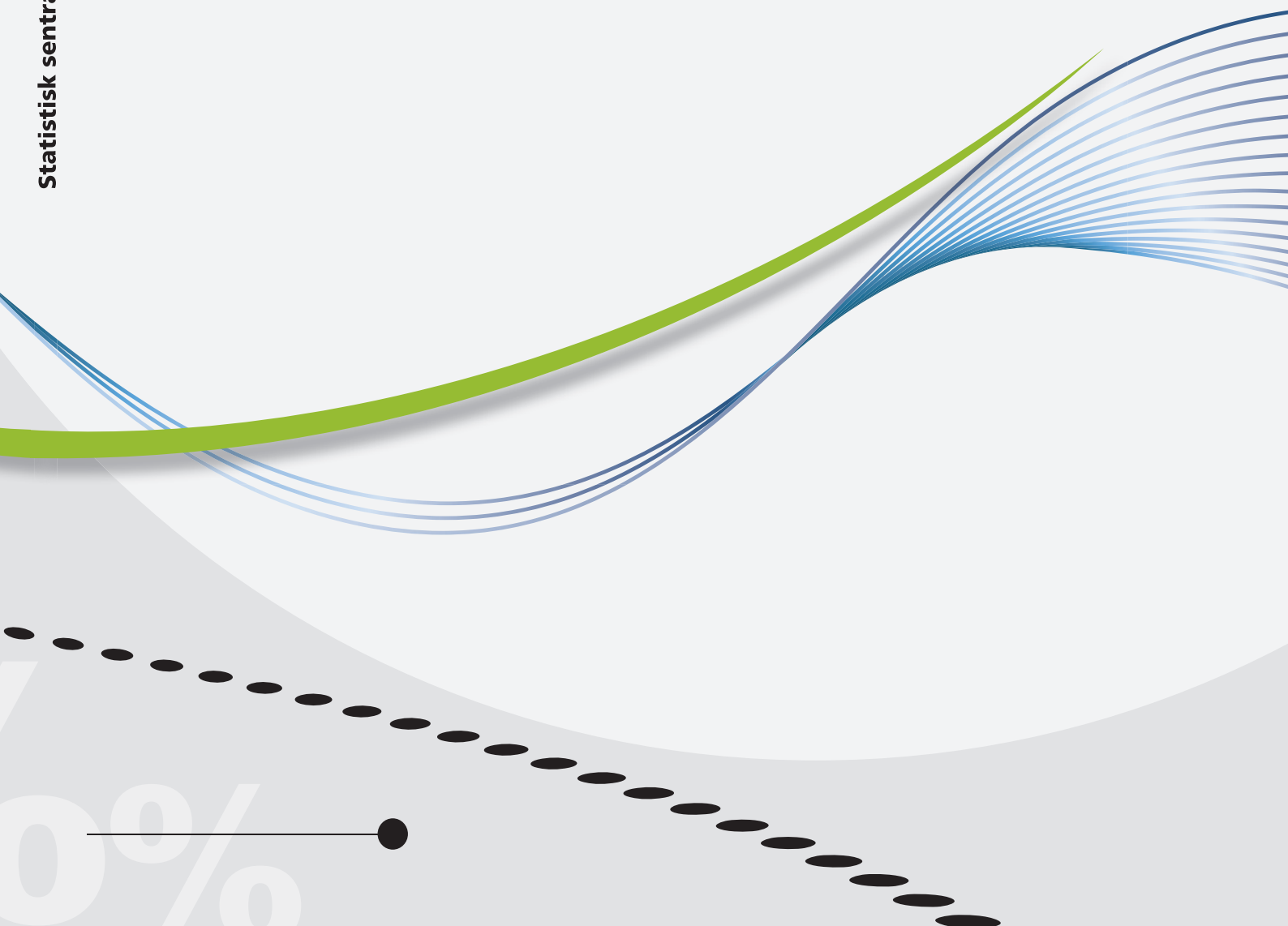




*Lars Wilhelmsen*

## **A question of context**

Assessing the impact of a separate innovation survey and of response rate on the measurement of innovation activity in Norway





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## Preface

Innovation statistics gives important information about the Norwegian business enterprise sector and provides core indicators on Norwegian enterprises' ability to face transitions, introduce new products and processes, and create growth.

The Norwegian innovation survey is carried out biannually in combination with the business enterprise Research & Development (R&D) survey. It is conducted as a part of the pan-European Community Innovation Survey (CIS) coordinated by the EU statistics agency, Eurostat. The survey is based on *Guidelines for Collecting and Interpreting Innovation Data*, colloquially called The Oslo Manual, first published by OECD in 1992 and currently in its third revision (2005).

The survey was conducted for the seventh time in 2011, covering the period from 2008–2010, with the reference year being 2010 (CIS 2010). This report details the results from a project involving two separate innovation surveys that were carried out in conjunction with CIS 2010. The studies were designed to test the impact of potential changes to the existing survey methodology as well as improving the basis for making valid international comparisons between the various CIS-implementing countries.

The project has received its main financing from Eurostat as well as some additional funding from the Norwegian Research Council. In Statistics Norway, Lise Dalen Mc Mahon and Frank Foyn from *Division for Manufacturing and R&D Statistics* have contributed to the planning of the studies and have provided valuable comments while Li-Chun Zhang from *Division for Statistical Methods and Standards* has assisted with quality assurance when designing the samples and performing the analysis.

Statistics Norway, 26 June 2012

Olav Ljones

## Abstract

In international comparisons of the CIS 2008 data, Norway ranks relatively low among the countries conducting the survey. In the *Innovation Union Scoreboard*<sup>1</sup> report published by the EU DG Enterprise, Norway is ranked below the EU average and placed in the third out of four groups as a “moderate innovator”. Comparatively, the other Nordic Countries, Denmark, Sweden, and Finland are all belonging to the primary category of “leading innovators”. Norway is also categorized as a “slow growing innovator”, as is Denmark and Sweden.

Yet, Norway does very well when it comes to core economic indicators such as comparatively high GDP per capita growth, a high overall trade balance surplus, low unemployment etc. If we expect a direct causal relationship between a high score on innovation indicators and economic prosperity, this may seem like a paradox. Thus, it seems pertinent to question the validity of benchmarking on indicators where Norway scores particularly poorly, yet unequivocally does very well on the overall economic statistics that these are supposed to be input to – or explanatory factors for.

Other reports have discussed this issue several times, perhaps chiefly the OECD (2007), terming the phenomenon “the Norwegian Puzzle”. While part of the Norwegian puzzle is indeed understood, it would still seem that some of the Norwegian results are lower than they reasonably “should be” when comparing the Norwegian economy to other countries. This is particularly true for some CIS-derived indicators.

This work presents a project seeking to explore whether there exists methodological factors that can help further enlighten the Norwegian puzzle. In particular, we wanted to answer two separate – but nevertheless related – questions.

First: *Can the presence of detailed R&D questions influence the reported incidence of innovation?* Most countries have separate R&D and innovation surveys, while some – including Norway – have integrated them in a single combined survey. The concept and measurement of innovation has been evolving rapidly, away from what was initially a purely technology and R&D driven focus, so there is a possibility that a combined survey may limit the respondents’ understanding of what constitutes an innovative activity.

Second: *Can we identify an effect of having an enforced mandatory innovation survey?* Norway has traditionally had among the highest response rates among the countries carrying out the CIS, and there are differences when it comes to the survey conductors whether they employ a mandatory vs. a voluntary survey. While accurate in theory, there is cause for doubt about the comparability of results with and without non-response adjustment (as well as various ways of performing non-response surveys), and other countries have seen a drop in their innovation rates after making the CIS mandatory.

The results show that both these concerns are valid. We find a significantly higher share of innovators in a special sample having received a survey questionnaire covering only innovations and not R&D as compared to the results from a corresponding sample from the regular, combined R&D and innovation survey. Moreover, we find that the reported innovation rates increase even further when looking at an additional sample where the same innovation-only survey was also made voluntary. In total, the measured incidence of product and/or process innovation more than doubled going from a mandatory combined R&D and innovation survey to a voluntary innovation survey alone.

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<sup>1</sup> Formerly known as the European Innovation Scoreboard.

## Sammendrag

I internasjonale sammenligninger basert på den paneuropeiske innovasjonsundersøkelsen, Community Innovation Survey (CIS), for 2008 rangerer Norge forholdsvis lavt blant landene som gjennomfører undersøkelsen. I EUs *Innovation Union Scoreboard* ligger Norge under EU-gjennomsnittet på den sammensatte hovedindikatoren og er gruppert på tredje nivå som en ”moderat innovatør”, mens både Danmark, Finland og Sverige er på høyeste nivå som ”innovasjonsledende”. I tillegg er Norge kategorisert som ”saktevoksende” i innovasjonsøyemed. Der er vi for øvrig på linje med Danmark og Sverige.

Tross dette klarer Norge seg meget godt økonomisk, og scorer høyt på sentrale økonomiske indikatorer som vekst i BNP per capita, handelsbalanse, arbeidsledighet og så videre. Om vi forventer en direkte kausal sammenheng mellom høyscore på innovasjonsindikatorer og økonomisk velstand kan dette synes som et paradoks. Dette tatt i betraktning virker det på sin plass å stille spørsmålsteget ved nytten av referansetesting på indikatorer hvor Norge kommer dårlig ut så lenge disse er ment å tolkes som input til å forklare utviklingen i økonomien generelt sett.

Dette er en problemstilling som også har vært diskutert flere ganger tidligere. Kanskje særlig i OECDs rapport fra 2007, hvor dette fenomenet ble omtalt som ”Den norske gåten”. Og selv om visse deler av denne gåten allerede er forstått og forklart kan det fortsatt se ut som om flere av de norske indikatorene på innovasjon og innovasjonsaktivitet fortsatt er lavere enn de ”burde være” hvis vi sammenlikner realitetene i den norske økonomien opp mot andre. Dette er definitivt tilfelle for enkelte tall innhentet gjennom den norske FoU og innovasjonsundersøkelsen.

Denne rapporten presenterer et prosjekt med mål om å utforske hvorvidt det fines metodemessige faktorer ved selve målingene av innovasjon i Norge som kan bidra til å forklare noen av disse utslagene. Særlig ble det fokusert på to separate, men likevel beslektede, spørsmål:

For det første: *Kan det at Norge har en kombinert undersøkelse om Forskning og Utvikling (FoU) og innovasjon bidra til å forklare de svake innovasjonsresultatene?* De fleste landene som gjennomfører CIS utfører FoU- og innovasjonsundersøkelser separat fra hverandre, men enkelte har dem også felles. Forståelsen og målingen av konseptet innovasjon har vært i en konstant utvikling, i de senere år stadig mer bort fra det som opprinnelig var et relativt smalt og teknologidrevet/-FoU-sentrert fokus. Kan det dermed tenkes at en felles undersøkelse bidrar til en snevrere oppfattelse av innovasjon hos respondentene enn det som var tiltenkt?

For det andre: *Er det svars-skjevheter i undersøkelsene?* Norge har tradisjonelt sett hatt en av de høyeste svarinngangene blant landene som gjennomfører CIS, og det er forskjeller mellom landene når det gjelder hvorvidt undersøkelsen er en svarpliktig del av nasjonal statistikk. Teoretisk sett skal skjevheter som følge av varierende svarprosent kunne korrigeres statistisk, men det er grunn til å stille spørsmål ved hvorvidt slike justeringer, og forskjellige måter å gjennomføre dem på, faktisk forbedrer sammenliknbarheten mellom landene.

Resultatene viser at det var grunn til å stille begge disse spørsmålene. Vi finner en signifikant høyere andel innovatører når vi sammenlikner den regulære FoU- og innovasjonsundersøkelsen for Norge med en spesialundersøkelse som kun dekker innovasjon, uten et sett detaljerte FoU-spørsmål. Vi finner også en ytterligere økning når vi sammenlikner denne spesialundersøkelsen med en identisk undersøkelse hvor det var frivillig å delta. Sett under ett får vi mer enn en dobling av innovasjonsraten ved å gå fra en felles og obligatorisk FoU og innovasjonsundersøkelse til en frivillig innovasjonsundersøkelse alene.

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## 1. Introduction and background of the project

Some (i.e. Nås et al 2010) have voiced the opinion that Norwegian scores on common innovation indicators are too low and does not reflect reality. What factors, other than Norwegian enterprises' propensity to innovate, can help us explain the results from the Norwegian innovation data and thus better understand them?

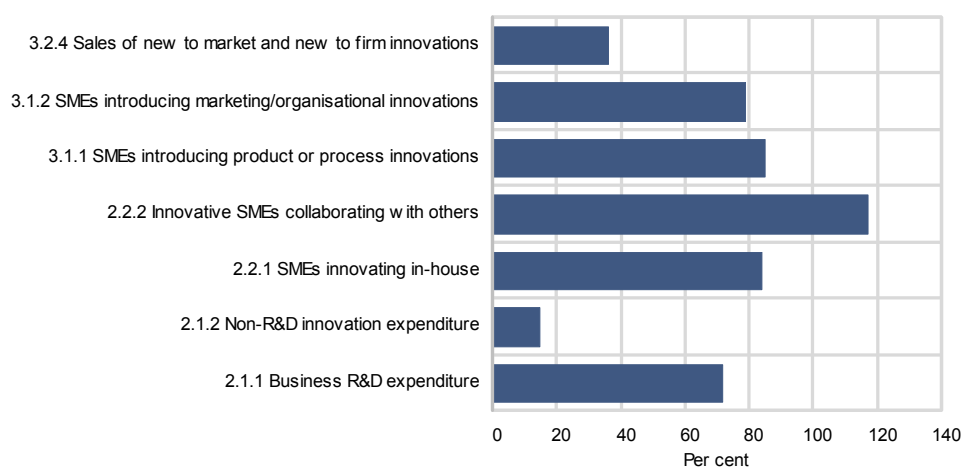
### 1.1. Is Norway a moderate innovator?

The broad tendencies in Norwegian innovation activity are for the most part comparable to our Nordic neighbours. However, the degree of innovation activity is notably much lower. Overall, among the mandatory<sup>2</sup> industries covered by all the Nordic countries in the CIS 2008 survey, Finland – with 51 percent of the enterprises – had the highest share of product and/or process innovators, followed by Denmark and Sweden with 42 and 39 percent respectively. In Norway, the number was 30 percent and in EU27 33 percent.

Among the manufacturing industries, Norwegian enterprises are mostly in line with the other Nordic countries for enterprises with more than 50 employees. Among the smaller enterprises, however; the Norwegian numbers fall far behind. In the services sector, Norwegian enterprises are less likely to have innovation activity than in the other Nordic countries regardless of their size.

According to the 2011 Innovation Union Scoreboard (European Commission 2012), Norway is considered among the Moderate innovators. Innovation performance is below the EU27 average, and the rate of improvement is also below that of EU27. Relative strengths, compared to the average performance, are in Human resources, finance, and support, while relative weaknesses are in investments, throughputs, share of innovators, and some economic effects.

**Figure 1.1. Norwegian scores on CIS-based indicators included in the IUS 2011<sup>1</sup>. (EU27 = 100)**



<sup>1</sup> Core minimum coverage as mandated by EU law.

### A more nuanced image of Norwegian innovation activity

While key innovation indicators for Norway are, overall, markedly lower than those of neighbouring countries, direct innovation comparisons across countries have to be made with certain reservations. Differences in innovation performance can be attributed to comparable enterprises being more innovative in one country, but they can also be due to other factors, such as one country having more enterprises in particularly innovation intensive sectors or industries.

<sup>2</sup> Core minimum coverage as mandated by EU law.

A Nordic comparison (Bloch et al. 2008) shows that the relative level of innovation activity in the Norwegian business enterprise sector is higher when controlling for the industry composition of the target population by using the average Nordic distribution among the manufacturing and services industries. Additionally, an industry-by-industry comparison shows Norwegian innovation activity in a more flattering light than a direct comparison of sector aggregates. Thus, Norway's low share of innovators is to a certain degree attributable to the fact that innovation intensive industries represent a smaller share of the total economy in Norway than they do in the other Nordic countries. When accounting for these differences in industry composition by calculating new country totals based upon a common Nordic industry structure, the Norwegian enterprises no longer lag their counterparts in innovation performance to the same degree, but still fall behind.

Furthermore, Norway does indeed do very well when it comes to core economic indicators such as comparatively high GDP per capita growth, a high overall trade balance surplus, low unemployment etc. Considering this, it seems pertinent to question the validity of reference testing on indicators where Norway scores particularly poorly, yet unequivocally does very well on the overall economic indicators that these are supposed to be an input to – or interpreted as explanatory factors for. Other reports have discussed this issue several times, perhaps chiefly the OECD (2007), naming the phenomenon “the Norwegian Puzzle”.

## 1.2. In search of methodological explanations

While part of the Norwegian puzzle is indeed understood, it would nonetheless appear as if some of the Norwegian figures are still lower than they reasonably “should be” when comparing the Norwegian economy to others. This is particularly true for some CIS-derived indicators, and this situation constitutes a challenge for both policymakers consulting the data for policy advice and researchers alike.

Consequently, this work presents a project in which we investigate two separate (but related) methodological issues. Both of them seeking to explore an important factor that we hope can assist in further enlightening the discussion, on the Norwegian puzzle in particular as well as on international comparisons of innovation indicators in general.

### **First: Does having a combined R&D and innovation survey in Norway affect the results compared to using a separate innovation survey?**

Most countries have separate R&D and innovation surveys while some, including Norway, have integrated them in a combined one. This was initially a natural choice, since the first innovation surveys were designed to cover only the manufacturing sector and focused heavily on new knowledge and technology driven improvements as drivers of innovations.

Later, the survey expanded to include an ever-growing list of service industries along with other enterprises, and thus the concept and measurement of innovation has been evolving rapidly; not only because of a change to a broader concept of innovation, but also because of a change in the economies of the participating countries, with a lessened importance on manufacturing. In the latest revision of the Oslo Manual, the guidelines move away from their strongly technology and R&D driven origin, adding an increased focus on non-technological innovation that has continued to evolve since.

As a result, it is possible that conducting an innovation survey combined with R&D will comparatively limit the respondents' understanding of what constitutes an innovative activity according to the measurement standard.

## **Second: Does a mandatory CIS with consistently very high response rates, like in Norway, have an impact on the results compared to other countries implementing the survey?**

Data from previous CIS surveys in Norway have shown no indication that there is any impact of non-response bias in the results. For the past several implementations of the survey, the response rate has been very high, ~95 percent or more, and there does not seem to be any clear pattern amongst non-respondents.

On the other hand, Norway has always had one of the highest response rates among the countries carrying out the CIS. While response rates in general have been on the rise in the latest CIS iterations, historically they have varied a lot between participating countries. The latest available data also reveal that large and important countries can still deviate substantially from the norm, with both low coverage and much lower response rates than most other countries.

There are also clear differences between the survey conductors on whether they employ a mandatory or a voluntary survey. Although in principle there are standardised methods in place to correct for such differences, there is cause for doubt about the comparability of data with and without non-response adjustment (as well as various ways of performing non-response surveys). One reason for such concern is the observation that other countries have seen a drop in their measured innovation rates after making the survey mandatory.

As such, the question becomes; can we identify a “positive response bias” amongst the enterprises in our population if given the opportunity not to respond? Or to put it another way, had our results been different if we did not have a mandatory survey but otherwise implemented it the same as we currently do and according to Eurostat guidelines?

## **2. An overview of methodology and survey design**

The general research design chosen to investigate the two research questions was to implement a version of the questionnaire without the R&D module and to send this to two different samples. One of these samples would be mandatory – with a goal of maintaining the response rate of the regular combined survey, while the other would be voluntary – and thus likely to achieve a substantially lower response rate.

The core principle used for designing the special survey and the two extra samples was to keep the analysis phase of the project as simple as possible. Answering the questions outlined in section 1 could feasibly have been accomplished with a different approach, but as to not introduce other factors than those we wanted to test, we decided to maintain both the sample selection strategy and questionnaire as identical as possible to the regular survey. We also wanted to keep any adjustment of the final data to a minimum, facilitating as direct a comparison as possible to the results from the regular survey.

When the text references “enterprises with innovation activity”, this refers to enterprises with either/or product innovation, process innovation, ongoing projects with a goal to develop new products and/or processes, or enterprises having abandoned or suspended such activities during the observation period (2008–2010).

### **2.1. Modifications to the questionnaire**

The questionnaire for the special surveys was based directly on the original questionnaire for the combined R&D and innovation survey, adding as few alterations as possible for it to work as a standalone survey. The innovation module in the combined questionnaire was in turn modelled closely on the common CIS model questionnaire, although with some minor Norwegian adaptations.

