



**Analyseinstitut for Forskning**

**CIS3**  
**The Danish Non-response Analysis**

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## Background

With a response rate of 31% in the Danish part of the CIS3-survey there were no doubt that a non-response analysis was needed. The survey for the non-response analysis were carried through at a time when it had not been finally decided whether to use the results of the Danish R&D-surveys 1999 and 2001 as estimates for enterprises not answering the CIS3-questionnaire.

## Sample plan

It had been decided to contact by telephone all enterprises in the sample with more than 249 employees to make them answer a shortened CIS3-questionnaire. These enterprises could therefore not be part of the non-response survey. The sample frame for the non-response analysis was defined as all enterprises with less than 250 employees that had not answered the CIS3-questionnaire. In all, there were 2184 enterprises in that sample plan, distributed in size classes and NACE-codes in this way:

**Table 1: The sample frame for the non-response survey by group of employees**

No. of employee	Manufacturing (10-37, 40-41)	Wholesale (51)	Transportation, Communication (60-64)	Service (65-67,72-73,74.2,74.3)	Total
100-249	161	42	45	46	294
50-99	182	86	47	41	356
25-49	253	146	105	71	575
10-24	418	269	170	102	959
Total	1014	543	367	260	<b>2184</b>

It was decided to sample 10% of the sample frame to the non-response survey, that is a sample of 218 enterprises. This was organized in the same way as the original CIS3-sample: First the sample frame was sorted by 4 groups of NACE-codes and within each group the enterprises were sorted by number of employees. From this sorted file of non-response enterprises a systematic sample was drawn by including every 10th in the sample, beginning with a random number between 1 and 10.

The mode of sampling was telephone interviews. Only the four questions on innovation activities (question 1.1, 2.1, 3.1 and 3.2) were asked – see appendix A. Enterprises were categorized as "innovators" if they answered "YES" to at least one of these four questions.

## Results

We succeeded in getting in contact with most of the enterprises by making up to more than 10 recalls. We had response from 167 of the 218 enterprises, but 17 were not valid. This gives a response rate of 83% - see Table 2.

**Table 2: The non-response sample – before estimation**

	Number	Percent
Sampled enterprises	218	100.0
Non-valid enterprises	13	6.0
Misplaced in the non-EU sample <sup>1</sup>	3	1.4
Misplaced in the EU sample <sup>1</sup>	1	0.5
Valid sample	201	92.2 ->100.0
No contact with the enterprise	4	2.0
Refuse contact	16	8.0
Refuse, giving a reason	14	7.0
Respondents	167	83.1

1) nonEU-sample: enterprises with <10 employees or with other NACE-codes.

Answers from the Danish R&D surveys in 1999 and 2001 were later used as estimates for enterprises, being non-respondents in the CIS3-survey. This reduced the valid non-response sample to 172 and the number of respondents to 138 enterprises<sup>1</sup>. The response rate of the valid non-response sample was in this way reduced to 80% with a refusal rate of 17½ %. Four enterprises could not be contacted and should probably have been excluded from the valid sample, see Table 3:

**Table 3: The non-response sample – after estimation**

	Number	Percent
Valid sample, before estimation	201	100.0
Estimated (R&D-statistics 2001)	29	14.4
Revised valid sample	172	85.6 -> 100.0
No contact with the enterprise	4	2.3
Refuse contact	16	9.3
Refusals, giving a reason	14	8.1
Respondents	138	80.2

<sup>1</sup> All estimated enterprises had given the same answer to the question on innovation in the R&D-survey.

In all, the intended valid sample size of 218 was reduced by 21% to a revised valid sample size of 172 enterprises. This increased the variances of estimates based on the sample, so a supplementary sample could have been drawn to reestablish a sample size of at least 200.

The 138 enterprises responding to the non-response questionnaire are weighted in the same way as the ordinary CIS3-sample (see the interim-report) to get an estimate for the proportion of innovators in the population. There are, however, two main differences in the weighting:

- Enterprises with more than 249 employees are excluded from the population and from the sample frame (part of the original CIS3-sample).
- The sub-sampling has been defined as the 138 respondents out of all enterprises with non-response and less than 250 employees, that is 2146 enterprises – excluding the enterprises that later were estimated using the R&D-statistic for 2001.

When using these weights an estimate for the proportion of innovators in the non-response part of 51.8% is obtained. A calculation in the part of the CIS3-sample with less than 250 employees results in a proportion of 47.4%. This small difference of 4.5 percentage points are within the statistical margin of error, see Table 4.

## **Conclusion**

It can **not be concluded that there is any difference in the proportion of innovators between the CIS3-sample and the non-response sample.** As a consequence results from the CIS3-sample will not be adjusted with the results of the non-response sample.

