Margins</b>	<b>2</b>
<b>Tax</b>	<b>3</b>
<b>Supply = Use</b>	
<b>Investments</b>	<b>37</b>
<b>Intermediate consumption</b>	<b>42</b>
<b>Export</b>	<b>14</b>
<b>Government &amp; household</b>	<b>7</b>



# Supply-UseTable pr gr 7220

## Software supply services and other related services

Prices	<b>Prod</b>	Gov	<b>Import</b>	Margn	VAT	Pur p
CP	<b>72 376</b>	258	9 156	2 496	3 641	87 927
FP	<b>73 508</b>	255	9 237	2 462	3 641	89 103
Ix	<b>98,5</b>	<b>101,2</b>	<b>99,1</b>	<b>101,4</b>	<b>100</b>	<b>98,7</b>
Vo	<b>15,1</b>	<b>-12,4</b>	<b>8,2</b>	<b>9</b>	<b>6,9</b>	<b>13,7</b>



# Supply-UseTable pr gr 7220

## Software supply services and other related services

Prices	IC	IC gov	House hold	Invest - ment	Export	Sum
CP	26 404	3 259	1 774	40 027	16 337	87 927
FP	26 957	3 304	1 521	40 640	16 554	89 103
Ix	97,9	98,6	116,6	98,5	98,7	98,7
Vo	22,8	14,4	2	8,7	13,4	13,7





# Other NA product groups and quality of their deflators industry

## 72 Computer services

<b>30020</b>	<b>0.3%</b>	<b>method</b>	<b>A</b>	
<b>7020A</b>	<b>0.1</b>		<b>A</b>	
<b>713</b>	<b>1.8</b>		<b>B</b>	
<b>741</b>	<b>1.3</b>		<b>A/B</b>	
<b>741A</b>	<b>4.3</b>	<b>licences, patents, royalties</b>		<b>C</b>
<b>804</b>	<b>0.5</b>	<b>education of adults</b>		<b>C</b>
<b>5AA</b>	<b>0.2</b>	<b>commissions</b>		<b>C</b>
<b>5AB</b>	<b>0.1</b>	<b>merchanting</b>		<b>C</b>
<b>5C</b>	<b>1.8</b>	<b>margins</b>		<b>C/B</b>