The most important and obvious difference was the R&D module preceding the innovation questions being cut in its entirety. The title of the survey and its introductory text was modified accordingly to reflect this change: From “FoU- og innovasjonsundersøkelsen” (The R&D and Innovation Survey) to “Innovasjonsundersøkelsen” (The Innovation Survey). Other differences included restoring questions on R&D expenditure to their proper place. (In the original questionnaire, these values were copied from the R&D module.) The special surveys also removed a question asking enterprises with R&D to break down three core variables (intramural R&D [number], personnel involved in R&D [number], innovation activity [yes/no]) on a list of activity units belonging to the enterprise.

The electronic questionnaire was likewise modelled closely on the one used in the regular survey, with the same modifications as outlined above. Any functional improvements identified during the time the regular survey had already been in the field were intentionally not implemented.

A copy of the complete paper questionnaire (in Norwegian) is enclosed in appendix A.

## 2.2. Sample selection

The two special studies were developed and implemented after the regular survey was put in the field, and to avoid polluting the data by having the samples overlap, we had to consider the limitations imposed by our existing sample design.

### The regular combined survey

Normally, the Norwegian R&D and innovation survey uses a combination of a census and proportional sample selection. The census part of the sample covers all units in NACE 72, all units with 100 employees or more in NACE groups F, G and H, and all units with 50 employees or more in the remaining industries. A random sampling is performed for the remaining enterprises in the target population. The units are stratified by 2-digit NACE combined with size group. The classifications by size and initial sample weights were as follows: 5-9 employees (15%), 10-19 employees (15%), 20-49 employees (35%), (and 50-99 employees (35%)). Allocation of the sample was made proportional by the number of enterprises in the target population with the following modifications:

- A minimum of 15 enterprises (or all available, whichever is smallest) was drawn in each strata
- Due to a large number of enterprises in the population, a smaller percentage was drawn in the 5-9 and 10-19 size groups for NACE 46 (10%).

In addition, a supplementary sample was drawn by Economic Region (Norwegian classification corresponding to NUTS 4, 90 regions) to ensure that a minimum of 15 non-census units from each region was included in the final sample.

### The special surveys

Since the regular survey is a census for all enterprises with more than 50 employees in most industries, it was decided to limit the extra samples for this project to enterprises with less than 50 employees. It was also decided to limit the response burden of the smallest enterprises, and therefore no enterprises from the 5–9 employees size group were chosen.

Furthermore, given the original sample rate of 35 percent for enterprises with 20-49 employees (with the possible addition of further units from the supplementary regional sample), it was obvious that we could not make two additional samples of the same size from this group if we wanted both to cover the same industries. Rather than spreading the additional samples over more industries, we decided to

stay as close to the original sample rates as possible while not diverging too much on the coverage compared to the regular survey.

Following this, we compiled a list of candidate industries from the remaining population by subtracting the original sample from the original population and then applying two criteria. First, that the number of enterprises in each stratum should be no smaller than 24 ( $12 \times 2$ ), and secondly that the number of enterprises in each stratum should be no smaller than 60 percent ( $30 \text{ percent} \times 2$ ) of the original population. In the end, the candidate list consisted of almost 7 700 enterprises with 10–50 employees from different 25 industries out of an original population of approximately 8 400 in the same size groups.

From this candidate list, we then chose a collection of strata from 10 industries. Our initial selection was guided by the objective of covering as wide a variety of industries as possible (manufacturing, core services and other industries; as well as including different levels of technology and knowledge intensity). At the same time, we also wanted to include units from industries with a large number of enterprises, due to these having a potential of influencing the national average. In the 10-19 employees group, a sample size equal to that of the regular survey (minus the regional supplement) was selected for each stratum, effectively 10 or 15 percent of the original population. In the 20-49 strata, both of the two samples was randomly allocated half of the units from the remaining population, yielding effective sample rates of 30-32 percent in both the mandatory and the voluntary sample. This gave a sample size of 1 826 enterprises for the two samples combined.

However, due to overall response burden concerns, a ceiling limiting the overall number of units to 1 500 was put in place, and rather than redoing the selection of units, it was decided to limit the sample rate for NACE 43, *Specialised Construction Activities*, to 20 percent for the mandatory sample and eliminate this strata from the voluntary one. After this correction, the final sample was 1 518 from a gross population of 4 506.

By comparison the complete final population for the complete sample of the regular survey was 16 859<sup>3</sup>, thus the mandatory extra sample covered roughly a quarter of the target population of the complete regular sample.

**Table 2.1. Comparable industries and size groups in the samples**

NACE Rev. 2	Description	Employees coverage
10	Manufacture of Food products	10 -19,20-49
16	Manufacture of Wood and wood products	10 -19,20-49
25	Manufacture of Fabricated metal products	10 -19,20-49
28	Manufacture of Machinery and equipment	10 -19,20-49
43	Specialised construction activities	20 -49
46	Wholesale trade	10 -19
55	Accommodation	10 -19,20-49
58	Publishing activities	10 -19,20-49
62	Computer programming, consultancy	10-19, 20-49
71	Architecture and engineering activities	10-19, 20-49

### 2.3. Data collection and weighting

Data collection was opened on 27.10.2011. The respondents were initially sent a cover letter with information on how to respond to the survey; either by logging on to Statistics Norway's electronic system on the web, or alternatively ordering a

<sup>3</sup> 18 449 when also counting certain piloted industries.

paper questionnaire by calling an automated service. Less than one percent of the respondents chose the latter option of obtaining a paper questionnaire, which is a similar rate to what was observed in the regular combined survey.

Two further reminders were sent out on 14.11.2011 and 05.12.2011. The initial cover letter and reminders were formulated the same as far as their content related to the substance of the innovation survey, but differed in their technical details. These differences were due to legal requirements regarding information to the mandatory sample; covering their obligation to answer, recourses for appeal, and possible repercussions of not responding. Data collection was closed on 31.01.2012 with the mandatory extra sample having reached a response rate of 95 percent and with 41 percent for the voluntary sample.

Some enterprises were eliminated due to information that came up during the data collection phase, and ultimately all three samples were calibrated to a common population and weighted. Weights were calculated based on the final realized sample and the final adjusted population grouped by sample strata: 2-digit NACE and size class. For binary properties/variables, the number of enterprises was used for the weights, while for quantitative variables (i.e. innovation expenditure) a linear model scaled by the total number of employees per strata was employed<sup>4</sup>.

The final adjusted population, sample sizes and response rates are listed in table 2.2.

**Table 2.2. Population, net final samples, and response rates**

<i>NACE Rev. 2</i>	<i>N</i>	<i>Regular sample</i>	<i>Mandatory sample</i>	<i>Voluntary sample</i>	<i>Response rate (regular)</i>	<i>Response rate (mandatory)</i>	<i>Response rate (voluntary)</i>
10	448	120	98	94	97,5	95,9	46,8
16	232	59	48	47	100,0	100,0	46,8
25	417	105	91	89	93,3	94,5	43,8
28	160	39	33	34	92,3	93,9	41,2
43	694	247	139	-	95,5	93,5	-
46	1 089	118	109	109	97,5	96,3	33,9
55	395	102	85	86	95,1	95,3	31,4
58	254	58	51	51	98,3	98,0	41,2
62	283	62	59	58	93,5	93,2	37,9
71	513	110	106	106	97,3	92,5	49,1
<b>Sum</b>	<b>4 485</b>	<b>1 020</b>	<b>819</b>	<b>674</b>	<b>96,1</b>	<b>95,0</b>	<b>41,2</b>

Ideally, we would have liked to be able to conduct a non-response survey by telephone for the voluntary sample, but this was not given priority due to limited resources and the fact that actually making future surveys voluntary was not being considered as a relevant option.

The same auditing software was used for all three samples with only minor adaptations. This means that the controls and auditing procedures were almost identical. As were the SAS programs developed for weighting and tabulating the final data and the same personnel performed the auditing and analysis tasks of the special surveys in parallel with the work on the regular survey.

<sup>4</sup> Hagesæther & Zhang (2008) and Wilhelmsen (2011), both in Norwegian, provide more information about the methodology used in the regular implementation of the survey.

### 3. Results and analysis

Two complete sets of tables, broken down by industry and corresponding to those produced for the regular survey, were generated for the extra samples. The first set comparing the results from the regular sample to the mandatory extra sample – covering the complete population outlined above – and another comparing the mandatory and voluntary extra samples using the slightly smaller target population used for the voluntary sample<sup>5</sup>.

The results show that both the hypotheses that were outlined in section 1.2 are valid. We find a significantly higher share of innovators when comparing the results from the regular sample to the mandatory sample in the special surveys, who received an innovation-only questionnaire without R&D. This is true for both product and process innovators and for the combined product and/or process innovator indicator. In addition, we also see an increase in the number of enterprises reporting having either ongoing or abandoned innovation activities, especially among enterprises who also reported having introduced new products and/or processes.

What's more, we find that the reported innovation rates increase even further when looking at the sample where the separate innovation survey was voluntary. Overall, the measured incidence of product and/or process innovation more than doubled when going from a mandatory combined R&D and innovation survey to a voluntary innovation-only survey.

#### 3.1. Overall results for product and/or process innovation

While enterprises in the separate surveys show stronger innovation performance than the regular survey across several indicators and we experimented with a more thorough analysis of several variables, we have chosen to use “product and/or process innovation” as the headline indicator for evaluating the results of the special surveys.

This choice was determined in part by the fact that this indicator has traditionally been seen as central in the innovation surveys, but mostly it was chosen because this is a particular aspect where Norwegian enterprises have been making a poor showing against countries it would be natural to compare us with. This goes for both the product and process innovation variables by themselves as well, but the combined indicator seems a natural choice. Other variables in the special surveys may, relatively speaking, vary as much (or more) but once Norwegian enterprises report that they are innovative, they differ much less drastically from their European counterparts than the share of innovators did in the first place. As such, an additional piece of the solution to the Norwegian puzzle may lie, not necessarily in the notion that Norwegian enterprises and innovators are all that different from enterprises and innovators in other countries, but also in that we – comparatively speaking – may not have been able to measure all of them.

Comparable results for both the regular and extra surveys, including an estimate of their potential error using prediction intervals, are given below. These intervals indicate that, given the assumptions that the model the numbers based on is correct<sup>6</sup>, there is an a priori chance that the observed value on the tested variable lays between the outer points of this interval – at least as often as a given likelihood used to calculate the intervals. This applies to any possible sample with the same parameters drawn from the same population. In this case, we have chosen to

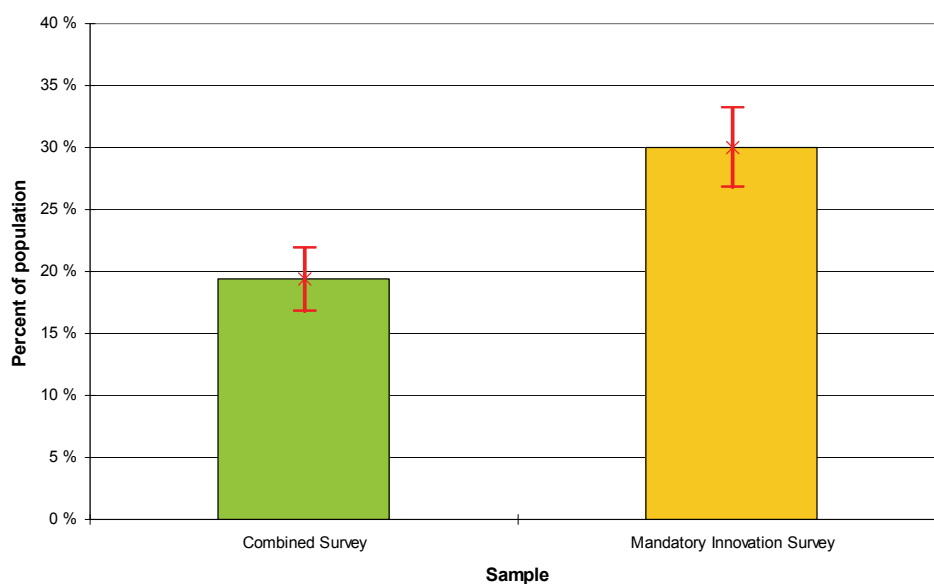
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<sup>5</sup> A selection of these results is included in Appendix B. Please contact Statistics Norway for electronic copies of the complete sets of tables.

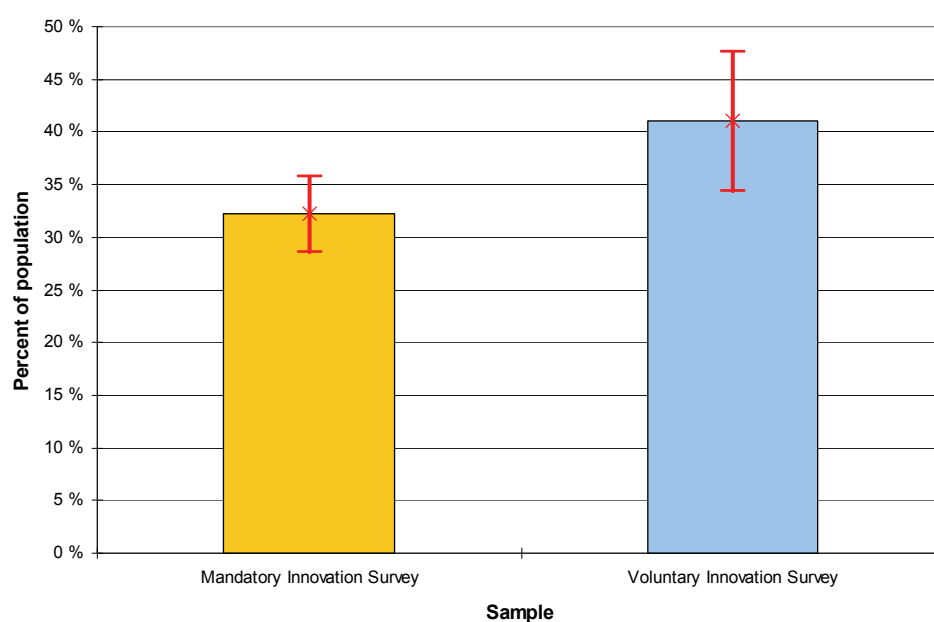
<sup>6</sup> These primarily being the assumptions of a normal distribution of observations and of independent samples.

present the intervals at 95%, calculated by multiplying the critical value of the standard score ( $z$ ) by the ratio of the standard deviation ( $\sigma$ ) to the population estimate ( $\mu$ ).

**Figure 3.1. Product and/or process innovation, percent of population. Regular survey vs. mandatory innovation survey**



**Figure 3.2. Product and/or process innovation, percent of population. Mandatory vs. voluntary innovation survey**



Regrettably, we were not able to perform a telephonic non-response survey for the voluntary sample within the scope of this project. However, our working hypothesis – based on information from similar projects, direct polling commissioned by national stakeholders and anecdotal evidence from contact with the enterprises – is that such a non-response survey would not have eliminated the higher incidence of innovation reported in the voluntary sample. Even when using the exact same question specifications as in the paper or on-line questionnaire, there are some indications that simplification and the possibility of interaction with the interviewer increases the likelihood of a positive response. Perhaps especially



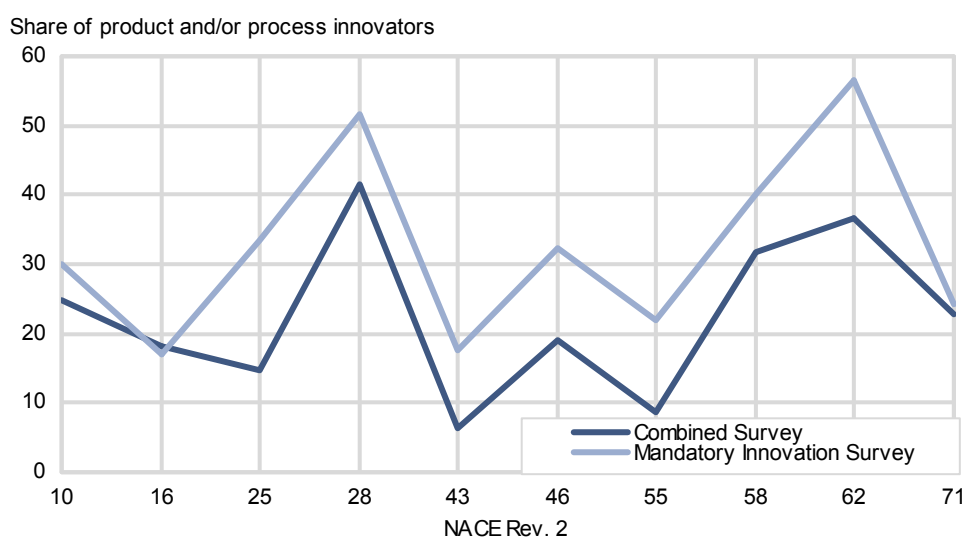
when dealing with complex terms like “product or process innovation”, which are not commonly or uniformly understood among many of the respondents. If this were the case, we would end up with what could arguably be interpreted as a deceptively high level of innovation coupled with deceptively low estimates of the sampling error.

### 3.2. NACE breakdowns, confidence and significance tests

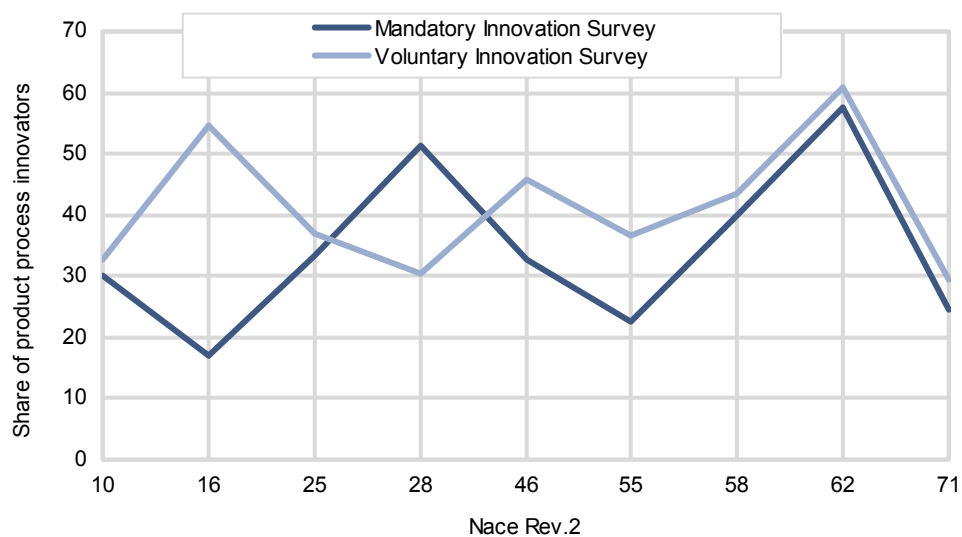
Although the increase in the observed innovation rates is rather striking for both comparisons, we note that the prediction intervals overlap when comparing the mandatory and voluntary extra sample. While it is true that two independent samples with non-overlapping prediction intervals are necessarily significantly different, the converse assumption of non-significance is not automatically true if the prediction intervals overlap. We have therefore included tables listing standard error and t-tests along with the estimates, not only for the total population data but broken down by two-digit NACE as well.

When considering the data in Table 3.1 and 3.2, it should also be noted that the uncertainty attached to the individual industry breakdowns are generally lower than reported here if we consider the complete regular survey. This is due to the increased sampling rate when the enterprises grow larger and in particular the census nature regarding most of the enterprises with more than 50 employees. Thus, for the complete regular survey – even when including enterprises with 5-9 employees – the relative standard deviation (CV) in percent of the original estimate is less than 33 for all industries but one (and for most much lower than that).

**Figure 3.3. Product and/or process innovation, by industry\*, regular survey vs. mandatory innovation survey**



\* NACE Rev. 2, see table 2.1 for legend.

**Figure 3.4. Product and/or process innovation, by industry\*, mandatory vs. voluntary innovation survey**

\* NACE Rev. 2, see table 2.1 for legend.

The innovation rates in the mandatory sample is almost consistently higher than in the regular sample across industries, and comparing the mandatory sample to the voluntary sample show a similar pattern. Although in the latter case, two of the industries in the voluntary sample deviate notably from their counterparts in the mandatory one. Even so, given the error rates of these estimates it is only to be expected that one or two should diverge either way compared to the other samples. It is also interesting to note that one of the industries showing no significant difference between the standard and the mandatory sample is the only one significant in this comparison.