**Table 4: Comparison of proportion innovators in the CIS3 survey and the non-response survey**

Sample	Respondents	Innovators	Std.error	Margin of error <sup>1</sup>	95% Confidence Interval	
					Lower limit	Upper limit
CIS3-respondents excl. >249 employees	1285	0.4737	0.01393	0.0273	0.4464	0.5010
Non-response sample	138	0.5182	0.04269	0.0837	0.4345	0.6019
Difference	-	0.0445	0.04491	0.0880	<b>-0.0435</b>	<b>0.1325</b>

1) 1.96\*(Std.error)

## Non-response analyse Skema til telefoninterview

<b>Cvrnr:</b>	«cvrnr»
<b>Ref.nr.:</b>	«cis3lbnr»
<b>Navn:</b>	«Navn»
<b>Kontaktperson 1999:</b>	«K_pers_er»
<b>Tlfnr:</b>	«Tlf»
<b>Stilling:</b>	_____
<b>Email:</b>	_____

Evt. kommentarer: «kommentar»

Mit navn er..... . Jeg ringer fra Analyseinstitut for Forskning. Vi er i øjeblikket i gang med at indsamle oplysninger om udviklingsarbejde i danske virksomheder. Det er en undersøgelse vi laver for det nye Videnskabsministerium.

Vi har tidligere sendt et spørgeskema ud til jeres virksomhed, som I valgte ikke at svare på. Jeg ringer for lige at få svar på de 3 hovedspørgsmål i undersøgelsen. Må jeg stille dem her over telefonen? Det tager kun et par minutter.

Spørgsmålene omhandler den del af virksomheden, der er beliggende i Danmark og hører under **CVR-nummeret....(Se ovenfor)**.

### Udviklingsarbejde i danske virksomheder Den tredje europæiske innovationsundersøgelse

Den europæiske innovationsundersøgelse indsamler data blandt europæiske virksomheder om nye eller væsentligt forbedrede produkter og processer indenfor fremstillings- og servicesektorerne i perioden 1998-2000.

#### Innovation

Innovation omfatter i denne undersøgelse både produkt- og proces-innovation, dvs. aktiviteter der har som mål at introducere nye eller væsentligt forbedrede produkter (varer eller tjenesteydelser) på markedet, og introducere nye eller væsentligt forbedrede processer i virksomheden. Innovationen skal være baseret på resultatet af ny teknologisk udvikling, nye kombinationer af eksisterende teknologier eller anvendelse af anden viden samlet i virksomheden.

## Produkt-innovation

En vare eller en tjenesteydelse er produkt-innoveret, hvis den enten er ny eller væsentligt forbedret mht. dens grundlæggende karakteristika, teknologiske specifikationer, indbyggede software, immaterielle komponenter, anvendelsesmuligheder eller brugervenlighed.

Innovationen skal være ny for virksomheden; den behøver ikke nødvendigvis at være ny på markedet. Det har ingen betydning, om innovationen er udviklet af virksomheden selv eller af en anden virksomhed. Ændringer af ren æstetisk art eller rent videresalg af innovationer der udelukkende er produceret og udviklet af andre virksomheder, skal ikke inkluderes.

I vedlagte eksempelsamling gives eksempler på produkt-innovationer.

**1.1. Har virksomheden introduceret produkter (varer eller tjenesteydelser) på markedet i perioden 1998-2000, der for virksomheden var nye eller væsentligt forbedrede?**

Ja                       Nej

**Kort beskrivelse af hvad der er nyt eller væsentligt forbedret ved virksomhedens vigtigste produkt-innovation (vare eller tjenesteydelse) i perioden 1998-2000.**

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## Proces-innovation

En proces er innoveret, når resultatet er

- nye eller væsentligt forbedrede produktionsteknologier
- nye eller væsentligt forbedrede koncepter for tjenesteydelser
- nye eller væsentligt forbedrede koncepter for distribution af produkter

Resultatet skal være væsentligt hvad angår produktiviteten, kvalitetsforbedringen af produktet/service eller besparelserne i produktions- og distributionsomkostningerne.

Innovationen skal være ny for virksomheden; virksomheden behøver ikke nødvendigvis at være den første der introducerer den nye eller ændrede proces. Det har ingen betydning, om innovationen er udviklet af virksomheden selv eller af en anden virksomhed. Rene organisatoriske og ledelsesmæssige ændringer skal ikke inkluderes.

**2.1. Har virksomheden introduceret nye eller væsentligt forbedrede processer vedrørende produktionen, koncepterne for tjenesteydelser eller distributionen af produkter i perioden 1998-2000?**

Ja                       Nej

**Kort beskrivelse af det, der er nyt eller væsentligt forbedret ved virksomhedens vigtigste proces-innovation i perioden 1998-2000.**

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## Igangværende eller afbrudte innovationsaktiviteter

**3. Havde virksomheden i perioden 1998-2000 aktiviteter, der havde til formål at udvikle eller introducere nye eller væsentligt forbedrede produkter (varer eller tjenesteydelser) eller processer,**

3.1) der var igangværende ved udgangen af 2000      Ja       Nej

3.2) der måtte opgives      Ja       Nej

**4. Hvad er årsagen til, at deres virksomhed valgte ikke at besvare skemaet?**


**Er vores oplysninger om Deres virksomhed korrekte?**

**Virksomhedens navn:** \_\_\_\_\_

**Adresse:** \_\_\_\_\_

**Postnummer og by:** \_\_\_\_\_

**Hovedbranche:** \_\_\_\_\_



## Eventuelle kommentarer

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**Mange tak for Deres deltagelse**

Udfyldes af Analyseinstitut for Forskning:

	Dato:	Initialer:	Bemærkninger:
Ringet			
Forreg:			
Indtastet:			
Godkendt:			