# **NA product groups and quality of their deflators industry 72 Computer services**

**13 product groups in industry 72**

**93 percent covered by appropriate methods A or B** **8 pg**

**7 percent remain (C methods today)** **5 pg**



# **Industry versus product groups**

**SPPI as deflator on product groups level  
(National Accounts)**

**SPPI as deflator for Computer services  
Industry (Structural Business Statistics)**

**???**



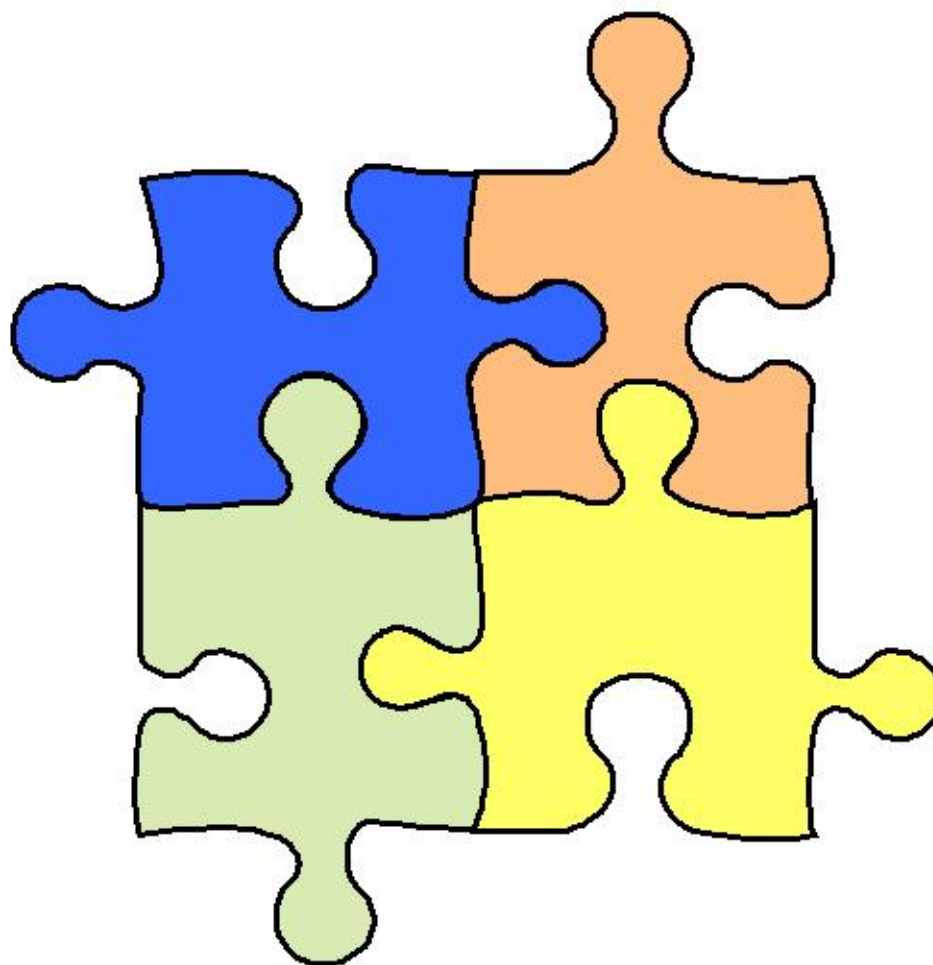
# Comments and conclusions

**The Netherlands**

**France**

**United States**

**Korea**





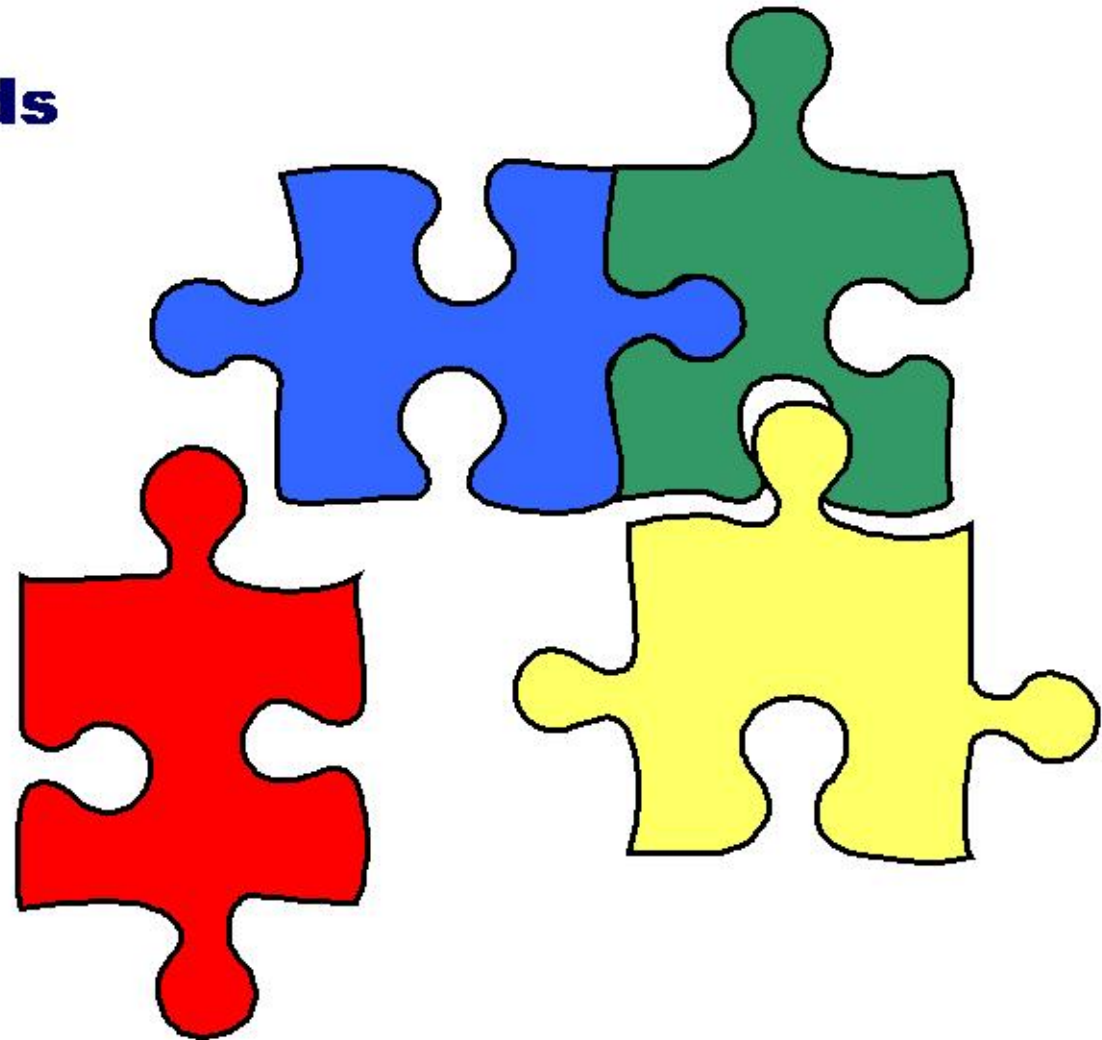