The assumed reliability of the measurements should be strengthened by the fact that the errors for none of the individual industries deviate a great deal from the others. We also note that the estimates for five out of ten individual industries as well as the overall estimate for the population are statistically different with a 95 percent probability in the regular sample.

**Table 3.1. Product and/or process innovators: Estimates, standard, error and t-tests, regular survey vs. mandatory innovation survey**

NACE Rev. 2.	N	Estimate, regular sample	Estimate, mandatory sample	SE, regular sample	SE, mandatory sample	Absolute t-value, regular sample vs. mandatory sample
10	448	111,7	134,2	16,9	20,0	0,86
16	232	42,2	39,5	11,4	9,5	0,18
25	417	60,8	140,0	14,3	19,9	3,23**
28	160	66,3	82,4	12,0	14,6	0,85
43	694	44,1	122,8	9,0	21,0	3,44**
46	1 089	208,3	352,6	37,9	47,5	2,37**
55	395	34,3	86,7	10,9	18,9	2,41**
58	254	80,6	101,6	15,9	16,9	0,90
62	283	103,6	160,3	18,3	18,5	2,17**
71	513	117,0	124,2	20,2	22,1	0,24
<b>Total</b>	<b>4 485</b>	<b>868,9</b>	<b>1 344,3</b>	<b>58,3</b>	<b>72,6</b>	<b>5,11**</b>

\*\* p < .05, ∞ DF.

**Table 3.2. Product and/or process innovators: Estimates, standard error and t-tests, mandatory vs. voluntary innovation survey**

NACE Rev. 2.	N	Estimate, mandatory sample	Estimate, voluntary sample	SE, mandatory sample	SE, voluntary sample	Absolute
						t-value, mandatory sample vs. voluntary sample
10	448	134,2	146,9	20,0	32,5	0,33
16	232	39,5	126,8	9,5	26,7	3,08**
25	417	140,0	154,3	19,9	35,7	0,35
28	160	82,4	48,6	14,6	26,6	1,11
43	694	-	-	-	-	-
46	1 089	352,6	500,4	47,5	88,9	1,47
55	395	86,7	144,4	18,9	40,5	1,29
58	254	101,6	110,5	16,9	31,2	0,25
62	283	160,3	172,4	18,5	31,0	0,33
71	513	124,2	151,3	22,1	33,4	0,68
<b>Total</b>	<b>4 485</b>	<b>1 221,6</b>	<b>1 555,5</b>	<b>69,5</b>	<b>127,9</b>	<b>2,29**</b>

\*\* p < .05, ∞ DF

### 3.3. Other observations and results from the data

Unless otherwise specified, this section will primarily discuss the differences between the regular sample and the mandatory innovation survey. Most of the time the overall results from the voluntary sample are more or less in line with the results from the mandatory sample. However, for some questions the number of observations having a positive response on the relevant variable is so small as to make the relative statistics in the results tables rather volatile.

Overall, the most obvious trend in the results, apart from the increased number of product and/or process innovators is that the distribution of other innovation attributes among them often appears to be quite similar between samples. See figure 3.5 for an example of a rather typical outcome distribution.

#### Questions that apply to product/and or process innovation active enterprises

One notable exception to this is that enterprises in the mandatory sample have a higher degree of cooperation, 33 percent, than those in the regular sample, where only 21 percent of the enterprises report to have been involved in innovation cooperation. In absolute terms, the number of cooperating enterprises in the population has more than doubled. Additionally, all the different cooperation partners are reported higher as a share of enterprises with innovation cooperation. This means that not only are enterprises in the mandatory extra sample more likely to cooperate, but also that when they do they do so with more partners on average than in the regular sample. In particular, *Other enterprises within your enterprise group* and *Competitors* show a large increase.

Another noteworthy difference is that turnover coming from new or significantly improved products has increased substantially between the regular sample and the mandatory one. Not only is the product innovators' share of the total turnover higher – as would be expected due to their increase in numbers – but a higher share of turnover resulting from innovations is also being reported among the product innovators themselves. Overall, the turnover that came from product innovations doubled from 3.4 to 6.8 percent of the total turnover in the population.

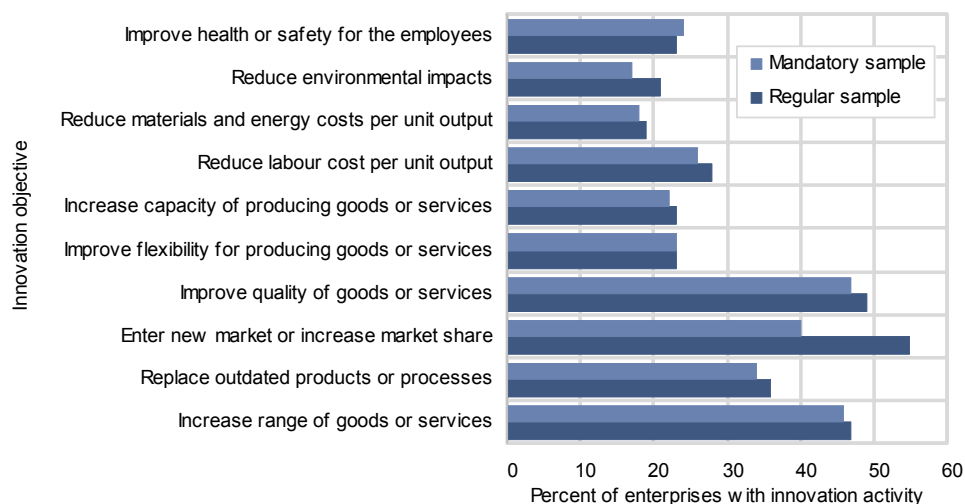
The general trend for innovation expenditure is similar between the samples; in particular, the observation that internal R&D is the dominant form of reported expenditure remains unchanged. One notable difference in the extra sample; however, is the increase in *External R&D*. This is discussed further in section 3.4. Another point is that the unweighted micro data for the mandatory sample contains a larger number of relatively small amounts reported as innovation expenditure. Whereas the distribution on the expenditure variables in the regular sample more or

less falls off a cliff at a point, it continues much more gradually towards zero in the mandatory extra sample.

Innovation objectives are mostly reported to be the same between the samples. As a share of enterprises with innovation activity, they are slightly higher in the regular sample except for enterprises seeking to *Enter new market or increase market share* where the difference is more pronounced.

The use of patents and other methods for protecting innovations was also similar between the samples. This could be considered somewhat surprising if the difference in innovation activity was caused by the addition of lower level innovators in the results from the extra sample. If this was the case, it would not be unreasonable to expect that use of the various protection methods would – as a share of innovation active enterprises – move towards the “lower hanging fruit” of the informal methods. Yet, we find no clear evidence of such a shift in our data, but the share of innovation active enterprises who reported that they used none of the listed methods did increase somewhat.

**Figure 3.5. Innovation objectives, by sample, regular survey vs. mandatory innovation survey**



### Questions that apply to all enterprises

Overall, the enterprises have a similar experience with hampering factors between the samples, with the same factors being the most important, but the reporting is slightly higher in the mandatory extra sample.

When it comes to organisational innovation, it is slightly higher in the mandatory extra sample. The difference is not major – from 15 to 20 percent – but it is significant. With *New methods for organising work responsibilities and decision making* being higher in the extra sample while *New methods for organising external relations* was more common than in the regular sample. Most of the additional organisational innovators came from the increased share of enterprises with innovation activity in general; and among these, the incidence of organisational innovation between the samples was more similar. There, only *New methods for organising external relations* showing an increase.

The same trend, although slightly weaker and only borderline significant for the samples as a whole, is also present with regards to marketing innovations where there is a slightly higher rate reported for enterprises in the mandatory sample than it is in the regular sample; a change from 16 to 20 percent.

As with organisational innovation, it appears that this increase is primarily due to the increase in enterprises with product and/or process related innovation activity. These enterprises have a significantly higher probability of also reporting organisational or marketing innovations than enterprises without such activities. However, when viewed separately, the share of both innovation active and non-innovation active enterprises respectively who reported marketing innovations remained more or less the same between samples.

As with organisational and marketing innovation, the enterprises report a similar access to personnel with special skills in all samples. Overall, all the respective skills are reported slightly higher in the mandatory extra sample and this is again due to the increased number of innovation active enterprises reporting higher than the non-innovators. The same is more or less true for *Methods to stimulate new ideas or creativity*, where all the methods are reported somewhat higher in the mandatory extra sample.

### 3.4. Impact of the combined survey on the measurement of R&D

Before conducting the special surveys, the impression was that having a combined R&D survey did not influence the reporting of R&D. Since the R&D survey is performed annually, and only integrated with the innovation survey every other year, there was ample data to support that the presence of the questions from the innovation survey did not alter the reported R&D data to any considerable degree.

Still, in a comparative questionnaire review it was hypothesized (Langhoff et al. 2012) that the presence of more detailed questions on R&D could possibly limit the overall level of reporting. In particular that high threshold thematic- or technical breakdowns, that are not intended to cover all possibilities<sup>7</sup>, might cause respondents to limit the reporting if their R&D activities does not fit any of the given alternatives. The assumption is that such lists might cause respondents to re-evaluate their understanding of what constitutes R&D.

Thus, the much simpler formulation of the R&D questions in the CIS survey could potentially help illuminate this question by allowing us to compare the samples for enterprises reporting that they have performed R&D and/or acquired R&D from others during the period as well as their associated expenditures.

The results are perhaps surprising, at least if viewed purely from an innovation perspective. Initially we expected that any increase in the observed innovation rate caused by eliminating the detailed R&D module from the questionnaire would primarily come from lower-threshold non-R&D performing innovators. Thus, we would expect the number of R&D performers to stay more or less unchanged between the samples while the share of innovation active enterprises involved in R&D would be seen to decrease.

Instead, the data show that not only has the absolute number of enterprises involved in R&D gone up by a large margin, the share of innovators engaged in some R&D activities, both internal and external, has also increased compared to the regular sample. This is more in line with the expectation drawn from the R&D review mentioned above.

As a share of enterprises with innovation activity, we see only a slight increase in the incidence of *In-house R&D*, but the incidence of *External R&D* has increased rather dramatically. The incidence of External R&D among enterprises with

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<sup>7</sup> Examples from the Norwegian survey include “Biotechnology”, “Nanotechnology”, “ICT”, “Renewable energy”, “CO<sub>2</sub> capture”, “Aquaculture”, etc.

innovation activity almost doubles from 16 to 31 percent, which constitutes almost a threefold increase in the absolute number of enterprises who purchased R&D from others during the period.

There is also a corresponding rise in R&D expenditure that seems to be in line with the relative increase in the number of innovation active enterprises having performed these activities. Again, it is most notable for *External R&D*, which increases more than four times from the standard to the mandatory sample, up to 211 million NOK.

We do not know which set of data is more correct in a Frascati Manual sense (OECD 2002), but the differences could certainly have influenced international comparisons using R&D estimates based on the CIS data.

### 3.5. Possible explanations for the observed results

A general trend for many of the questions is that there seems to be “more answers” in the extra sample. That is, the average respondent there answers more questions and chooses more options, where available, than in the standard sample. This trend is, at least partially, to be expected considering the increased reporting of innovation activity.

For example, a priori it would be easy to presume that non-innovators would have been more hampered in their innovation attempts. Yet, earlier data from the Norwegian innovation survey seems to suggest that non-innovators find the concept of innovation and the survey itself irrelevant to the degree that they have not reflected on why they have not engaged in any innovation activities as they understand it from the survey. Not necessarily that all of the hampering factors outlined in the survey are actually irrelevant to them.

Thus, we believe that this increased reporting is at least partially caused by a larger share of enterprises finding the survey itself more applicable to them. In so doing, they may be answering more of the remaining questions more diligently than they otherwise would have. As opposed to deciding early on in the process of responding that: “this does not apply to me”, and proceed to check “no” or “not relevant” throughout without giving substantial consideration to the actual questions given.

Another possibility is that by removing the R&D module, we shift the perception of the survey away from a technology and knowledge driven slant that may be perceived from the R&D questions, thus perhaps also altering the threshold among respondents for reporting an activity as innovative. As mentioned, it has been hypothesised that asking for a too detailed breakdown of certain R&D activities may suppress reporting of other R&D activity that does not fit the available categories<sup>8</sup> due to respondents incorrectly second-guessing their initial assessment of an activity as R&D when they see the listed alternatives. Of course, inhibiting the reported R&D in this way could also limit the reporting of innovation. A similar mechanism may be in effect for non-R&D driven innovators as well; where the reporting of such activity could be suppressed by an impression of a clear R&D focus in the regular survey.

Some of the results outlined above would seem to support this, but the trends in the data are hardly conclusive.

A further explanation for the differences between the regular and the extra samples could be the changes in reference period between questions. It is possible that, since all the earlier variables concerning R&D in the standard sample has a

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<sup>8</sup> See section 3.4.

reference period of one year, the respondents in the standard sample are more likely to miss that it transitions to three years for the innovation questions. Vice versa, respondents in either of the extra samples may have missed that the sampling period for the expenditure question is one year only, but – given the results – this seems less likely. In general, the first reference period the respondents encounter and/or the most prominent one for each survey may “set the standard” to a degree where some miss the fact that this may vary between individual questions throughout the questionnaire.

Yet another option is that we may get different types of respondents between the samples. We know from contact with the enterprises, both for this project and in earlier years, that surveys requiring many “hard numbers” are more likely to be answered by accounting, personnel with financial oversight, or others with similar functions. We also know that some respondents tend to view the CIS questions as an appendix to the R&D survey when they are combined.

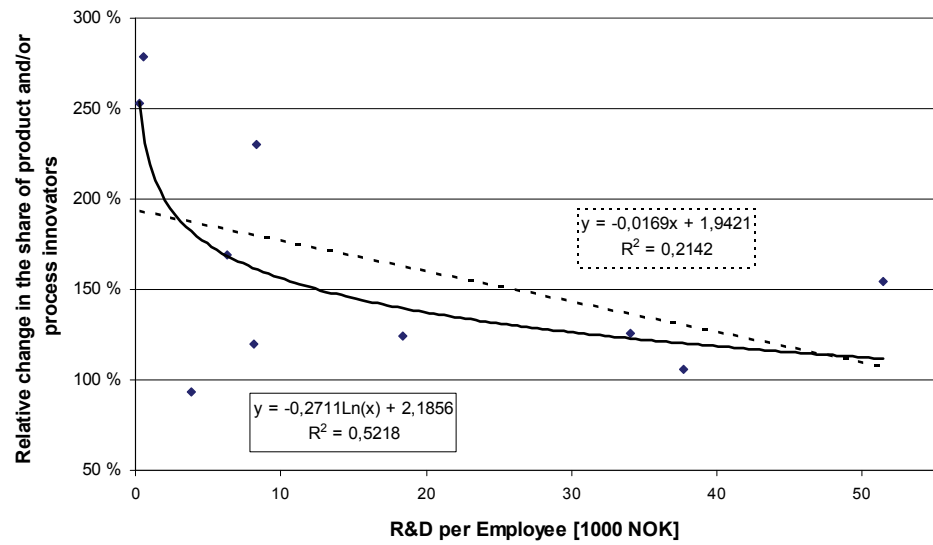
It is possible that a separate innovation survey is more likely to be answered by someone performing a different function the enterprise, and we believe that this may influence the answers to the survey. Someone in a strategic management position is probably more willing to generalize or to give a best guess than an accountant would be. We are also aware that some countries explicitly address the CIS to respondents in such a position (i.e. the Managing Director, Director of Operations or similar) when sending out the questionnaire.

### **Different mechanisms in different industries**

With a view to understand how the results in our extra samples could extend to the complete target population, we have also done some work on examining possible relationships between the observed data and the individual industry breakdowns. There are some indications that the change from a combined survey to a separate innovation survey will have the biggest impact on the industries with low R&D intensity as well as industries that previously reported a low incidence of innovators.

However, none of the examined linkages has shown themselves to be particularly strong or conclusive on their own. An example of this, plotting the logarithmic and linear trend lines for the relative change in innovation rates – between the standard sample and mandatory extra sample – against R&D intensity in the standard sample is shown below. Exploring these paths further, in an effort to provide greater explanatory power, would probably require a more complex model and linkages to other data, but this would be an endeavour outside the scope of this work. Nevertheless, we hope and expect that the micro data from the project will eventually be employed by researchers for such purposes.

Figure 3.6. R&D intensity and relative change in innovation rate between the standard and the mandatory sample, by NACE





## 4. Conclusions

The results outlined in section three shows that there are clear and significant differences in the results based on whether the CIS is carried out separately or integrated with the business enterprise R&D survey. However, the results are not clear as to which of the two sets of data are technically most *accurate*. Neither is it obvious that the most accurate set of results is also the most *useful* for any particular purpose, as long as the less valid set is also reliable and has other advantageous properties that the other data may lack.

By that reason, the main conclusion we draw from this exercise is that context does matter. As such, the results outlined herein should be taken into account when comparing results from the Norwegian R&D and innovation survey against differing implementations of the CIS from other countries. And while “The Norwegian Puzzle” is yet to be fully solved, we do believe that this work has added an additional piece towards its solution.

### 4.1. Going forward

While it seems clear that we are capturing new information in the special surveys, at the present time we still do not have a complete understanding of the mechanisms involved.

There will be a companion paper<sup>9</sup> in Norwegian detailing the implications, both benefits and disadvantages, for the complete scope of Norwegian business R&D and Innovation statistics in the event of implementing R&D and Innovation as separate surveys. We also plan to perform a round of cognitive testing interviews with enterprises in the sample, seeking to test the hypotheses outlined in section 3.5 as well as covering topics such as perceived response burden etc. This will serve as further input concerning the possible changes between the present survey and a potentially separate innovation survey design.

Following this, we will hold a round of discussions with key stakeholders regarding the future implementation of the surveys, and seek to have a conclusion on whether to keep or change the current methodology before putting CIS 2012 in the field in spring 2013.

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<sup>9</sup> Wilhelmsen, Foyn and Langhoff (2012).

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## **Appendix A. Survey questionnaire**

Form RA-0708 shown here was used for both innovation-only extra samples. For an example of what R&D questions have typically been covered in the regular combined R&D and innovation surveys, a copy of RA-479 used for CIS 2008 is included in Wilhelmsen (2011).



## Undersøkelse om innovasjon i næringslivet 2010

For SSB:



Du kan også svare på Internett: <https://idun.ssb.no>

Bruker-ID:

Passord:



Trenger du hjelp med utfylling av skjemaet, ta kontakt på e-post [datafangst@ssb.no](mailto:datafangst@ssb.no) eller telefon 62 88 51 90 hverdager mellom 08:00 - 15:00.

Undersøkelsen om innovasjon omhandler utvikling og introduksjon av nye eller vesentlig forbedrede produkter eller prosesser, vesentlige organisatoriske endringer eller nye metoder innenfor marketing for treårsperioden 2008-2010

Undersøkelsen dekker foretak i industri og tjenesteytende virksomhet. For å få mest mulig sammenliknbar informasjon for foretak med og uten innovasjonsaktivitet, ber vi om at alle spørsmål blir besvart, hvis ikke annet er spesielt angitt. Oppgaven skal gis for foretaket spesifisert i navnefeltet øverst. Bare enheter lokalisert i Norge skal inkluderes i denne oppgaven.



Opplysningene nedenfor er den informasjonen SSB har om foretakets kontaktperson. **Er opplysningene feil eller mangelfulle, vennligst oppdater i feltene til høyre:**

Navn:

Stilling:

Tlf.nr.:

E-post:


**Innovasjon** er basert på resultater av enten ny teknologisk utvikling, nye kombinasjoner av eksisterende teknologi eller utnyttelse av annen kunnskap ervervet av foretaket.

## Produktinnovasjon

Produktinnovasjon er en vare eller tjeneste som enten er ny eller vesentlig forbedret med hensyn på dets egenskaper, tekniske spesifikasjoner, innebygd software eller andre immaterielle komponenter eller brukervennlighet. Innovasjonen skal være ny for foretaket; den må ikke nødvendigvis være ny for markedet. Det er ikke avgjørende om innovasjonen er utviklet av ditt foretak eller av andre foretak. Endringer av bare estetisk natur, som design, skal ikke inkluderes her, men under markedsinnovasjon. Rent salg av innovasjoner fullt og helt utviklet og produsert av andre foretak omfattes ikke.



### 1 Har foretaket i perioden 2008-2010 introdusert produkter (varer eller tjenester) på markedet som er nye eller vesentlig forbedrede?

- Ja, varer  
 Ja, tjenester  
 Nei → **Gå til 5**

### 2 Hvem utviklet disse produktene? Kryss av for de alternativene som passer

Nye varer      Nye tjenester

I hovedsak eget foretak	<input type="checkbox"/>	<input type="checkbox"/>
Eget foretak i samarbeid med foretak i eget konsern	<input type="checkbox"/>	<input type="checkbox"/>
Eget foretak i samarbeid med andre foretak eller institusjoner (forskningsinstitutter, universiteter/høyskoler)	<input type="checkbox"/>	<input type="checkbox"/>
Eget foretak ved å kopiere eller modifisere varer eller tjenester opprinnelig utviklet av andre foretak eller institusjoner	<input type="checkbox"/>	<input type="checkbox"/>
I hovedsak andre foretak eller institusjoner	<input type="checkbox"/>	<input type="checkbox"/>

### 3 Var noen av disse produktinnovasjonene (varer eller tjenester) nye for foretakets marked eller bare nye for foretaket?

	Ja	Nei	Hvis ja: →	Nye for det norske markedet	Nye for det europeiske markedet	Nye for verdensmarkedet
Nye for foretakets marked	<input type="checkbox"/>	<input type="checkbox"/>	→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bare nye for foretaket	<input type="checkbox"/>	<input type="checkbox"/>				

### 4 Fordel etter beste skjønn foretakets omsetning<sup>1</sup> i 2010 på:

Nye eller vesentlig forbedrede produkter (varer eller tjenester) introdusert i perioden 2008-2010 som var <b>nye for foretakets marked</b>	<input type="text"/>	%
Nye eller vesentlig forbedrede produkter (varer eller tjenester) introdusert i perioden 2008-2010 som var <b>nye bare for foretaket</b>	<input type="text"/>	%
Produkter (varer eller tjenester) som var <b>uforandrede eller lite endret</b> i perioden 2008-2010. Varer og tjenester fullt og helt utviklet og produsert av andre skal inkluderes her	<input type="text"/>	%
<b>Total omsetning i 2010</b>	<b>1,000</b>	<b>%</b>

<sup>1</sup> For kredittinstitusjoner: Renteinntekter og tilsvarende inntekter; for forsikringsselskaper: Brutto premieinntekter

## Prosessinnovasjon

Prosessinnovasjon omfatter nye eller vesentlig forbedrede produksjonsteknologi/-metoder og nye eller vesentlige forbedrede metoder for levering av varer og tjenester. Innovasjonen skal være ny for foretaket; foretaket må ikke nødvendigvis være den første til å introdusere denne prosessen. Det er ikke avgjørende om innovasjonen er utviklet av ditt foretak eller av andre foretak. Rene organisasjonsmessige endringer skal ikke inkluderes her.



### 5 Introduserte foretaket i perioden 2008-2010 noe av det følgende ....

- Ja, nye eller vesentlige forbedrede metoder for produksjon eller framstilling av varer eller tjenester
- Ja, nye eller vesentlige forbedrede metoder for lagring, levering eller distribusjon av varer eller tjenester
- Ja, nye eller vesentlige forbedrede støttefunksjoner, som systemer for vedlikehold, innkjøp, regnskap eller IT
- Nei → **Gå til 8**

### 6 Hvem utviklet disse prosessene? Kryss av for de alternativene som passer

- I hovedsak eget foretak
- Eget foretak i samarbeid med foretak i eget konsern
- Eget foretak i samarbeid med andre foretak eller institusjoner (forskningsinstitutter, universiteter/høyskoler)
- Eget foretak ved å kopiere eller modifisere prosesser opprinnelig utviklet av andre foretak eller institusjoner
- I hovedsak andre foretak eller institusjoner



### 7 Var noen av prosessinnovasjonene introdusert i perioden 2008-2010 nye for foretakets marked?

- Ja
- Nei
- Vet ikke

### 8 Hadde foretaket i perioden 2008-2010 innovasjonsaktivitet som ikke har resultert i en produkt- eller prosess-innovasjon fordi:

- |   | Ja                       | Nei                      |
|---|--------------------------|--------------------------|
| Aktiviteten ble avbrutt eller utsatt før ferdigstilling | <input type="checkbox"/> | <input type="checkbox"/> |
| Aktiviteten var pågående ved utgangen av 2010           | <input type="checkbox"/> | <input type="checkbox"/> |



**9 Innovasjonsaktiviteter knyttet til nye produkter og/eller prosesser: Utførte foretaket noen av de følgende aktivitetene i perioden 2008 - 2010? Kryss av hvilke innovasjonsaktiviteter foretaket utførte i perioden 2008-2010.**



**Eget forsknings- og utviklingsarbeid (FoU) utført i foretaket.** Med FoU menes kreativ virksomhet som utføres systematisk for å oppnå økt kunnskap samt bruk av denne kunnskapen til å finne nye anvendelser. FoU-virksomhet skal inneholde et nyhetselement og det skal være en viss form for usikkerhet knyttet til resultatet.

FoU-virksomhet utført i foretaket av eget eller innleid personell rettet mot utvikling av nye produkter og/eller prosesser. All aktivitet som kvalifiserer som FoU tas med uavhengig av om arbeidet utføres i egen FoU-avdeling eller ikke.

Ja    Nei  
  

**Kjøp av FoU-tjenester fra andre**

Samme definisjon som over, men omfatter FoU-tjenester innkjøpt av foretaket som ble utført av andre foretak (inkl. andre enheter i konsernet) eller av offentlige eller private forskningsinstitusjoner

**Kjøp av maskiner, utstyr og programvare (utenom FoU)**

Rettet spesielt mot utvikling av nye produkter og/eller prosesser.

**Kjøp av annen ekstern kunnskap (utenom FoU)**

Kjøp av rettigheter til bruk av patenter, ikke-patenterte oppfinnelser, lisenser, know-how, varemerker eller annen kunnskap eller tjenester for utvikling av nye produkter og/eller prosesser.

**Kompetanseoppbygging (utenom FoU)**

Opplæring av personale i direkte tilknytning til utvikling og/eller introduksjon av nye eller forbedrede produkter eller prosesser, både bruk av eksterne tjenester og intern utdanning.

**Markedsintroduksjon av innovasjoner**

Innbefatter intern og ekstern aktivitet i forbindelse med lansering av et nytt eller forbedret produkt. Dette kan omfatte forundersøkelser i markedet, markedstester og lanseringsreklame. Oppbygging av distribusjonsnett for markedsføring av innovasjoner skal derimot ikke inngå.

**Design**

Aktiviteter knyttet til design, forbedring eller endring av form eller utseende av nye eller vesentlige forbedrede varer eller tjenester.



**Annet**

Andre aktiviteter for å introdusere nye produkter eller prosesser slik som uttesting, rutinemessig programmering, oppstart, engineering mv.

**10 Gi etter beste skjønn et anslag for kostnadene i 2010 til følgende innovasjonsaktiviteter foretaket utførte. Inkl. lønns- og egne driftskostnader, kjøp av tjenester og investeringskostnader (ikke avskrivninger).**

Kostnadene i 2010  
Hele 1000 kroner

**Eget forsknings- og utviklingsarbeid (innen foretaket)**  000

**Kjøp av FoU-tjenester fra andre**  000

**Kjøp av maskiner, utstyr og programvare (utenom FoU)**  
Rettet spesielt mot utvikling av nye produkter og/eller prosesser.  000

**Kjøp av annen ekstern kunnskap (utenom FoU)**  
Kjøp av rettigheter til bruk av patenter, ikke-patenterte oppfinnelser, lisenser, know-how, varemerker eller annen kunnskap eller tjenester for utvikling av nye produkter og/eller prosesser.  000

**Andre kostnader knyttet til introduksjon av nye produkter eller prosesser.**  
Kompetanseoppbygging, markedsintroduksjoner av innovasjoner, design og andre aktiviteter.  000



**11 Formål med innovasjon.** Hvor viktig var de følgende formålene for foretaket for utvikling av nye produkter (varer eller tjenester) eller prosesser i perioden 2008-2010?



	Svært viktig	Nokså viktig	Lite viktig	Ikke relevant
Utvide spekter av varer eller tjenester	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Erstatte utdaterte produkter eller prosesser	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gå inn i nye markeder eller øke markedsandel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forbedre kvalitet i varer eller tjenester	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forbedre fleksibilitet for produksjon av varer eller tjenester	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Øke kapasitet for produksjon av varer eller tjenester	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Redusere arbeidskostnader per produsert enhet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Redusere material- og energikostnader per produsert enhet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Redusere miljømessige effekter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forbedre helse eller sikkerhet for ansatte	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**12 Forskjellige former for informasjon er nødvendig for utvikling og introduksjon av nye produkter og prosesser.** Vi er interessert i å vite mer om hvor denne informasjonen kommer fra. Oppgi betydningen av følgende informasjonskilder til foretakets innovasjonsaktiviteter i perioden 2008-2010, enten for nye innovasjonsprosjekter eller fullføring av eksisterende innovasjonsprosjekter.



		Stor betydning	Middels betydning	Liten betydning	Ikke brukt
<b>Interne kilder</b>	Innen foretaket eller konsernet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Markedskilder</b>	Leverandører av utstyr, materiell, komponenter eller dataprogram	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Klienter, kunder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Konkurrenter eller andre foretak i din bransje	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Konsulenter, konsulentforetak	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Kommersielle laboratorier /FoU-foretak	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Institusjonelle kilder</b>	Universiteter eller høyskoler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Offentlige eller private forskningsinstitutter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Andre kilder</b>	Faglige konferanser, møter, messer og utstillinger	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Faglige tidsskrifter eller publikasjoner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Bransjeorganisasjoner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Samarbeid om innovasjon i 2008-2010.

Med samarbeid menes aktiv deltaking i felles FoU og andre innovasjonsaktiviteter med andre organisasjoner (enten andre foretak eller ikke-kommersielle institusjoner). Dette betyr ikke nødvendigvis at begge parter oppnår umiddelbar økonomisk gevinst fra samarbeidet. Rent kontraktarbeid uten aktivt samarbeid fra begge parter omfattes ikke.

**13 Hadde foretaket innovasjonssamarbeid, inkl. FoU, med andre foretak eller institusjoner i perioden 2008-2010?**

Ja

Nei → Gå til **15**





- 14 Kryss av for type samarbeidspartner og hvor denne er geografisk lokalisert.** Flere svaralternativer er mulig. Kryss også av for den viktigste samarbeidspartneren (siste kolonne).

	Lokalt/ regionalt i Norge	Norge for øvrig	Norden	Europa for øvrig <sup>1</sup>	USA	Kina eller India	Andre land	Viktigste partner Bare ett kryss
Andre foretak i samme konsern	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leverandører av utstyr, materiell, komponenter eller dataprogram	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Klienter, kunder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Konkurrenter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Konsulenter, konsulentforetak	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kommersielle laboratorier/FoU-foretak	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Universiteter eller høyskoler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Offentlige eller private forskningsinstitutter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<sup>1</sup> Følgende EU- /kandidatland: Belgia, Bulgaria, Estland, Frankrike, Hellas, Irland, Italia, Kroatia, Kypros, Latvia, Liechtenstein, Litauen, Luxembourg, Makedonia, Malta, Nederland, Polen, Portugal, Romania, Slovakia, Slovenia, Spania, Storbritannia, Sveits, Tsjekia, Tyrkia, Tyskland, Ungarn og Østerrike.

- 15 Hemmende faktorer for innovasjon. Hvor avgjørende var følgende faktorer for ikke å drive innovasjonsaktivitet eller hindrende for pågående innovasjonsaktivitet i perioden 2008-2010?** Oppgi graden av viktighet for de relevante faktorene.

		Svært viktig	Nokså viktig	Lite viktig	Faktor ikke opplevd
<b>Kostnadsforhold</b>	For høye innovasjonskostnader	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Mangel på finansiering innen foretaket eller konsernet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Mangel på passende finansiering fra kilder utenfor foretaket	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Kunnskapsforhold</b>	Problemer med å holde på eller rekruttere kvalifisert personell	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Mangel på teknologisk informasjon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Mangel på markedsinformasjon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Vanskelig å finne samarbeidspartner for innovasjon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Markedsforhold</b>	Markedet dominert av etablerte foretak	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Usikker etterspørsel etter nye varer og tjenester	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Grunner til ikke å innovere</b>	Ikke behov på grunn av tidligere innovasjoner i foretaket	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Ikke behov på grunn av manglende etterspørsel i markedet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- 16 Gjorde foretaket, eller konsernet som foretaket tilhører, i perioden 2008-2010 bruk av følgende metoder for å beskytte oppfinnelser eller innovasjoner utviklet av foretaket?**

	Ja	Nei
Søke om patent	<input type="checkbox"/>	<input type="checkbox"/>
Mønsterbeskyttelse	<input type="checkbox"/>	<input type="checkbox"/>
Varemerke	<input type="checkbox"/>	<input type="checkbox"/>
Opphavsrett (copyright)	<input type="checkbox"/>	<input type="checkbox"/>
Hemmeligholdelse	<input type="checkbox"/>	<input type="checkbox"/>
Kompleks utforming/design	<input type="checkbox"/>	<input type="checkbox"/>
Tidsforsprang på konkurrentene	<input type="checkbox"/>	<input type="checkbox"/>

## Organisasjonsinnovasjon

En organisasjonsinnovasjon er gjennomføring av nye organisatoriske metoder i foretaket (inkl. kunnskapssystemer), organisering av arbeidsrutiner/-prosesser eller bruk av nye eksterne relasjoner for foretaket. Endringene må være et resultat av strategiske beslutninger i foretaket. Sammenslåing med andre eller oppkjøp av andre foretak omfattes ikke.



### 17 Introduserte foretaket noen av følgende organisasjonsmessige endringer i perioden 2008-2010?

Ja Nei

<input type="checkbox"/> Ny <b>forretningspraksis</b> for organisering av arbeid eller prosedyrer (f.eks. styring av forsyningskjeder, prosessomlegging/-optimalisering (BPR/lean production), kvalitetsstyring, opplæringsystemer	<input type="checkbox"/>	<input type="checkbox"/>
Nye metoder for <b>organisering av arbeidsansvar og beslutninger</b> innen foretaket (første gangs bruk av nye systemer for delegering av ansvar og beslutninger til ansatte, team arbeid, desentralisering, integrering eller oppsplitting av avdelinger, opplæringsystemer mv.)	<input type="checkbox"/>	<input type="checkbox"/>
Nye metoder for organisering av <b>eksterne relasjoner</b> til andre foretak eller offentlige institusjoner som bruk av allianser, partnerskap, utskilling av aktiviteter, utsetting (outsourcing), underkontrahering (sub-contracting) for første gang.	<input type="checkbox"/>	<input type="checkbox"/>

Hvis foretaket ikke introduserte organisatoriske endringer (nei på alle): → Gå til 19

### 18 Hvor viktig var følgende formål for foretakets organisatoriske endringer gjennomført i perioden 2008-2010?

Hvis foretaket har gjennomført flere organisatoriske endringer, svar ut fra en totalvurdering.

	Høy viktighet	Middels viktighet	Lav viktighet	Ikke relevant
Redusere responstid på behov fra kunder eller leverandører	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forbedre evne til å utvikle nye produkter eller prosesser	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forbedre kvalitet i foretakets varer eller tjenester	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Redusere kostnader per produsert enhet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forbedre kommunikasjon eller informasjonsutveksling innen foretaket eller med andre foretak eller institusjoner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



## Markedsinnovasjon (marketing)

En markedsinnovasjon er gjennomføring av et nytt markedsføringskonsept eller ny -strategi som atskiller seg vesentlig fra foretakets nåværende metoder og som ikke har vært brukt av foretaket tidligere. Dette krever vesentlige endringer i produktets design eller innpakning, produkt plassering, promotering eller prissetting. Unntatt er rutine- eller sesongmessige endringer i markedsføringsmetoder.

### 19 Introduserte foretaket i løpet av 2008-2010 markedsinnovasjoner i form av ...

...Vesentlige endringer i <b>design</b> (utseende, utforming) eller <b>innpakning</b> av en vare eller tjeneste (unntatt endringer som er knyttet til produktets funksjonalitet eller bruksegenskaper)	Ja <input type="checkbox"/>	Nei <input type="checkbox"/>
...Nye media eller nye måter for <b>promotering</b> av produktet (f.eks. annonsering i nytt media for første gang, nytt varemerke, introduksjon av kunde-/lojalitetskort)	<input type="checkbox"/>	<input type="checkbox"/>
...Nye måter for <b>produkt plassering</b> eller nye <b>salgskanaler</b> (f.eks. første gangs bruk av franchising eller distribusjonslisenser, direkte salg, eksklusivt kundesalg, nytt konsept for produktpresentasjon)	<input type="checkbox"/>	<input type="checkbox"/>
...Nye metoder for <b>prising</b> av varer eller tjenester (bruk av rabattsystemer for første gang, etterspørselsbestemt prissetting)	<input type="checkbox"/>	<input type="checkbox"/>

Hvis foretaket ikke introduserte markedsinnovasjoner (nei på alle): → Gå til 21

### 20 Hvor viktig var de følgende formål for foretakets markedsinnovasjoner gjennomført i perioden 2008-2010? Hvis foretaket har gjennomført flere markedsinnovasjoner, svar ut fra en totalvurdering.

	Høy viktighet	Middels viktighet	Lav viktighet	Ikke relevant
Øke eller opprettholde markedsandel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Introdusere produkter til nye kundegrupper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Introdusere produkter til nye geografiske markeder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



**21** Hadde foretaket ansatte personer med følgende kompetanse, eller kjøpte foretaket slik kompetanse eksternt<sup>1</sup> i perioden 2008 – 2010?

⊥

	Ansatt i foretaket	Innkjøpt eksternt	Kompetanse ikke brukt/ ikke relevant
Grafisk design/formgivning (layout)/markedsføring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Design av varer og tjenester	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Multimedia (kombinere lyd, grafikk, tekst, bilder, animasjon, video etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Webdesign/ Webutvikling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Programvareutvikling (IT)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Markedsundersøkelser	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ingeniører/anvendt forskning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Matematikk/statistikk/databehandling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<sup>1</sup> Inkluderer frilansere, konsulenter, personale innleid fra andre foretak, personale midlertidig hentet inn fra andre foretak i eget konsern, etc.

**22** Brukte foretaket noen av følgende metoder for å stimulere til nye ideer eller kreativitet blant ansatte i perioden 2008-2010? Hvis metoden brukt, var metoden vellykket eller ikke vellykket?

⊥

	Vellykket	Ikke vellykket	Vet ikke	Metoden ikke brukt
Idédugnader (brainstorming)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tverrfaglige eller bredt sammensatte arbeidsgrupper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stillingsrotasjon av ansatte til forskjellige avdelinger i foretaket eller andre foretak i konsernet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Økonomiske insentiver for de ansatte til å utvikle nye ideer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ikke-økonomiske insentiver for de ansatte til å utvikle nye ideer (mer fri eller fleksibel tidsbruk, offentlig anerkjennelse, mer interessante arbeidsoppgaver etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Utdanning/opplæring for de ansatte særskilt rettet mot å utvikle kreativitet/ nye ideer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**23** Foretakets marked. I hvilke geografiske markeder selger foretaket sine produkter eller tjenester? Sett kryss for hvert marked. Hvilket er det viktigste markedet? Sett ett kryss i siste kolonne.

	Hvilke markeder. Flere kryss mulig.	Viktigste marked. Bare ett kryss
Lokalt/regionalt i Norge	<input type="checkbox"/>	<input type="checkbox"/>
Norge for øvrig	<input type="checkbox"/>	<input type="checkbox"/>
Andre EU-/EFTA – land <sup>1</sup>	<input type="checkbox"/>	<input type="checkbox"/>
Andre land	<input type="checkbox"/>	<input type="checkbox"/>

<sup>1</sup> Belgia, Bulgaria, Danmark, Estland, Finland, Frankrike, Hellas, Irland, Island, Italia, Kroatia, Kypros, Latvia, Liechtenstein, Litauen, Luxembourg, Makedonia, Malta, Nederland, Polen, Portugal, Romania, Slovakia, Slovenia, Spania, Storbritannia, Sveits, Sverige, Tsjekkia, Tyrkia, Tyskland, Ungarn og Østerrike.