# Comments and conclusions

**The Netherlands**

**France**

**United States**

**Korea**





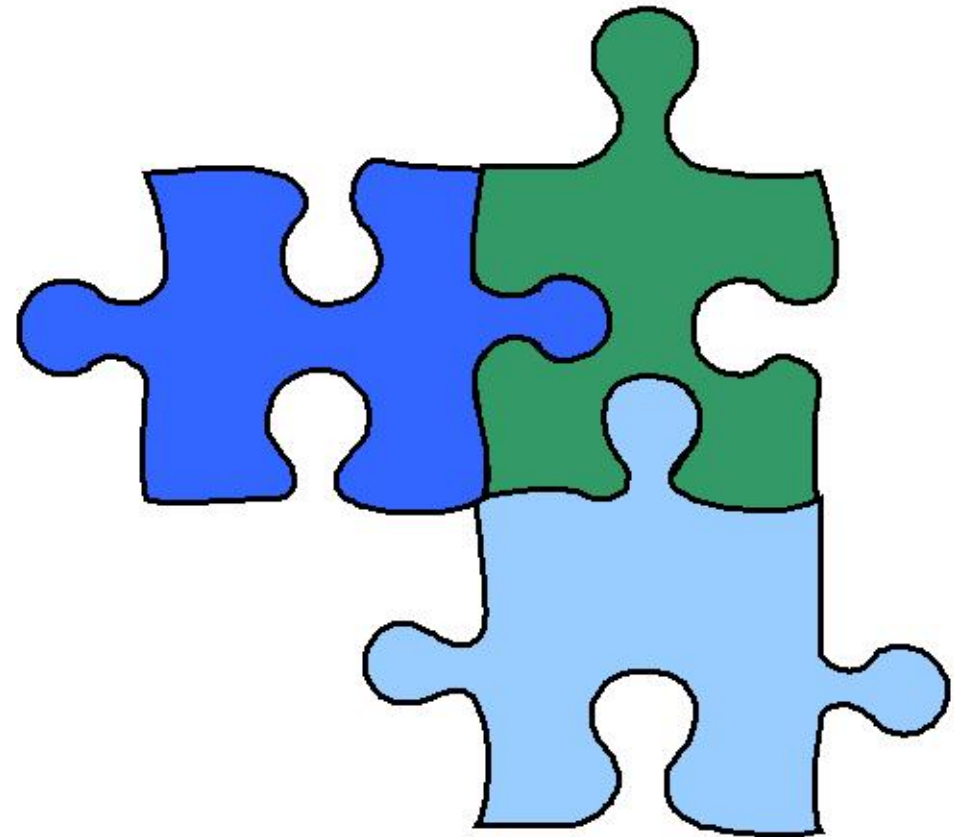
# France, The Netherlands, Sweden

**European countries**  
**EU members**  
**Eurostat**

**Same regulations**  
**NA, STS, SBS, BoPM5**

**different national solutions**

**SAME but DIFFERENT !**





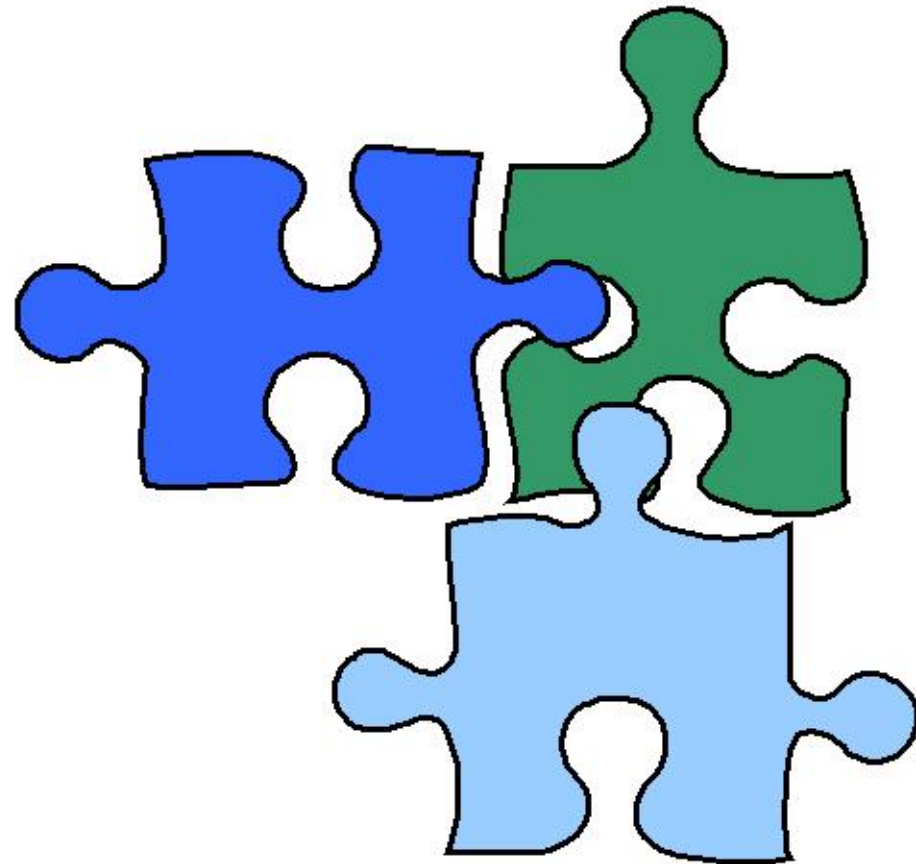
# France, The Netherlands, Sweden

**European countries**  
**EU members**  
**Eurostat**

**Same regulations**  
**NA, STS, SBS, BoPM5**

**different national solutions**

**SAME but DIFFERENT !**





## **Computer services by NA (The Netherlands), estimated**

<b>Production</b>	<b>81 percent</b>
<b>Import</b>	<b>16</b>
<b>Margins</b>	<b>2</b>
<b>Tax</b>	<b>1</b>
<b>Supply = Use</b>	
<b>Investments</b>	<b>47</b>
<b>Intermediate consumption</b>	<b>33</b>
<b>Export</b>	<b>16</b>
<b>Government &amp; household</b>	<b>7</b>





## Methods used (consultancy)

US	-
France	Charge out rates
NL	Hourly charge out rates
Korea	Charge out rates
Sweden	Average invoiced charge out rates/Q



## No Product groups within NA

	Total	Services	Computer services
US	500	100	4
France			5
NL	800	226	2
Korea			
Norway			1
Sweden	400	130	4
Canada	640	80	3