## **Appendix B.1. Regular combined sample vs. Mandatory Innovation-only sample**

### **Appendix B.1. Regular combined sample vs. Mandatory Innovation-only sample**

- A11.01a** Enterprises with product- or process innovation, 2008-2010.
- A11.02a** Who developed the enterprise's product innovations, 2008-2010.
- A11.03a** Product innovation new to the enterprise's market, 2008-2010.
- A11.06a** Types of innovation activity, 2008-2010.
- A11.08a** Innovation expenditures in 2010.
- A11.09a** Turnover from new or improved products in 2010.
- A11.10a** Objectives of the innovation activities, high importance, 2008-2010.
- A11.11a** Sources of information for innovation activities, high importance, 2008-2010.
- A11.12a** Most important (or only) market, 2008-2010.
- A11.13a** Factors hampering innovation, high or medium importance, enterprises with PP-innovation activity, 2008-2010.
- A11.14a** Factors hampering innovation, high or medium importance, enterprises with no PP-innovation activity, 2008-2010.
- A11.15a** Cooperation partners on innovation activities, 2008-2010.
- A11.18a** Use of patents and other methods of protection, 2008-2010.
- A11.19a** Organisational innovations, all enterprises, 2008-2010.
- A11.20a** Organisational innovations, enterprises with PP-innovation activity, 2008-2010.
- A11.21a** Organisational innovations, enterprises with no PP-innovation activity, 2008-2010.
- A11.24a** Marketing innovations, all enterprises, 2008-2010.
- A11.25a** Marketing innovations, enterprises with PP-innovation activity, 2008-2010.
- A11.26a** Marketing innovations, enterprises with no PP-innovation activity, 2008-2010.
- A11.28a** Employment of personnel with specific skills, all enterprises, 2008-2010.
- A11.31a** Methods to stimulate new ideas or creativity among staff, all enterprises, 2008-2010.

**A11.01a Enterprises with product- or process innovation, 2008-2010. Regular sample**

NACE Rev. 2	Enterprises in population	Enterprises with						
		Innovation activity (product/process)	Product or process innovation	Product and process innovation	Product innovation	Product innovation (goods)	Product innovation (services)	Process innovation
	Number of	Percent						
A-N: All industries	4 485	24	19	7	16	11	5	11
C10 Food products	448	28	25	9	19	19	-	14
C16 Wood and wood products	231	21	18	8	13	13	-	13
C25 Fabricated metal prod.	417	23	15	7	13	13	-	8
C28 Machinery and equipment	160	47	41	19	36	32	6	24
F43 Specialised construction activities	694	8	6	1	3	3	0	5
G46 Wholesale trade	1 089	22	19	5	17	16	2	7
I55 Accommodation	395	12	9	2	7	2	7	4
J58 Publishing activities	254	38	32	15	27	10	21	20
J62 Computer programming, consultancy	284	48	37	21	30	8	23	28
M71 Architecture, engineering act.	513	32	23	6	16	8	9	13

**A11.01a Enterprises with product- or process innovation, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises in population	Enterprises with						
		Innovation activity (product/process)	Product or process innovation	Product and process innovation	Product innovation	Product innovation (goods)	Product innovation (services)	Process innovation
	Number of	Percent						
A-N: All industries	4 485	36	30	12	24	18	7	18
C10 Food products	448	38	30	12	25	25	-	18
C16 Wood and wood products	231	23	17	7	11	11	1	13
C25 Fabricated metal prod.	417	41	34	13	21	19	3	26
C28 Machinery and equipment	160	62	51	23	40	35	7	35
F43 Specialised construction activities	694	21	18	7	12	8	4	13
G46 Wholesale trade	1 089	35	32	9	30	28	5	11
I55 Accommodation	395	29	22	9	15	6	10	17
J58 Publishing activities	254	44	40	24	37	20	23	27
J62 Computer programming, consultancy	284	65	57	27	46	26	27	38
M71 Architecture, engineering act.	513	32	24	12	18	8	10	18

Source: Statistics Norway, CIS 2010

**A11.02a Who developed the enterprise's product innovations, 2008-2010. Regular sample**

NACE Rev. 2	Enterprises with product innovation (goods) Number of	The goods were developed by:						Enterprises with product innovation (services) Number of	The services were developed by:				
		Mainly own enterprise	Own enterprise together with own enterprise group	Own enterprise together with other enterprises or institutions	Own enterprise by modifying goods developed by others	Mainly other enterprises or institutions	Percent		Mainly own enterprise	Own enterprise together with own enterprise group	Own enterprise together with other enterprises or institutions	Own enterprise by modifying services developed by others	Percent
A-N: All industries	505	59	17	18	10	25	230	68	18	13	12	15	
C10 Food products	86	65	25	13	6	13	-	-	-	-	-	-	
C16 Wood and wood products	31	52	8	48	20	0	-	-	-	-	-	-	
C25 Fabricated metal prod.	52	89	0	18	5	5	6	100	0	0	0	50	
C28 Machinery and equipment	51	100	0	35	12	0	9	67	33	0	33	33	
F43 Specialised construction activities	21	14	14	29	3	43	0	0	0	0	43	100	
G46 Wholesale trade	170	28	28	11	17	56	19	0	0	50	50	0	
I55 Accommodation	9	66	0	34	0	0	0	80	20	10	0	0	
J58 Publishing activities	24	89	11	68	0	0	54	68	22	0	0	10	
J62 Computer programming, consultancy	22	100	13	13	0	0	66	89	22	22	11	11	
M71 Architecture, engineering act.	39	74	15	18	0	18	45	62	13	7	16	31	

**A11.02a Who developed the enterprise's product innovations, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises with product innovation (goods) Number of	The goods were developed by:						Enterprises with product innovation (services) Number of	The services were developed by:				
		Mainly own enterprise	Own enterprise together with own enterprise group	Own enterprise together with other enterprises or institutions	Own enterprise by modifying goods developed by others	Mainly other enterprises or institutions	Percent		Mainly own enterprise	Own enterprise together with own enterprise group	Own enterprise together with other enterprises or institutions	Own enterprise by modifying services developed by others	Percent
A-N: All industries	817	56	26	20	8	24	330	72	23	15	11	10	
C10 Food products	110	72	19	6	19	3	-	-	-	-	-	-	
C16 Wood and wood products	26	88	13	50	0	0	3	100	100	0	0	0	
C25 Fabricated metal prod.	79	74	26	30	18	0	14	100	0	0	52	0	
C28 Machinery and equipment	55	86	43	54	20	6	11	29	0	0	0	71	
F43 Specialised construction activities	53	20	50	30	10	40	27	60	20	40	0	20	
G46 Wholesale trade	301	28	28	10	3	52	52	80	40	20	0	0	
I55 Accommodation	26	87	13	29	0	8	40	83	8	8	0	0	
J58 Publishing activities	51	80	40	7	7	7	58	65	30	24	12	0	
J62 Computer programming, consultancy	74	76	14	33	0	10	77	82	14	14	14	5	
M71 Architecture, engineering act.	43	84	0	25	0	8	50	56	29	0	21	36	

Source: Statistics Norway, C/S 2010

**A11.03a Product innovation new to the enterprise's market, 2008-2010. Regular sample**

NACE Rev. 2	Enterprises with product innovation			Enterprises with product innovation new for the market			
	Total Number of	Product innovation only new for the enterprise	Product innovation new for the enterprise's market	Total Number of	New for the Norwegian market	New for the European market	New for the world market
A-N: All industries	702	51	79	557	84	26	25
C10 Food products	86	57	72	62	96	4	9
C16 Wood and wood products	31	56	52	16	100	38	-
C25 Fabricated metal prod.	55	73	61	34	100	47	19
C28 Machinery and equipment	57	37	90	51	88	35	23
F43 Specialised construction activities	21	14	86	18	67	17	33
G46 Wholesale trade	189	55	90	170	78	11	22
I55 Accommodation	29	50	80	23	87	38	25
J58 Publishing activities	69	63	65	44	64	73	30
J62 Computer programming, consultancy	85	40	76	65	100	30	18
M71 Architecture, engineering act.	80	43	93	74	75	28	53

**A11.03a Product innovation new to the enterprise's market, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises with product innovation			Enterprises with product innovation new for the market			
	Total Number of	Product innovation only new for the enterprise	Product innovation new for the enterprise's market	Total Number of	New for the Norwegian market	New for the European market	New for the world market
A-N: All industries	1 061	58	64	684	76	18	36
C10 Food products	110	69	40	45	100	-	-
C16 Wood and wood products	26	13	88	23	86	14	-
C25 Fabricated metal prod.	86	72	48	41	75	8	33
C28 Machinery and equipment	63	65	60	38	8	-	92
F43 Specialised construction activities	80	53	73	59	73	18	27
G46 Wholesale trade	322	61	58	187	72	11	39
I55 Accommodation	58	89	61	51	71	-	29
J58 Publishing activities	95	43	68	64	95	26	32
J62 Computer programming, consultancy	129	59	76	98	82	32	25
M71 Architecture, engineering act.	92	43	84	78	83	50	59

Source: Statistics Norway, CIS 2010



**A11.06a Types of innovation activity, 2008-2010. Regular sample**

NACE Rev. 2	Enterprises with PP-innovation activity	Type of product- or process related innovation activity															
		In-house R&D		External R&D		Acquisition of machinery, equipment and software		Acquisition of external knowledge		Training for innovative activities		Market introduction of innovations		Design		Other	
		Number of	Percent of enterprises with PP-innovation activity	Number of	Percent of enterprises with PP-innovation activity	Number of	Percent of enterprises with PP-innovation activity	Number of	Percent of enterprises with PP-innovation activity	Number of	Percent of enterprises with PP-innovation activity	Number of	Percent of enterprises with PP-innovation activity	Number of	Percent of enterprises with PP-innovation activity	Number of	Percent of enterprises with PP-innovation activity
A-N: All industries	1 079	59	16	49	30	55	38	42	38	42	38	38	42	38	42	38	42
C10 Food products	126	63	20	16	60	49	20	49	20	49	20	49	20	49	20	49	20
C16 Wood and wood products	48	82	54	82	54	82	79	36	79	36	79	36	79	36	79	36	79
C25 Fabricated metal prod.	95	71	23	48	6	48	9	45	45	45	45	45	45	45	45	45	45
C28 Machinery and equipment	75	76	28	16	60	68	48	56	48	56	48	56	48	56	48	56	48
F43 Specialised construction activities	53	33	17	22	61	22	11	39	61	22	11	39	61	22	11	39	61
G46 Wholesale trade	237	36	8	32	36	44	56	40	36	44	56	40	36	44	56	40	36
I55 Accommodation	46	25	0	25	25	50	38	31	25	50	38	31	25	50	38	31	25
J58 Publishing activities	95	61	30	48	69	51	48	55	69	51	48	55	69	51	48	55	69
M72 Computer programming, consultancy	137	72	4	38	20	63	43	38	20	63	43	38	20	63	43	38	20
M71 Architecture, engineering act.	167	72	11	49	33	62	36	32	49	33	62	36	32	49	33	62	36

**A11.06a Types of innovation activity, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises with PP-innovation activity	Type of product- or process related innovation activity															
		In-house R&D		External R&D		Acquisition of machinery, equipment and software		Acquisition of external knowledge		Training for innovative activities		Market introduction of innovations		Design		Other	
		Number of	Percent of enterprises with PP-innovation activity	Number of	Percent of enterprises with PP-innovation activity	Number of	Percent of enterprises with PP-innovation activity	Number of	Percent of enterprises with PP-innovation activity	Number of	Percent of enterprises with PP-innovation activity	Number of	Percent of enterprises with PP-innovation activity	Number of	Percent of enterprises with PP-innovation activity	Number of	Percent of enterprises with PP-innovation activity
A-N: All industries	1 451	66	31	46	23	53	34	44	34	53	34	44	34	53	34	44	34
C10 Food products	169	61	16	16	45	37	16	37	16	45	37	16	37	16	45	37	16
C16 Wood and wood products	53	75	38	69	38	43	32	32	43	32	32	32	43	32	32	32	43
C25 Fabricated metal prod.	171	74	38	45	27	50	24	42	50	24	42	24	42	24	42	24	42
C28 Machinery and equipment	100	76	48	60	11	60	29	63	60	29	63	29	63	29	63	29	63
G46 Wholesale trade	384	49	24	30	14	41	35	46	30	41	35	46	30	41	35	46	30
I55 Accommodation	115	51	45	48	29	41	28	37	29	41	28	37	29	41	28	37	29
J58 Publishing activities	112	79	48	64	36	49	55	67	64	49	55	67	64	49	55	67	64
J62 Computer programming, consultancy	185	89	23	51	38	81	53	34	51	38	81	53	34	51	38	81	53
M71 Architecture, engineering act.	163	71	28	52	23	63	30	43	52	23	63	30	43	52	23	63	30

Source: Statistics Norway, CIS 2010

**A11.08a Innovation expenditures in 2010. Regular sample**

NACE Rev. 2	Enterprises with PP-innovation activity	Type of innovation expenditure						Other expenditure
		Total innovation expenditure	In-house R&D		External R&D		Acquisition of external knowledge	
			Number of	In-house R&D	External R&D	Acquisition of machinery, equipment and software		
1000 NOK								
A-N: All industries	1 079	2 224 202	1 127 219	52 207	599 294	135 884	309 598	
C10 Food products	126	159 745	75 088	4 089	65 224	1 162	14 182	
C16 Wood and wood products	48	61 824	18 024	7 261	27 688	1 352	7 500	
C25 Fabricated metal prod.	95	102 970	71 089	1 126	25 603		5 152	
C28 Machinery and equipment	75	82 841	58 083	4 076	8 641	1 718	10 323	
F43 Specialised construction activities	53	30 797	11 054	464	5 759	3 583	9 937	
G46 Wholesale trade	237	253 260	91 774	4 252	14 187	100 429	42 618	
I55 Accommodation	46	237 408	2 246		176 998	20	58 144	
J58 Publishing activities	95	235 345	164 704	9 710	17 191	11 732	32 008	
M62 Computer programming, consultancy	137	324 097	279 239	9 409	13 531	7 114	14 804	
M71 Architecture, engineering act.	167	735 914	355 918	11 820	244 473	8 774	114 930	

**A11.08a Innovation expenditures in 2010. Mandatory sample**

NACE Rev. 2	Enterprises with PP-innovation activity	Type of innovation expenditure						Other expenditure
		Total innovation expenditure	In-house R&D		External R&D		Acquisition of external knowledge	
			Number of	In-house R&D	External R&D	Acquisition of machinery, equipment and software		
1000 NOK								
A-N: All industries	1 595	2 266 641	1 219 063	211 676	513 066	107 890	214 946	
C10 Food products	169	140 596	64 752	3 190	63 809	965	7 879	
C16 Wood and wood products	53	108 063	19 618	6 628	67 268	1 563	12 986	
C25 Fabricated metal prod.	171	202 682	91 472	12 930	77 770	4 966	15 545	
C28 Machinery and equipment	100	328 119	168 602	84 841	60 289	101	14 286	
F43 Specialised construction activities	144	131 147	93 043	14 434	10 464	1 184	12 024	
G46 Wholesale trade	384	440 393	156 679	20 498	163 667	55 961	43 588	
I55 Accommodation	115	28 099	12 691	2 874	2 660	950	8 925	
J58 Publishing activities	112	230 146	154 233	23 297	19 101	18 011	15 505	
M62 Computer programming, consultancy	185	403 941	280 807	22 893	31 344	7 196	61 701	
M71 Architecture, engineering act.	163	253 454	177 165	20 092	16 695	16 994	22 508	

Source: Statistics Norway, CIS 2010

**A11.09a Turnover from new or improved products in 2010. Regular sample**

NACE Rev. 2	All enterprises						Enterprises with product innovation				
	Enterprises in population	Turnover	All product innovations	Product innovations only new for the enterprise	Product innovations new for the enterprise's market	Product innovations new for the enterprise's market	Product innovations only new for the enterprise	All product innovations	Turnover	Product innovations new for the enterprise's market	
											Number of
A-N: All industries	4 485	208 844	3.4	1.4	2	2	702	35 055	20.1	8.4	11.7
C10 Food products	448	33 627	3.2	1	2.2	2.2	86	3 727	29.3	9.3	20
C16 Wood and wood products	231	8 647	5.9	2	4	4	31	988	52	17.1	34.9
C25 Fabricated metal prod.	417	13 338	4.9	3.4	1.5	1.5	55	3 083	21.4	14.7	6.6
C28 Machinery and equipment	160	5 310	13.6	3	10.6	10.6	57	2 149	33.7	7.5	26.2
F43 Specialised construction activities	694	29 811	0.3	0	0.3	0.3	21	832	11.8	0.2	11.6
G46 Wholesale trade	1 089	68 407	2.4	1.2	1.1	1.1	189	6 772	23.8	12.2	11.5
I55 Accommodation	395	7 177	1.4	0.5	0.9	0.9	29	496	20	7.7	12.3
J58 Publishing activities	254	9 183	5.1	2.5	2.6	2.6	69	2 299	20.3	9.8	10.5
J62 Computer programming, consultancy	284	10 108	8.5	4.2	4.3	4.3	85	2 309	37.3	18.3	19
M71 Architecture, engineering act.	513	23 236	4	1.2	2.7	2.7	80	12 400	7.4	2.3	5.2

**A11.09a Turnover from new or improved products in 2010. Mandatory sample**

NACE Rev. 2	All enterprises						Enterprises with product innovation				
	Enterprises in population	Turnover	All product innovations	Product innovations only new for the enterprise	Product innovations new for the enterprise's market	Product innovations new for the enterprise's market	Product innovations only new for the enterprise	All product innovations	Turnover	Product innovations new for the enterprise's market	
											Number of
A-N: All industries	4 485	201 337	6.8	3.8	3	3	1 081	45 156	30.2	17	13.2
C10 Food products	448	36 076	4.1	2.3	1.8	1.8	110	4 960	29.5	16.4	13.1
C16 Wood and wood products	231	18 653	1.5	0.9	0.6	0.6	26	1 790	15.9	9.8	6.1
C25 Fabricated metal prod.	417	10 973	3.5	2.6	0.9	0.9	86	2 492	15.5	11.4	4.1
C28 Machinery and equipment	160	5 592	11.7	3.9	7.8	7.8	63	1 658	39.4	1.3	26.4
F43 Specialised construction activities	694	26 874	4.2	1.2	3	3	80	4 177	27	7.7	19.3
G46 Wholesale trade	1 089	69 861	10.1	6.8	3.4	3.4	322	20 679	34.2	22.8	11.4
I55 Accommodation	395	6 344	5.6	2	3.7	3.7	58	851	42	14.6	27.5
J58 Publishing activities	254	7 003	10.4	2	8.4	8.4	95	2 396	30.5	5.8	24.6
J62 Computer programming, consultancy	284	7 576	12.7	7.5	5.2	5.2	129	3 696	26.1	15.4	10.7
M71 Architecture, engineering act.	513	12 385	4.6	2.6	2.1	2.1	92	2 458	23.2	12.9	10.3

Source: Statistics Norway, CIS 2010

**A11.10a Objectives of the innovation activities, high importance, 2008-2010. Regular sample**

	Enterprises with PP-innovation activity	Objective									
		Number of	Increase range of goods or services	Replace outdated products or processes	Enter new market or increase market share	Improve quality of goods or services	Improve flexibility for producing goods or services	Increase capacity of producing goods or services	Reduce labour cost per unit output	Reduce materials and energy costs per unit output	Reduce environmental impacts
NACE Rev. 2	Number of	Percent									
A-N: All industries	1 079	47	36	55	49	23	23	28	19	21	23
C10 Food products	126	58	40	58	60	43	47	56	42	47	49
C16 Wood and wood products	48	57	46	26	39	21	34	39	34	16	34
C25 Fabricated metal prod.	95	81	30	72	44	25	35	50	30	35	48
C28 Machinery and equipment	75	44	32	60	44	40	28	40	16	20	16
F43 Specialised construction activities	53	28	22	33	44	22	22	39	33	17	33
G46 Wholesale trade	237	48	52	60	52	12	20	24	20	28	24
I55 Accommodation	46	56	19	74	62	19	12	31	37	43	25
J58 Publishing activities	95	61	55	64	49	20	3	6	-	-	13
J62 Computer programming, consultancy	137	26	18	58	43	24	18	11	11	5	5
M71 Architecture, engineering act.	167	28	31	39	44	17	15	13	2	4	5