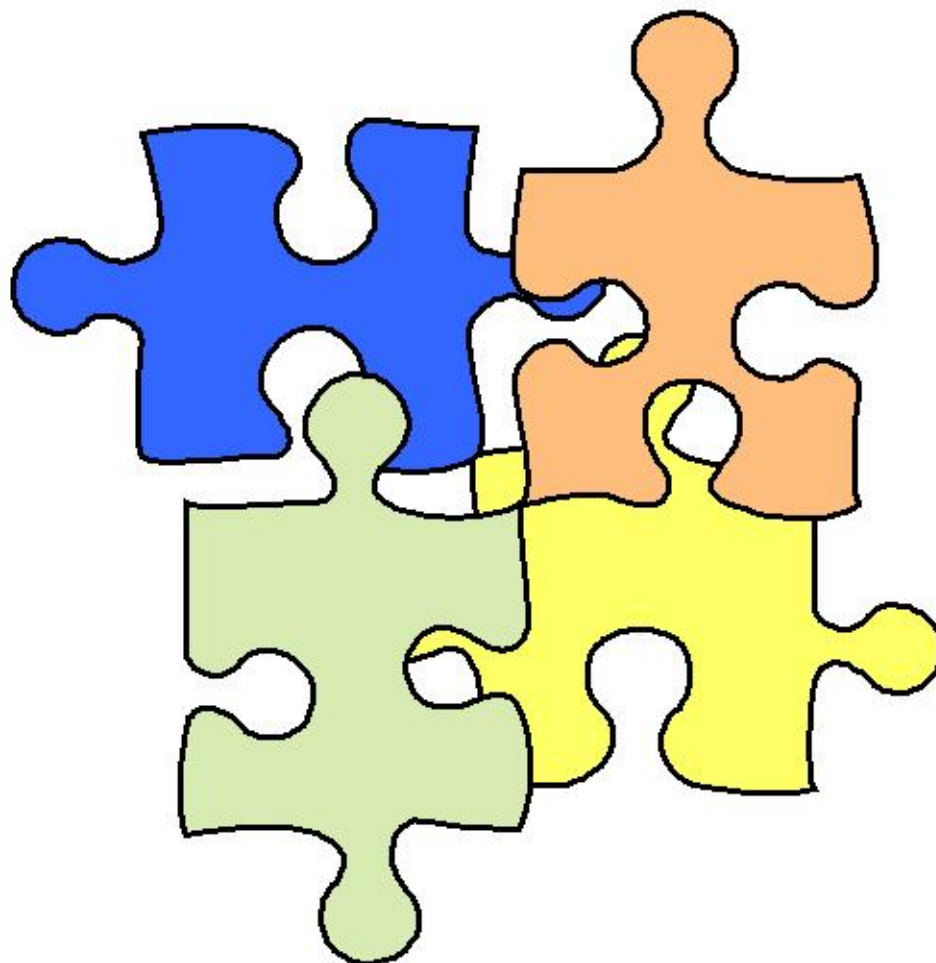
# Comments and conclusions

**The Netherlands**

**France**

**United States**

**Korea**





# Comments and conclusions

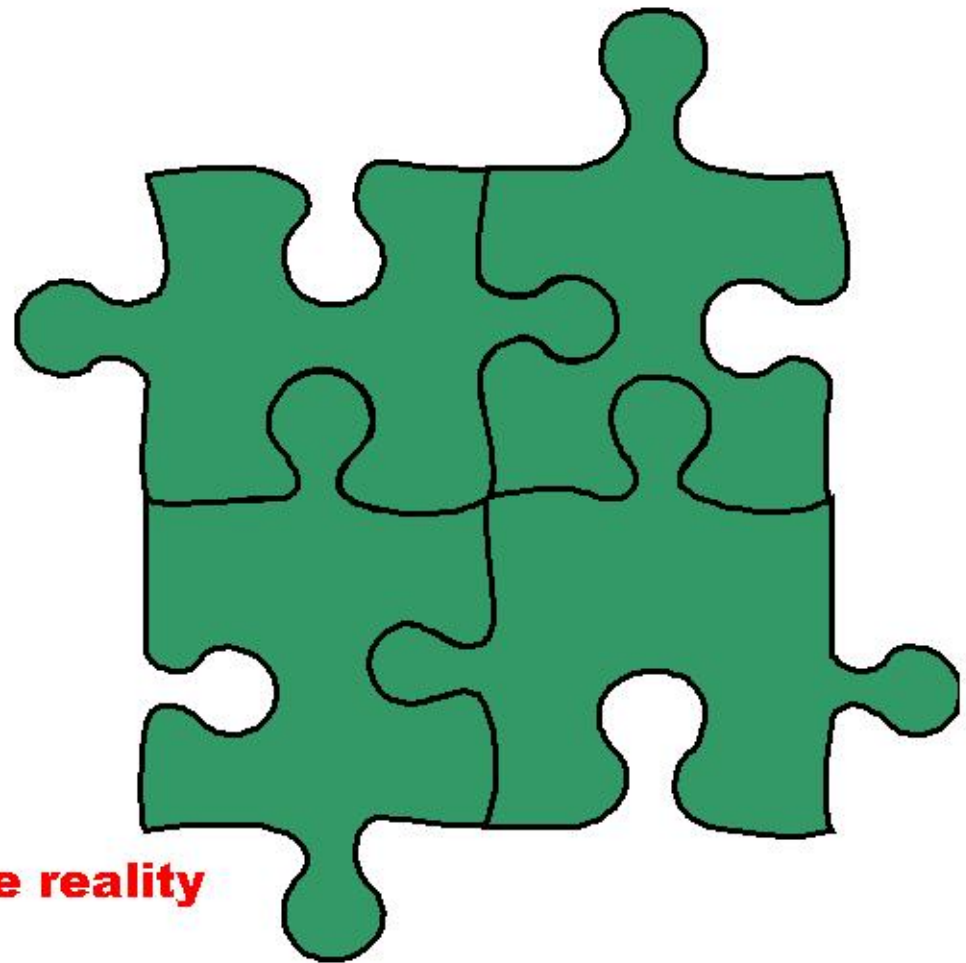
**National Accounts**

**Business Statistics**

**Prices**

**International Trade  
Statistics**

**For better understanding the reality**





## Questions to discuss

- 1 How to deal with captive units?**
- 2 Is international outsourcing a problem?**
- 3 How to deal with production of original software on its own account?**
- 4 How can we ensure more sensitive breakdown of comprehensive services?**
- 5 Harmonize concepts and methods**
- 6 Choose a publication strategy**
- 7 Explain to clients how to use and how to interpret the data**



Statistics Sweden

Statistiska centralbyrån

# **Future strategy to discuss**

**Should the Voorburg Group give higher priority to industry/product groups that impact final (vs intermediate) demand?**