**A11.10a Objectives of the innovation activities, high importance, 2008-2010. Mandatory sample**

	Enterprises with PP-innovation activity	Objective									
		Number of	Increase range of goods or services	Replace outdated products or processes	Enter new market or increase market share	Improve quality of goods or services	Improve flexibility for producing goods or services	Increase capacity of producing goods or services	Reduce labour cost per unit output	Reduce materials and energy costs per unit output	Reduce environmental impacts
NACE Rev. 2	Number of	Percent									
A-N: All industries	1 595	46	34	40	47	23	22	26	18	17	24
C10 Food products	169	35	22	31	33	16	14	16	14	18	22
C16 Wood and wood products	53	63	57	38	63	57	57	82	37	25	44
C25 Fabricated metal prod.	171	45	26	26	32	38	26	48	30	16	34
C28 Machinery and equipment	100	67	43	75	75	40	52	48	37	19	29
F43 Specialised construction activities	144	30	19	26	48	30	22	30	15	26	33
G46 Wholesale trade	384	43	35	43	43	14	11	19	16	19	24
I55 Accommodation	115	45	47	70	63	32	29	35	37	34	27
J58 Publishing activities	112	42	45	42	64	21	12	12	9	-	21
J62 Computer programming, consultancy	185	64	47	36	51	15	24	15	2	4	7
M71 Architecture, engineering act.	163	46	22	28	32	13	19	13	11	15	15

Source: Statistics Norway, CIS 2010

**A11.11a Sources of information for innovation activities, high importance, 2008-2010. Regular sample**

Enterprises with PP-innovation activity	Sources of information											
	Number of	Internal sources within the enterprise or enterprise group	Suppliers	Clients or customers	Competitors or other enterprises in the sector	Consultants	Commercial labs, or private R&D institutes	Universities or higher education institutes	Government or private research institutes	Conferences, meetings, trade fairs, exhibitions	Scientific journals and trade/technical publications	Professional and industry associations
		Percent										
A-N: All industries	1 079	59	33	46	23	8	6	3	8	20	13	11
C10 Food products	126	60	35	38	22	7	13	11	13	16	7	9
C16 Wood and wood products	48	69	41	23	11	11	-	-	-	23	16	16
C25 Fabricated metal prod.	95	52	44	64	29	13	10	3	9	19	16	16
C28 Machinery and equipment	75	56	32	60	12	8	8	-	16	20	4	-
F43 Specialised construction activities	53	50	33	22	6	11	11	-	6	11	6	17
G46 Wholesale trade	237	52	40	40	28	8	8	4	8	24	8	8
I55 Accommodation	46	50	13	75	38	-	-	-	-	19	19	6
J58 Publishing activities	95	82	23	59	28	3	-	-	7	17	27	20
J62 Computer programming, consultancy	137	66	33	56	20	10	5	5	5	20	18	24
M71 Architecture, engineering act.	167	58	22	38	22	11	2	2	6	24	14	4

**A11.11a Sources of information for innovation activities, high importance, 2008-2010. Mandatory sample**

Enterprises with PP-innovation activity	Sources of information											
	Number of	Internal sources within the enterprise or enterprise group	Suppliers	Clients or customers	Competitors or other enterprises in the sector	Consultants	Commercial labs, or private R&D institutes	Universities or higher education institutes	Government or private research institutes	Conferences, meetings, trade fairs, exhibitions	Scientific journals and trade/technical publications	Professional and industry associations
		Percent										
A-N: All industries	1 595	52	31	43	19	8	4	4	4	18	13	13
C10 Food products	169	41	31	35	12	4	2	2	-	6	6	6
C16 Wood and wood products	53	18	25	44	6	-	6	6	-	6	-	19
C25 Fabricated metal prod.	171	54	18	32	12	6	6	10	6	16	6	8
C28 Machinery and equipment	100	67	44	54	33	16	-	-	-	17	3	8
F43 Specialised construction activities	144	52	26	33	22	4	15	4	7	7	4	19
G46 Wholesale trade	384	41	41	41	16	14	5	3	8	24	19	16
I55 Accommodation	115	57	25	48	32	6	6	13	6	22	16	25
J58 Publishing activities	112	73	21	67	21	3	-	6	-	21	18	12
J62 Computer programming, consultancy	185	66	28	49	23	4	-	4	4	23	19	4
M71 Architecture, engineering act.	163	61	32	47	15	15	-	-	-	15	15	17

Source: Statistics Norway, CIS 2010

**A11.12a Most important (or only) market, 2008-2010. Regular sample**

NACE Rev. 2	Enterprises with PP-innovation activity			Most important (or only) market			Enterprises with no PP-innovation activity			Most important (or only) market			
	Number of	Local/regional in Norway	Percent of enterprises with PP-innovation activity	Other European countries	Other countries	Number of	Local/regional in Norway	Percent of enterprises with no PP-innovation activity	Other European countries	Other countries	Number of	Local/regional in Norway	Percent of enterprises with no PP-innovation activity
A-N: All industries	1 079	54	33	6	8	3 406	72	22	4	2			
C10 Food products	126	67	22	2	9	322	68	17	10	6			
C16 Wood and wood products	48	89	11	-	-	183	79	21	-	-			
C25 Fabricated metal prod.	95	43	37	17	3	322	73	22	3	3			
C28 Machinery and equipment	75	28	60	-	12	85	54	25	18	4			
F43 Specialised construction activities	53	83	17	-	-	641	93	6	0	-			
G46 Wholesale trade	237	40	44	12	4	852	61	34	2	2			
I55 Accommodation	46	94	6	-	-	349	70	18	9	3			
J58 Publishing activities	95	48	35	10	7	159	66	30	3	-			
J62 Computer programming, consultancy	137	56	32	4	8	147	59	28	9	4			
M71 Architecture, engineering act.	167	53	26	2	20	346	74	20	4	2			

**A11.12a Most important (or only) market, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises with PP-innovation activity			Most important (or only) market			Enterprises with no PP-innovation activity			Most important (or only) market			
	Number of	Local/regional in Norway	Percent of enterprises with PP-innovation activity	Other European countries	Other countries	Number of	Local/regional in Norway	Percent of enterprises with no PP-innovation activity	Other European countries	Other countries	Number of	Local/regional in Norway	Percent of enterprises with no PP-innovation activity
A-N: All industries	1 595	44	42	9	4	2 890	75	19	3	3			
C10 Food products	169	53	27	14	6	279	64	16	9	11			
C16 Wood and wood products	53	75	18	-	6	178	75	25	-	-			
C25 Fabricated metal prod.	171	38	48	12	2	246	76	18	3	3			
C28 Machinery and equipment	100	30	40	22	8	60	37	53	11	-			
F43 Specialised construction activities	144	70	30	-	-	550	94	4	1	1			
G46 Wholesale trade	384	32	57	8	3	705	68	29	1	1			
I55 Accommodation	115	62	16	22	-	280	71	20	5	4			
J58 Publishing activities	112	52	36	3	9	142	74	19	7	-			
J62 Computer programming, consultancy	185	28	57	9	6	99	61	32	-	7			
M71 Architecture, engineering act.	163	44	46	2	9	350	81	14	2	3			

Source: Statistics Norway, CIS 2010

**A11.13a Factors hampering innovation, high or medium importance, enterprises with PP-innovation activity, 2008-2010. Regular sample**

		Hampering factors												
Enterprises with PP-innovation activity		Lack of funds within your enterprise or group	Lack of funds from sources outside your enterprise	Lack of qualified personnel	Lack of information on technology	Lack of information on markets	Difficulty in finding cooperation partners for innovation	Market dominated by established enterprises	Uncertain demand for innovative goods or services	No need due to prior innovations by the enterprise	No need because of no demand for innovations	All factors "not relevant"		
Number of		Percent												
A-N: All industries	1 079	46	41	41	27	34	30	38	48	19	24	13		
C10 Food products	126	76	49	40	31	40	40	49	58	22	20	9		
C16 Wood and wood products	48	72	72	72	41	28	31	46	57	18	41	18		
C25 Fabricated metal prod.	95	54	31	37	44	37	44	37	59	13	26	3		
C28 Machinery and equipment	75	76	68	60	36	44	40	44	52	4	12	4		
F43 Specialised construction activities	53	39	28	39	28	39	28	22	39	17	17	11		
G46 Wholesale trade	237	52	28	32	24	28	32	44	28	28	32	28		
I55 Accommodation	46	62	56	75	19	32	43	56	75	31	50	-		
J58 Publishing activities	95	19	21	13	18	31	8	18	37	3	6	17		
M62 Computer programming, consultancy	137	76	52	41	24	42	18	23	38	20	20	6		
M71 Architecture, engineering act.	167	58	57	40	21	26	27	40	39	17	21	10		

**A11.13a Factors hampering innovation, high or medium importance, enterprises with PP-innovation activity, 2008-2010. Mandatory sample**

		Hampering factors												
Enterprises with PP-innovation activity		Lack of funds within your enterprise or group	Lack of funds from sources outside your enterprise	Lack of qualified personnel	Lack of information on technology	Lack of information on markets	Difficulty in finding cooperation partners for innovation	Market dominated by established enterprises	Uncertain demand for innovative goods or services	No need due to prior innovations by the enterprise	No need because of no demand for innovations	All factors "not relevant"		
Number of		Percent												
A-N: All industries	1 595	53	43	50	31	28	29	42	52	24	26	9		
C10 Food products	169	67	53	35	35	27	35	45	51	26	31	14		
C16 Wood and wood products	53	57	44	56	57	31	57	62	68	25	37	-		
C25 Fabricated metal prod.	171	66	48	50	26	49	24	44	60	32	22	8		
C28 Machinery and equipment	100	71	76	68	52	71	44	52	70	11	30	-		
F43 Specialised construction activities	144	48	26	33	26	15	15	37	37	30	33	22		
G46 Wholesale trade	384	54	38	54	35	30	27	32	46	30	30	11		
I55 Accommodation	115	66	50	60	38	32	45	51	64	32	29	12		
J58 Publishing activities	112	76	48	33	33	24	12	42	64	12	12	9		
M62 Computer programming, consultancy	185	72	40	53	11	23	30	45	57	25	32	2		
M71 Architecture, engineering act.	163	61	48	52	21	15	24	43	46	-	9	4		

Source: Statistics Norway, CIS 2010

**A11.14a Factors hampering innovation, high or medium importance, enterprises with no PP-innovation activity, 2008-2010. Regular sample**

NACE Rev. 2	Enterprises with no PP-innovation activity	Hampering factors										All factors "not relevant"		
		Number of	Innovation costs too high	Lack of funds within your enterprise or group	Lack of funds from sources outside your enterprise	Lack of qualified personnel	Lack of information on technology	Lack of information on markets	Difficulty in finding cooperation partners for innovation	Market dominated by established enterprises	Uncertain demand for innovative goods or services		No need due to prior innovations by the enterprise	No need because of no demand for innovations
A-N: All industries	3 406	21	17	15	17	10	10	11	15	17	10	10	59	
C10 Food products	322	32	26	19	23	13	13	16	20	23	18	15	50	
C16 Wood and wood products	183	25	19	18	14	5	7	8	21	22	17	12	38	
C25 Fabricated metal prod.	322	31	24	22	22	18	14	14	24	22	13	20	50	
C28 Machinery and equipment	85	36	36	36	32	21	21	29	32	29	14	18	54	
F43 Specialised construction activities	641	11	11	9	15	10	10	9	15	15	6	11	68	
G46 Wholesale trade	852	14	11	10	11	7	11	3	9	12	10	6	62	
I55 Accommodation	349	22	21	20	21	10	11	13	16	21	7	9	58	
J58 Publishing activities	159	17	15	11	10	5	9	9	14	19	8	9	57	
J62 Computer programming, consultancy	147	21	6	10	14	4	6	10	4	8	4	9	72	
M71 Architecture, engineering act.	346	25	20	19	19	13	11	17	16	20	13	9	62	

**A11.14a Factors hampering innovation, high or medium importance, enterprises with no PP-innovation activity, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises with no PP-innovation activity	Hampering factors										All factors "not relevant"		
		Number of	Innovation costs too high	Lack of funds within your enterprise or group	Lack of funds from sources outside your enterprise	Lack of qualified personnel	Lack of information on technology	Lack of information on markets	Difficulty in finding cooperation partners for innovation	Market dominated by established enterprises	Uncertain demand for innovative goods or services		No need due to prior innovations by the enterprise	No need because of no demand for innovations
A-N: All industries	2 890	25	21	17	17	11	11	13	14	18	14	16	59	
C10 Food products	279	30	27	23	17	17	17	21	18	23	16	16	54	
C16 Wood and wood products	178	51	45	39	37	35	33	33	29	48	15	27	34	
C25 Fabricated metal prod.	246	31	25	24	20	13	18	18	15	28	15	17	52	
C28 Machinery and equipment	60	29	24	18	11	11	11	11	16	24	11	-	53	
F43 Specialised construction activities	550	14	12	11	16	8	12	10	12	14	12	13	68	
G46 Wholesale trade	705	18	13	9	9	6	6	6	12	12	15	12	65	
I55 Accommodation	280	36	35	35	25	13	16	16	25	30	19	20	51	
J58 Publishing activities	142	36	26	19	12	2	7	10	24	17	2	19	55	
J62 Computer programming, consultancy	99	25	18	3	14	-	-	3	11	11	18	11	64	
M71 Architecture, engineering act.	350	24	17	13	21	13	16	16	24	25	12	24	63	

Source: Statistics Norway, CIS 2010



**A11.15a Cooperation partners on innovation activities, 2008-2010. Regular sample**

NACE Rev. 2	Enterprises with PP-innovation activity Number of	Enterprises with innovation co-operation Percent	Cooperation partner						Government or private research institutes	
			Other enterprises within your enterprise group	Suppliers	Clients or customers	Competitors	Consultants	Commercial labs, or private R&D institutes		Universities or higher education institutes
A-N: All industries	1 079	21	24	68	59	14	31	23	27	28
C10 Food products	126	7	68	-	68	-	-	100	32	100
C16 Wood and wood products	48	34	16	62	47	16	16	69	16	47
C25 Fabricated metal prod.	95	23	39	70	100	26	70	39	39	39
C28 Machinery and equipment	75	28	-	43	72	-	-	72	-	14
F43 Specialised construction activities	53	17	-	100	67	33	-	33	-	33
G46 Wholesale trade	237	24	33	100	50	17	33	17	33	17
I55 Accommodation	46	0	-	-	-	-	-	-	-	-
J58 Publishing activities	95	24	29	41	59	-	29	12	12	29
J62 Computer programming, consultancy	137	15	36	86	50	-	14	-	36	-
M71 Architecture, engineering act.	167	27	6	52	52	22	50	15	37	35

**A11.15a Cooperation partners on innovation activities, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises with PP-innovation activity Number of	Enterprises with innovation co-operation Percent	Cooperation partner						Government or private research institutes	
			Other enterprises within your enterprise group	Suppliers	Clients or customers	Competitors	Consultants	Commercial labs, or private R&D institutes		Universities or higher education institutes
A-N: All industries	1 595	33	61	70	68	41	38	36	34	40
C10 Food products	169	33	37	62	75	31	31	37	31	50
C16 Wood and wood products	53	50	49	100	37	37	37	12	12	12
C25 Fabricated metal prod.	171	34	66	83	71	66	36	65	35	59
C28 Machinery and equipment	100	25	75	88	56	12	44	56	56	69
F43 Specialised construction activities	144	30	88	63	63	38	25	50	13	38
G46 Wholesale trade	384	27	80	100	60	40	40	40	40	40
I55 Accommodation	115	38	59	41	76	41	51	24	24	41
J58 Publishing activities	112	30	40	30	100	40	40	20	20	60
J62 Computer programming, consultancy	185	40	52	43	67	24	38	29	52	14
M71 Architecture, engineering act.	163	43	50	75	70	65	39	20	35	35

Source: Statistics Norway, CIS 2010

**A11.18a Use of patents and other methods of protection, 2008-2010. Regular sample**

NACE Rev. 2	Enterprises with PP-innovation activity		Method of protection							No types of protection
	Number of	Patent application	Registered industrial design	Trademark	Copyright	Secrecy		Lead-time advantage on competitors		
						Percent	Percent			
A-N: All industries	1 079	12	6	22	10	25	19	34	43	
C10 Food products	126	5	2	11	9	17	6	17	60	
C16 Wood and wood products	48	0	13	5	0	36	23	39	31	
C25 Fabricated metal prod.	95	17	3	20	17	28	29	29	23	
C28 Machinery and equipment	75	36	20	12	12	32	28	56	36	
F43 Specialised construction activities	53	17	0	11	6	17	17	22	56	
G46 Wholesale trade	237	4	12	40	8	20	16	36	40	
I55 Accommodation	46	12	0	25	25	0	0	12	56	
J58 Publishing activities	95	24	3	34	30	24	15	44	36	
J62 Computer programming, consultancy	137	2	0	8	8	33	29	37	54	
M71 Architecture, engineering act.	167	20	4	23	12	31	17	36	42	

**A11.18a Use of patents and other methods of protection, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises with PP-innovation activity		Method of protection							No types of protection
	Number of	Patent application	Registered industrial design	Trademark	Copyright	Secrecy		Lead-time advantage on competitors		
						Percent	Percent			
A-N: All industries	1 595	12	7	20	11	23	18	33	48	
C10 Food products	169	8	2	22	6	35	8	18	47	
C16 Wood and wood products	53	0	6	12	6	6	19	25	56	
C25 Fabricated metal prod.	171	16	6	10	6	16	12	18	60	
C28 Machinery and equipment	100	11	3	11	8	22	19	37	41	
F43 Specialised construction activities	144	7	4	7	4	19	26	30	59	
G46 Wholesale trade	384	14	19	41	16	19	19	32	43	
I55 Accommodation	115	0	0	19	6	9	0	25	68	
J58 Publishing activities	112	6	6	18	36	39	42	58	27	
J62 Computer programming, consultancy	185	7	4	11	11	27	17	41	45	
M71 Architecture, engineering act.	163	30	0	7	6	28	26	46	39	

Source: Statistics Norway, CIS 2010

**A11.19a Organisational innovations, all enterprises, 2008-2010. Regular sample**

NACE Rev. 2	Enterprises in population Number of	Enterprises with organisational innovation Percent	Type of organisational innovation		
			New business practices	New methods for organising work responsibilities and decision making Percent	New methods for organising external relations
A-N: All industries	4 485	15	60	91	34
C10 Food products	448	11	72	68	16
C16 Wood and wood products	231	16	79	100	7
C25 Fabricated metal prod.	417	14	56	100	25
C28 Machinery and equipment	160	24	69	92	31
F43 Specialised construction activities	694	15	43	86	31
G46 Wholesale trade	1 089	12	57	100	50
I55 Accommodation	395	8	55	82	27
J58 Publishing activities	254	19	44	81	36
J62 Computer programming, consultancy	284	26	62	96	28
M71 Architecture, engineering act.	513	19	78	91	46

**A11.19a Organisational innovations, all enterprises, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises in population Number of	Enterprises with organisational innovation Percent	Type of organisational innovation		
			New business practices	New methods for organising work responsibilities and decision making Percent	New methods for organising external relations
A-N: All industries	4 485	20	54	76	46
C10 Food products	448	18	63	92	38
C16 Wood and wood products	231	13	79	57	66
C25 Fabricated metal prod.	417	22	71	77	37
C28 Machinery and equipment	160	20	55	90	60
F43 Specialised construction activities	694	15	45	75	45
G46 Wholesale trade	1 089	20	57	76	52
I55 Accommodation	395	15	43	76	70
J58 Publishing activities	254	32	50	71	46
J62 Computer programming, consultancy	284	39	47	75	37
M71 Architecture, engineering act.	513	16	41	66	29

Source: Statistics Norway, CIS 2010

**A11.20a Organisational innovations, enterprises with PP-innovation activity, 2008-2010. Regular sample**

NACE Rev. 2	Enterprises with PP-innovation activity	Enterprises with organisational innovation	Type of organisational innovation				
			Number of	Percent	New business practices	New methods for organising work responsibilities and decision making	New methods for organising external relations
A-N: All industries	1 079	37	64	91	33		
C10 Food products	126	28	76	70	15		
C16 Wood and wood products	48	52	80	100	10		
C25 Fabricated metal prod.	95	41	55	100	24		
C28 Machinery and equipment	75	48	75	92	33		
F43 Specialised construction activities	53	56	70	90	20		
G46 Wholesale trade	237	28	57	100	57		
I55 Accommodation	46	25	75	100	0		
J58 Publishing activities	95	45	44	78	40		
J62 Computer programming, consultancy	137	45	55	100	33		
M71 Architecture, engineering act.	167	34	74	84	42		

**A11.20a Organisational innovations, enterprises with PP-innovation activity, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises with PP-innovation activity	Enterprises with organisational innovation	Type of organisational innovation				
			Number of	Percent	New business practices	New methods for organising work responsibilities and decision making	New methods for organising external relations
A-N: All industries	1 595	41	57	75	49		
C10 Food products	169	33	56	87	44		
C16 Wood and wood products	53	32	81	42	58		
C25 Fabricated metal prod.	171	48	79	74	42		
C28 Machinery and equipment	100	32	55	90	60		
F43 Specialised construction activities	144	37	50	60	60		
G46 Wholesale trade	384	43	63	81	56		
I55 Accommodation	115	29	32	77	68		
J58 Publishing activities	112	39	62	85	46		
J62 Computer programming, consultancy	185	60	47	75	37		
M71 Architecture, engineering act.	163	32	39	52	40		

Source: Statistics Norway, CIS 2010

**A11.21a Organisational innovations, enterprises with no PP-innovation activity, 2008-2010. Regular sample**

NACE Rev. 2	Enterprises with no PP-innovation activity	Enterprises with organisational innovation	Type of organisational innovation				
			Number of	Percent	New business practices	New methods for organising work responsibilities and decision making	New methods for organising external relations
A-N: All industries	3 406	8	55	90	35		
C10 Food products	322	4	61	61	19		
C16 Wood and wood products	183	6	77	100	0		
C25 Fabricated metal prod.	322	6	59	100	27		
C28 Machinery and equipment	85	4	0	100	0		
F43 Specialised construction activities	641	11	32	84	36		
G46 Wholesale trade	852	8	57	100	43		
I55 Accommodation	349	6	43	72	42		
J58 Publishing activities	159	3	50	100	0		
J62 Computer programming, consultancy	147	8	100	75	0		
M71 Architecture, engineering act.	346	11	85	100	51		

**A11.21a Organisational innovations, enterprises with no PP-innovation activity, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises with no PP-innovation activity	Enterprises with organisational innovation	Type of organisational innovation				
			Number of	Percent	New business practices	New methods for organising work responsibilities and decision making	New methods for organising external relations
A-N: All industries	2 890	9	46	77	37		
C10 Food products	279	10	75	100	25		
C16 Wood and wood products	178	8	76	76	76		
C25 Fabricated metal prod.	246	4	0	100	0		
C28 Machinery and equipment	60	-	-	-	-		
F43 Specialised construction activities	550	10	40	90	30		
G46 Wholesale trade	705	7	40	60	40		
I55 Accommodation	280	9	57	73	73		
J58 Publishing activities	142	26	36	54	45		
J62 Computer programming, consultancy	99	-	-	-	-		
M71 Architecture, engineering act.	350	9	45	89	11		

Source: Statistics Norway, CIS 2010

**A11.24a Marketing innovations, all enterprises, 2008-2010. Regular sample**

NACE Rev. 2	Enterprises in population		Enterprises with marketing innovation		Type of marketing innovation		
	Number of	Percent	Significant changes in design or packaging	New media or techniques for promotion	New methods for product placement or sales channels		New methods of pricing
					Percent		
A-N: All industries	4 485	16	52	59	33	33	34
C10 Food products	448	12	80	24	25	25	10
C16 Wood and wood products	231	16	62	55	24	24	21
C25 Fabricated metal prod.	417	12	41	54	46	46	30
C28 Machinery and equipment	160	24	69	54	15	15	38
F43 Specialised construction activities	694	8	32	63	32	32	32
G46 Wholesale trade	1 089	20	48	65	30	30	22
I55 Accommodation	395	20	47	65	54	54	61
J58 Publishing activities	254	23	67	42	28	28	54
J62 Computer programming, consultancy	284	24	72	61	57	57	67
M71 Architecture, engineering act.	513	15	32	76	15	15	24

**A11.24a Marketing innovations, all enterprises, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises in population		Enterprises with marketing innovation		Type of marketing innovation		
	Number of	Percent	Significant changes in design or packaging	New media or techniques for promotion	New methods for product placement or sales channels		New methods of pricing
					Percent		
A-N: All industries	4 485	20	56	58	37	37	27
C10 Food products	448	26	56	38	44	44	15
C16 Wood and wood products	231	20	78	49	30	30	36
C25 Fabricated metal prod.	417	15	56	61	39	39	17
C28 Machinery and equipment	160	21	57	43	10	10	10
F43 Specialised construction activities	694	13	24	76	29	29	24
G46 Wholesale trade	1 089	16	59	59	29	29	35
I55 Accommodation	395	31	55	86	69	69	31
J58 Publishing activities	254	36	63	41	44	44	44
J62 Computer programming, consultancy	284	28	70	43	26	26	35
M71 Architecture, engineering act.	513	11	56	69	19	19	6

Source: Statistics Norway, CIS 2010

**A11.25a Marketing innovations, enterprises with PP-innovation activity, 2008-2010. Regular sample**

NACE Rev. 2	Enterprises with PP-innovation activity		Enterprises with marketing innovation		Type of marketing innovation			
	Number of	Percent	Significant changes in design or packaging	New media or techniques for promotion	New methods for product placement or sales channels	New methods of pricing	Percent	
							Percent	Percent
A-N: All industries	1 079	40	61	56	35	44		
C10 Food products	126	38	76	23	29	11		
C16 Wood and wood products	46	46	61	77	27	23		
C25 Fabricated metal prod.	95	31	59	62	28	31		
C28 Machinery and equipment	75	52	69	54	15	38		
F43 Specialised construction activities	53	33	50	67	33	33		
G46 Wholesale trade	237	44	64	55	36	36		
I55 Accommodation	46	49	25	75	50	75		
J58 Publishing activities	95	48	66	41	35	68		
J62 Computer programming, consultancy	137	43	78	60	65	78		
M71 Architecture, engineering act.	167	28	31	75	19	40		

**A11.25a Marketing innovations, enterprises with PP-innovation activity, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises with PP-innovation activity		Enterprises with marketing innovation		Type of marketing innovation			
	Number of	Percent	Significant changes in design or packaging	New media or techniques for promotion	New methods for product placement or sales channels	New methods of pricing	Percent	
							Percent	Percent
A-N: All industries	1 595	43	63	52	37	25		
C10 Food products	169	55	59	37	37	11		
C16 Wood and wood products	53	57	77	21	23	34		
C25 Fabricated metal prod.	171	33	63	57	43	19		
C28 Machinery and equipment	100	25	75	25	12	12		
F43 Specialised construction activities	144	33	44	56	33	22		
G46 Wholesale trade	384	41	60	60	27	33		
I55 Accommodation	115	68	59	86	74	18		
J58 Publishing activities	112	67	73	36	50	45		
J62 Computer programming, consultancy	185	43	70	43	26	35		
M71 Architecture, engineering act.	163	30	65	65	22	7		

Source: Statistics Norway, CIS 2010

**A11.26a Marketing innovations, enterprises with no PP-innovation activity, 2008-2010. Regular sample**

NACE Rev. 2	Enterprises with no PP-innovation activity		Enterprises with marketing innovation		Type of marketing innovation			
	Number of	Percent	Significant changes in design or packaging	New media or techniques for promotion	New methods for product placement or sales channels	New methods of pricing	Percent	
							Percent	Percent
A-N: All industries	3 406	9	40	63	31	20		
C10 Food products	322	2	100	33	0	0		
C16 Wood and wood products	183	7	63	18	18	18		
C25 Fabricated metal prod.	322	6	14	41	73	27		
C28 Machinery and equipment	85	-	-	-	-	-		
F43 Specialised construction activities	641	6	23	62	31	31		
G46 Wholesale trade	852	13	33	75	25	8		
I55 Accommodation	349	17	55	61	55	55		
J58 Publishing activities	159	8	78	44	0	0		
J62 Computer programming, consultancy	147	6	33	67	0	0		
M71 Architecture, engineering act.	346	9	33	77	10	0		

**A11.26a Marketing innovations, enterprises with no PP-innovation activity, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises with no PP-innovation activity		Enterprises with marketing innovation		Type of marketing innovation			
	Number of	Percent	Significant changes in design or packaging	New media or techniques for promotion	New methods for product placement or sales channels	New methods of pricing	Percent	
							Percent	Percent
A-N: All industries	2 890	7	31	80	41	35		
C10 Food products	279	9	42	43	72	29		
C16 Wood and wood products	178	9	81	100	42	39		
C25 Fabricated metal prod.	246	3	0	100	0	0		
C28 Machinery and equipment	60	13	0	100	0	0		
F43 Specialised construction activities	550	8	0	100	25	25		
G46 Wholesale trade	705	3	50	50	50	50		
I55 Accommodation	280	16	47	86	62	55		
J58 Publishing activities	142	12	20	60	20	40		
J62 Computer programming, consultancy	99	-	-	-	-	-		
M71 Architecture, engineering act.	350	2	0	100	0	0		

Source: Statistics Norway, CIS 2010



**A11.28a Employment of personnel with specific skills, all enterprises, 2008-2010. Regular sample**

NACE Rev. 2	Enterprises in population	Enterprises that employed individuals in-house or obtained from external source the following skills:									
		Graphic arts / layout / advertising	Design of objects or services	Multimedia	Web design	Software development	Market research	Engineering / applied sciences	Mathematics / statistics / database management		
		Percent									
A-N: All industries	4 485	38	26	21	44	33	17	16	15	15	
C10 Food products	448	29	24	7	27	21	8	8	7	7	
C16 Wood and wood products	231	38	35	18	44	31	16	18	20	20	
C25 Fabricated metal prod.	417	28	24	8	37	24	12	25	9	9	
C28 Machinery and equipment	160	34	32	23	55	34	19	49	19	19	
F43 Specialised construction activities	694	17	6	11	25	17	7	9	7	7	
G46 Wholesale trade	1 089	42	24	21	44	33	20	10	13	13	
I55 Accommodation	395	48	30	29	49	29	20	3	7	7	
J58 Publishing activities	254	76	51	46	71	59	47	16	19	19	
J62 Computer programming, consultancy	284	49	43	38	72	80	28	19	39	39	
M71 Architecture, engineering act.	513	46	34	33	50	40	15	37	27	27	

**A11.28a Employment of personnel with specific skills, all enterprises, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises in population	Enterprises that employed individuals in-house or obtained from external source the following skills:									
		Graphic arts / layout / advertising	Design of objects or services	Multimedia	Web design	Software development	Market research	Engineering / applied sciences	Mathematics / statistics / database management		
		Percent									
A-N: All industries	4 485	39	28	26	45	36	20	21	18	18	
C10 Food products	448	24	24	15	22	22	14	11	10	10	
C16 Wood and wood products	231	38	27	19	47	40	13	15	15	15	
C25 Fabricated metal prod.	417	32	32	18	35	33	23	33	21	21	
C28 Machinery and equipment	160	32	46	24	43	28	22	49	37	37	
F43 Specialised construction activities	694	20	7	9	30	20	7	15	9	9	
G46 Wholesale trade	1 089	44	24	31	48	33	23	11	14	14	
I55 Accommodation	395	47	27	23	52	38	17	11	13	13	
J58 Publishing activities	254	88	71	63	81	75	63	28	35	35	
J62 Computer programming, consultancy	284	52	37	43	64	69	36	26	27	27	
M71 Architecture, engineering act.	513	37	32	31	51	40	14	43	30	30	

Source: Statistics Norway, CIS 2010

**A11.31a Methods to stimulate new ideas or creativity among staff, all enterprises, 2008-2010. Regular sample**

NACE Rev. 2	Enterprises having used the following methods:										Enterprises having successfully used the method:						
	Enterprises in population	Job rotation of staff to different departments or other parts of the enterprise group					Brainstorming sessions	Multi-disciplinary or cross-functional work teams	Non-financial incentives for employees to develop new ideas	Financial incentives for employees to develop new ideas	Training employees on how to develop ideas or creativity	Multi-disciplinary or cross-functional work teams	Percent of enterprises having used the method	Brainstorming sessions	Non-financial incentives for employees to develop new ideas	Financial incentives for employees to develop new ideas	Training employees on how to develop ideas or creativity
		Number of	Brainstorming sessions	Multi-disciplinary or cross-functional work teams	Non-financial incentives for employees to develop new ideas	Financial incentives for employees to develop new ideas											
A-N: All industries	4 486	37	28	11	16	16	77	69	44	33	49	51					
C10 Food products	448	27	21	15	19	16	71	71	42	29	47	30					
C16 Wood and wood products	231	28	14	2	7	7	78	100	67	-	31	100					
C25 Fabricated metal prod.	417	23	23	11	14	14	75	66	31	21	50	30					
C28 Machinery and equipment	160	40	38	13	11	11	86	70	40	57	50	20					
F43 Specialised construction activities	694	20	16	9	10	11	60	62	29	33	48	52					
G46 Wholesale trade	1 089	37	23	13	18	14	77	58	43	40	48	50					
I55 Accommodation	395	42	30	15	21	21	69	54	43	29	48	34					
J58 Publishing activities	284	64	45	14	19	19	86	72	-	23	72	69					
J62 Computer programming, consultancy	284	61	62	15	25	25	83	73	38	21	45	69					
M71 Architecture, engineering act.	513	50	44	6	17	17	82	85	72	57	67	62					

**A11.31a Methods to stimulate new ideas or creativity among staff, all enterprises, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises having used the following methods:										Enterprises having successfully used the method:						
	Enterprises in population	Job rotation of staff to different departments or other parts of the enterprise group					Brainstorming sessions	Multi-disciplinary or cross-functional work teams	Non-financial incentives for employees to develop new ideas	Financial incentives for employees to develop new ideas	Training employees on how to develop ideas or creativity	Multi-disciplinary or cross-functional work teams	Percent of enterprises having used the method	Brainstorming sessions	Non-financial incentives for employees to develop new ideas	Financial incentives for employees to develop new ideas	Training employees on how to develop ideas or creativity
		Number of	Brainstorming sessions	Multi-disciplinary or cross-functional work teams	Non-financial incentives for employees to develop new ideas	Financial incentives for employees to develop new ideas											
A-N: All industries	3 791	42	35	14	12	16	76	74	58	33	46	61					
C10 Food products	448	29	25	8	15	15	71	66	69	27	53	55					
C16 Wood and wood products	231	40	30	13	19	19	47	71	71	55	54	42					
C25 Fabricated metal prod.	417	31	31	11	16	17	70	65	38	40	47	71					
C28 Machinery and equipment	160	37	55	4	8	8	89	84	-	-	50	73					
G46 Wholesale trade	1 089	34	27	13	12	13	75	68	57	38	38	57					
I55 Accommodation	395	44	28	16	23	23	89	78	22	13	24	45					
J58 Publishing activities	284	72	60	12	23	23	89	78	22	13	24	45					
J62 Computer programming, consultancy	284	70	50	12	20	20	86	85	50	60	50	77					
M71 Architecture, engineering act.	513	52	43	19	10	20	79	87	70	14	66	66					

Source: Statistics Norway, CIS 2010

## **Appendix B.2. Mandatory Innovation-only sample vs. Voluntary Innovation-only sample**

- A11.01a** Enterprises with product- or process innovation, 2008-2010.
- A11.02a** Who developed the enterprise's product innovations, 2008-2010.
- A11.03a** Product innovation new to the enterprise's market, 2008-2010.
- A11.06a** Types of innovation activity, 2008-2010.
- A11.09a** Turnover from new or improved products in 2010.
- A11.10a** Objectives of the innovation activities, high importance, 2008-2010.
- A11.11a** Sources of information for innovation activities, high importance, 2008-2010.
- A11.12a** Most important (or only) market, 2008-2010.
- A11.13a** Factors hampering innovation, high or medium importance, enterprises with PP-innovation activity, 2008-2010.
- A11.14a** Factors hampering innovation, high or medium importance, enterprises with no PP-innovation activity, 2008-2010.
- A11.15a** Cooperation partners on innovation activities, 2008-2010.
- A11.18a** Use of patents and other methods of protection, 2008-2010.
- A11.19a** Organisational innovations, all enterprises, 2008-2010.
- A11.24a** Marketing innovations, all enterprises, 2008-2010.
- A11.28a** Employment of personnel with specific skills, all enterprises, 2008-2010.
- A11.31a** Methods to stimulate new ideas or creativity among staff, all enterprises, 2008-2010.

**A11.01a Enterprises with product- or process innovation, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises in population	Enterprises with						
		Innovation activity (product/process)	Product or process innovation	Product and process innovation	Product innovation	Product innovation (goods)	Product innovation (services)	Process innovation
	Number of	Percent						
A-N: All industries	3 791	38	32	13	26	20	8	19
C10 Food products	448	38	30	12	25	25	-	18
C16 Wood and wood products	231	23	17	7	11	11	1	13
C25 Fabricated metal prod.	417	41	34	13	21	19	3	26
C28 Machinery and equipment	160	62	51	23	40	35	7	35
G46 Wholesale trade	1 089	35	32	9	30	28	5	11
I55 Accommodation	395	29	22	9	15	6	10	17
J58 Publishing activities	254	44	40	24	37	20	23	27
J62 Computer programming, consultancy	284	65	57	27	46	26	27	38
M71 Architecture, engineering act.	513	32	24	12	18	8	10	18

**A11.01a Enterprises with product- or process innovation, 2008-2010. Voluntary sample**

NACE Rev. 2	Enterprises in population	Enterprises with						
		Innovation activity (product/process)	Product or process innovation	Product and process innovation	Product innovation	Product innovation (goods)	Product innovation (services)	Process innovation
	Number of	Percent						
A-N: All industries	3 791	45	41	16	34	25	13	23
C10 Food products	448	36	33	13	23	21	2	23
C16 Wood and wood products	231	55	55	29	35	35	3	48
C25 Fabricated metal prod.	417	45	37	18	34	32	9	22
C28 Machinery and equipment	160	50	30	4	27	23	7	7
G46 Wholesale trade	1 089	49	46	11	38	38	5	19
I55 Accommodation	395	39	37	22	31	8	22	28
J58 Publishing activities	254	44	44	6	36	13	26	13
J62 Computer programming, consultancy	284	67	61	40	58	33	40	43
M71 Architecture, engineering act.	513	32	29	13	23	6	21	19

Source: Statistics Norway, CIS 2010

**A11.02a Who developed the enterprise's product innovations, 2008-2010. Mandatory sample**

NACE Rev. 2	The goods were developed by:					The services were developed by:						
	Enterprises with product innovation (goods)	Mainly own enterprise	Own enterprise together with own enterprise group	Own enterprise together with other enterprises or institutions	Own enterprise by modifying goods developed by others	Mainly other enterprises or institutions	Enterprises with product innovation (services)	Mainly own enterprise	Own enterprise together with own enterprise group	Own enterprise together with other enterprises or institutions	Own enterprise by modifying services developed by others	Mainly other enterprises or institutions
	Number of		Percent			Number of		Percent			Number of	
A-N: All industries	764	58	24	20	8	23	303	73	23	12	11	10
C10 Food products	110	72	19	6	19	3	-	-	-	-	-	-
C16 Wood and wood products	26	88	13	50	0	3	100	100	0	0	0	0
C25 Fabricated metal prod.	79	74	26	79	18	14	100	100	0	0	52	0
C28 Machinery and equipment	55	86	43	54	20	6	11	29	0	0	0	71
G46 Wholesale trade	301	28	28	10	3	52	80	40	20	20	0	0
I55 Accommodation	26	87	13	29	0	40	83	8	8	8	0	0
J58 Publishing activities	51	80	40	7	7	58	65	30	24	24	12	0
J62 Computer programming, consultancy	74	76	14	33	0	14	77	82	14	14	14	5
M71 Architecture, engineering act.	43	84	0	25	0	8	50	56	29	0	21	36

**A11.02a Who developed the enterprise's product innovations, 2008-2010. Voluntary sample**

NACE Rev. 2	The goods were developed by:					The services were developed by:						
	Enterprises with product innovation (goods)	Mainly own enterprise	Own enterprise together with own enterprise group	Own enterprise together with other enterprises or institutions	Own enterprise by modifying goods developed by others	Mainly other enterprises or institutions	Enterprises with product innovation (services)	Mainly own enterprise	Own enterprise together with own enterprise group	Own enterprise together with other enterprises or institutions	Own enterprise by modifying services developed by others	Mainly other enterprises or institutions
	Number of		Percent			Number of		Percent			Number of	
A-N: All industries	954	60	31	11	10	22	495	87	28	9	9	2
C10 Food products	95	85	23	15	15	8	7	100	0	0	0	0
C16 Wood and wood products	82	72	38	19	9	9	7	100	0	0	0	0
C25 Fabricated metal prod.	135	52	24	38	10	29	39	83	66	49	0	0
C28 Machinery and equipment	37	31	69	15	0	11	11	100	0	0	0	0
G46 Wholesale trade	412	43	36	0	14	36	59	100	50	0	0	0
I55 Accommodation	33	100	0	0	0	0	89	89	37	0	0	0
J58 Publishing activities	33	100	0	0	0	0	66	78	11	11	11	0
J62 Computer programming, consultancy	94	90	27	10	0	10	112	92	31	0	23	8
M71 Architecture, engineering act.	33	80	40	20	0	0	105	75	6	19	13	0

Source: Statistics Norway, CIS 2010

**A11.03a Product innovation new to the enterprise's market, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises with product innovation				Enterprises with product innovation new for the market			
	Total	Product innovation only new for the enterprise	Product innovation new for the enterprise's market		Total	New for the Norwegian market	New for the European market	New for the world market
			Number of	Percent				
A-N: All industries	981	58	64	625	76	18	36	
C10 Food products	110	69	40	45	100	-	-	
C16 Wood and wood products	26	13	88	23	86	14	-	
C25 Fabricated metal prod.	86	72	48	41	75	8	33	
C28 Machinery and equipment	63	65	60	38	8	-	92	
G46 Wholesale trade	322	61	58	187	72	11	39	
I55 Accommodation	58	61	89	51	71	-	29	
J58 Publishing activities	95	43	68	64	95	26	32	
J62 Computer programming, consultancy	129	59	76	98	82	32	25	
M71 Architecture, engineering act.	92	43	84	78	83	50	59	

**A11.03a Product innovation new to the enterprise's market, 2008-2010. Voluntary sample**

NACE Rev. 2	Enterprises with product innovation				Enterprises with product innovation new for the market			
	Total	Product innovation only new for the enterprise	Product innovation new for the enterprise's market		Total	New for the Norwegian market	New for the European market	New for the world market
			Number of	Percent				
A-N: All industries	1 276	49	73	928	71	40	51	
C10 Food products	103	50	64	66	100	11	11	
C16 Wood and wood products	82	81	64	52	87	30	30	
C25 Fabricated metal prod.	141	45	73	103	87	31	31	
C28 Machinery and equipment	43	13	100	43	27	13	87	
G46 Wholesale trade	412	43	86	353	58	50	67	
I55 Accommodation	121	92	16	19	100	-	-	
J58 Publishing activities	92	36	64	59	100	44	32	
J62 Computer programming, consultancy	164	47	90	147	82	64	47	
M71 Architecture, engineering act.	118	33	72	86	46	15	69	

Source: Statistics Norway, CIS 2010

**A11.06a Types of innovation activity, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises with PP-innovation activity	Type of product- or process related innovation activity							
		In-house R&D	External R&D	Acquisition of machinery, equipment and software	Acquisition of external knowledge	Training for innovative activities	Market introduction of innovations	Design	Other
A-N: All industries	Number of 1 451	66	31	46	23	53	34	44	30
C10 Food products	189	61	16	45	16	55	22	37	16
C16 Wood and wood products	53	75	38	69	38	43	32	32	39
C25 Fabricated metal prod.	171	74	38	45	27	50	24	42	24
C28 Machinery and equipment	100	76	48	60	11	60	29	63	52
G46 Wholesale trade	384	49	24	30	14	35	41	46	16
I55 Accommodation	115	51	45	48	29	41	28	37	22
J58 Publishing activities	112	79	48	64	36	49	55	67	55
J62 Computer programming, consultancy	185	89	23	51	38	81	53	34	53
M71 Architecture, engineering act.	163	71	28	52	23	63	30	43	26

**A11.06a Types of innovation activity, 2008-2010. Voluntary sample**

NACE Rev. 2	Enterprises with PP-innovation activity	Type of product- or process related innovation activity							
		In-house R&D	External R&D	Acquisition of machinery, equipment and software	Acquisition of external knowledge	Training for innovative activities	Market introduction of innovations	Design	Other
A-N: All industries	Number of 1 703	69	33	52	28	63	42	48	46
C10 Food products	162	64	18	45	18	36	41	45	18
C16 Wood and wood products	127	94	52	58	29	66	18	59	52
C25 Fabricated metal prod.	186	76	48	69	38	65	21	55	52
C28 Machinery and equipment	80	100	39	61	39	61	54	61	72
G46 Wholesale trade	530	56	22	44	22	50	44	39	50
I55 Accommodation	154	51	51	57	28	79	81	64	72
J58 Publishing activities	111	60	30	40	47	70	26	36	40
J62 Computer programming, consultancy	190	82	32	50	23	86	46	46	41
M71 Architecture, engineering act.	164	84	36	64	32	76	44	48	20

Source: Statistics Norway, CIS 2010

**A11.09a Turnover from new or improved products in 2010. Mandatory sample**

NACE Rev. 2	All enterprises					Enterprises with product innovation					
	Enterprises in population	Turnover	All product innovations	Product innovations only new for the enterprise	Product innovations new for the enterprise's market	Product innovators	All product innovations	Product innovations only new for the enterprise	Product innovations new for the enterprise's market	Percent of turnover	
										Million NOK	Million NOK
A-N: All industries	3 791	174 463	7,2	4,2	2,9	981	40 980	30,5	17,9	12,5	
C10 Food products	448	36 076	4,1	2,3	1,8	110	4 960	29,5	16,4	13,1	
C16 Wood and wood products	231	18 653	1,5	0,9	0,6	26	1 790	15,9	9,8	6,1	
C25 Fabricated metal prod.	417	10 973	3,5	2,6	0,9	86	2 492	15,5	11,4	4,1	
C28 Machinery and equipment	160	5 592	11,7	3,9	7,8	63	1 658	39,4	13	26,4	
G46 Wholesale trade	1 089	69 861	10,1	6,8	3,4	322	20 679	34,2	22,8	11,4	
I55 Accommodation	395	6 344	5,6	2	3,7	58	851	42	14,6	27,5	
J58 Publishing activities	254	7 003	10,4	2	8,4	95	2 396	30,5	5,8	24,6	
J62 Computer programming, consultancy	284	7 576	12,7	7,5	5,2	129	3 696	26,1	15,4	10,7	
M71 Architecture, engineering act.	513	12 385	4,6	2,6	2,1	92	2 458	23,2	12,9	10,3	

**A11.09a Turnover from new or improved products in 2010. Voluntary sample**

NACE Rev. 2	All enterprises					Enterprises with product innovation					
	Enterprises in population	Turnover	All product innovations	Product innovations only new for the enterprise	Product innovations new for the enterprise's market	Product innovators	All product innovations	Product innovations only new for the enterprise	Product innovations new for the enterprise's market	Percent of turnover	
										Million NOK	Million NOK
A-N: All industries	3 791	201 339	12,9	2,2	10,6	1 276	79 737	32,5	5,6	26,9	
C10 Food products	448	74 939	23,7	1,2	22,5	103	38 460	46,1	2,3	43,8	
C16 Wood and wood products	231	7 451	7,9	2,9	5	82	3 038	19,3	7	12,2	
C25 Fabricated metal prod.	417	11 559	7,3	4,3	3	141	4 364	19,3	11,4	7,9	
C28 Machinery and equipment	160	10 634	8,5	2,1	6,5	43	3 364	27	6,5	20,5	
G46 Wholesale trade	1 089	60 438	5,4	2,2	3,2	412	18 814	17,2	6,9	10,3	
I55 Accommodation	395	5 712	8,1	6,1	2	121	1 258	37	27,9	9,1	
J58 Publishing activities	254	7 724	8,4	3,6	4,9	92	2 897	22,4	9,5	12,9	
J62 Computer programming, consultancy	284	8 106	13	7	6	164	4 525	23,3	12,5	10,8	
M71 Architecture, engineering act.	513	14 776	2,8	1,1	1,8	118	3 018	13,9	5,2	8,7	

Source: Statistics Norway, CIS 2010



**A11.10a Objectives of the innovation activities, high importance, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises with PP-innovation activity	Objective									
		Increase range of goods or services	Replace outdated products or processes	Enter new market or increase market share	Improve quality of goods or services	Improve flexibility for producing goods or services	Increase capacity of producing goods or services	Reduce labour cost per unit output	Reduce materials and energy costs per unit output	Reduce environmental impacts	Improve health or safety for the employees
	Number of	Percent									
A-N: All industries	1 451	48	36	42	46	22	22	26	18	16	23
C10 Food products	169	35	22	31	33	16	14	16	14	18	22
C16 Wood and wood products	53	63	57	38	63	57	57	82	37	25	44
C25 Fabricated metal prod.	171	45	26	32	32	38	26	48	30	16	34
C28 Machinery and equipment	100	67	43	75	75	40	52	48	37	19	29
G46 Wholesale trade	334	43	35	43	43	14	11	19	16	19	24
I55 Accommodation	115	45	47	70	63	32	29	35	37	34	27
J58 Publishing activities	112	42	45	12	64	21	12	12	9	-	21
J62 Computer programming, consultancy	185	64	47	36	51	15	24	15	2	4	7
IM71 Architecture, engineering act.	163	46	22	28	32	13	19	13	11	15	15

**A11.10a Objectives of the innovation activities, high importance, 2008-2010. Voluntary sample**

NACE Rev. 2	Enterprises with PP-innovation activity	Objective									
		Increase range of goods or services	Replace outdated products or processes	Enter new market or increase market share	Improve quality of goods or services	Improve flexibility for producing goods or services	Increase capacity of producing goods or services	Reduce labour cost per unit output	Reduce materials and energy costs per unit output	Reduce environmental impacts	Improve health or safety for the employees
	Number of	Percent									
A-N: All industries	1 703	48	34	54	50	28	24	25	21	19	28
C10 Food products	162	50	14	41	50	41	41	50	32	41	59
C16 Wood and wood products	127	42	42	53	40	52	29	53	41	34	47
C25 Fabricated metal prod.	186	55	14	48	55	24	31	28	24	21	45
C28 Machinery and equipment	80	61	14	46	14	7	14	-	32	32	14
G46 Wholesale trade	530	44	56	56	44	22	22	17	17	17	28
I55 Accommodation	154	21	28	57	94	57	49	43	36	21	21
J58 Publishing activities	111	70	40	70	47	23	-	-	-	-	-
J62 Computer programming, consultancy	190	50	18	58	59	14	5	19	14	10	10
IM71 Architecture, engineering act.	164	60	32	56	40	20	24	24	8	8	20

Source: Statistics Norway, CIS 2010

**A11.11a Sources of information for innovation activities, high importance, 2008-2010. Mandatory sample**

Enterprises with PP-innovation activity	Sources of information											
	Number of	Internal sources within the enterprise or enterprise group	Suppliers	Clients or customers	Competitors or other enterprises in the sector	Consultants	Commercial labs, or private R&D institutes	Universities or higher education institutes	Government or private research institutes	Conferences, meetings, trade fairs, exhibitions	Scientific journals and trade/technical publications	Professional and industry associations
		Percent										
A-N: All industries	1 451	53	31	44	18	9	3	4	4	19	13	13
C10 Food products	169	41	31	35	12	4	2	2	2	6	6	6
C16 Wood and wood products	53	18	25	44	6	-	6	6	-	6	-	19
C25 Fabricated metal prod.	171	54	18	32	12	6	6	10	6	16	6	8
C28 Machinery and equipment	100	67	44	54	33	16	-	-	-	17	3	8
G46 Wholesale trade	384	41	41	41	16	14	5	3	8	24	19	16
I55 Accommodation	115	57	25	48	32	6	6	13	6	22	13	25
J58 Publishing activities	112	73	21	67	21	3	-	6	6	21	18	12
J62 Computer programming, consultancy	185	66	28	49	23	4	-	4	4	23	19	4
M71 Architecture, engineering act.	163	61	32	47	15	15	-	-	-	15	15	17

**A11.11a Sources of information for innovation activities, high importance, 2008-2010. Voluntary sample**

Enterprises with PP-innovation activity	Sources of information											
	Number of	Internal sources within the enterprise or enterprise group	Suppliers	Clients or customers	Competitors or other enterprises in the sector	Consultants	Commercial labs, or private R&D institutes	Universities or higher education institutes	Government or private research institutes	Conferences, meetings, trade fairs, exhibitions	Scientific journals and trade/technical publications	Professional and industry associations
		Percent										
A-N: All industries	1 703	53	24	54	21	3	4	2	2	17	10	14
C10 Food products	162	64	27	36	32	5	-	5	5	9	18	9
C16 Wood and wood products	127	30	23	53	-	12	-	-	-	18	-	12
C25 Fabricated metal prod.	186	31	48	48	3	10	3	-	-	21	7	3
C28 Machinery and equipment	80	61	14	61	14	7	-	-	-	7	7	32
G46 Wholesale trade	530	50	28	56	28	-	11	6	6	22	11	17
I55 Accommodation	154	51	15	66	36	-	-	-	-	-	-	13
J58 Publishing activities	111	70	6	64	23	-	-	-	-	6	17	17
J62 Computer programming, consultancy	190	68	14	54	14	-	-	-	-	22	14	5
M71 Architecture, engineering act.	164	64	20	56	24	-	-	-	-	24	12	24

Source: Statistics Norway, CIS 2010

**A11.12a Most important (or only) market, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises with PP-innovation activity		Most important (or only) market			Enterprises with no PP-innovation activity			Most important (or only) market		
	Number of	Local/regional in Norway	Rest of Norway	Other European countries	Other countries	Number of	Local/regional in Norway	Rest of Norway	Other European countries	Other countries	Percent of enterprises with no PP-innovation activity
A-N: All industries	1 451	41	44	10	5	2 340	70	23	3	3	
C10 Food products	169	53	27	14	6	279	64	16	9	11	
C16 Wood and wood products	53	75	18	-	6	178	75	25	7	-	
C25 Fabricated metal prod.	171	38	48	12	2	246	76	18	3	3	
C28 Machinery and equipment	100	30	40	22	8	60	37	53	11	3	
G46 Wholesale trade	384	32	57	8	3	705	68	29	1	1	
I55 Accommodation	115	62	16	22	-	280	71	20	5	4	
J58 Publishing activities	112	52	36	3	9	142	74	19	7	7	
J62 Computer programming, consultancy	185	28	57	9	6	99	61	32	-	7	
M71 Architecture, engineering act.	163	44	46	2	9	350	81	14	2	3	

**A11.12a Most important (or only) market, 2008-2010. Voluntary sample**

NACE Rev. 2	Enterprises with PP-innovation activity		Most important (or only) market			Enterprises with no PP-innovation activity			Most important (or only) market		
	Number of	Local/regional in Norway	Rest of Norway	Other European countries	Other countries	Number of	Local/regional in Norway	Rest of Norway	Other European countries	Other countries	Percent of enterprises with no PP-innovation activity
A-N: All industries	1 703	54	32	8	6	2 088	66	29	1	4	
C10 Food products	162	50	32	9	9	286	69	18	10	3	
C16 Wood and wood products	127	47	53	-	-	104	87	13	-	-	
C25 Fabricated metal prod.	186	28	45	24	3	231	80	17	-	3	
C28 Machinery and equipment	80	-	46	7	46	80	7	54	-	39	
G46 Wholesale trade	530	67	28	6	-	559	63	37	-	-	
I55 Accommodation	154	70	15	-	15	241	74	26	-	-	
J58 Publishing activities	111	36	47	17	-	143	87	13	-	-	
J62 Computer programming, consultancy	190	68	32	-	-	94	45	55	-	-	
M71 Architecture, engineering act.	164	64	12	16	8	349	55	36	-	9	

Source: Statistics Norway, CIS 2010

**A11.13a Factors hampering innovation, high or medium importance, enterprises with PP-innovation activity, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises with PP-innovation activity	Hampering factors											All factors "not relevant"
		Innovation costs too high	Lack of funds within your enterprise or group	Lack of funds from sources outside your enterprise	Lack of qualified personnel	Lack of information on technology	Lack of information on markets	Difficulty in finding cooperation partners for innovation	Market dominated by established enterprises	Uncertain demand for innovative goods or services	No need due to prior innovations by the enterprise	No need because of no demand for innovations	
A-N: All industries	1 451	65	55	44	51	31	29	30	43	53	23	26	8
C10 Food products	169	67	59	53	35	51	27	35	45	51	26	31	14
C16 Wood and wood products	53	82	57	44	56	57	31	57	62	68	25	37	-
C25 Fabricated metal prod.	171	66	48	50	52	26	49	24	44	60	32	22	8
C28 Machinery and equipment	100	71	76	49	68	76	37	44	52	70	11	30	-
G46 Wholesale trade	384	54	46	38	54	35	30	27	32	46	30	30	11
I55 Accommodation	115	66	63	50	60	38	32	45	51	64	32	29	12
J58 Publishing activities	112	76	48	45	33	42	12	12	42	42	12	12	9
J62 Computer programming, consultancy	185	72	72	40	53	11	23	20	45	57	25	32	2
M71 Architecture, engineering act.	163	61	48	43	52	21	15	24	43	46	-	9	4

**A11.13a Factors hampering innovation, high or medium importance, enterprises with PP-innovation activity, 2008-2010. Voluntary sample**

NACE Rev. 2	Enterprises with PP-innovation activity	Hampering factors											All factors "not relevant"
		Innovation costs too high	Lack of funds within your enterprise or group	Lack of funds from sources outside your enterprise	Lack of qualified personnel	Lack of information on technology	Lack of information on markets	Difficulty in finding cooperation partners for innovation	Market dominated by established enterprises	Uncertain demand for innovative goods or services	No need due to prior innovations by the enterprise	No need because of no demand for innovations	
A-N: All industries	1 703	64	49	46	52	32	47	36	42	46	18	21	8
C10 Food products	162	73	45	45	41	32	32	27	55	36	18	14	9
C16 Wood and wood products	127	82	94	64	64	59	66	29	53	70	29	34	-
C25 Fabricated metal prod.	186	76	55	69	35	24	41	59	62	62	17	10	3
C28 Machinery and equipment	80	54	46	46	21	7	21	7	14	7	-	-	-
G46 Wholesale trade	530	50	28	33	44	33	50	39	22	33	22	28	11
I55 Accommodation	154	79	94	79	79	43	72	66	72	57	6	-	6
J58 Publishing activities	111	53	36	6	70	60	47	40	23	60	30	36	17
J62 Computer programming, consultancy	190	50	45	27	54	14	32	14	50	54	10	18	14
M71 Architecture, engineering act.	164	84	56	60	68	24	52	28	48	52	20	32	-

Source: Statistics Norway, CIS 2010

**A11.14a Factors hampering innovation, high or medium importance, enterprises with no PP-innovation activity, 2008-2010. Mandatory sample**

	Enterprises with no PP-innovation activity	Hampering factors											All factors "not relevant"
		Number of	Innovation costs too high	Lack of funds within your enterprise or group	Lack of funds from sources outside your enterprise	Lack of qualified personnel	Lack of information on technology	Lack of information on markets	Difficulty in finding cooperation partners for innovation	Market dominated by established enterprises	Uncertain demand for innovative goods or services	No need due to prior innovations by the enterprise	
		Percent											
A-N: All industries	2 340	28	23	19	17	12	14	15	20	22	14	17	57
C10 Food products	279	30	27	23	17	17	21	18	23	23	16	16	54
C16 Wood and wood products	178	51	45	39	37	35	33	29	39	48	15	27	34
C25 Fabricated metal prod.	246	31	25	24	20	13	18	15	11	28	15	17	52
C28 Machinery and equipment	60	29	24	18	11	11	11	16	24	24	11	-	53
G46 Wholesale trade	705	18	13	9	9	6	6	12	13	12	15	12	65
I55 Accommodation	280	36	35	35	25	13	16	22	25	30	19	20	51
J58 Publishing activities	142	36	26	19	12	2	7	10	24	17	2	19	55
J62 Computer programming, consultancy	99	25	18	3	14	-	3	11	11	11	18	11	64
M71 Architecture, engineering act.	350	24	17	13	21	13	16	11	24	25	12	24	63

**A11.14a Factors hampering innovation, high or medium importance, enterprises with no PP-innovation activity, 2008-2010. Voluntary sample**

	Enterprises with no PP-innovation activity	Hampering factors											All factors "not relevant"
		Number of	Innovation costs too high	Lack of funds within your enterprise or group	Lack of funds from sources outside your enterprise	Lack of qualified personnel	Lack of information on technology	Lack of information on markets	Difficulty in finding cooperation partners for innovation	Market dominated by established enterprises	Uncertain demand for innovative goods or services	No need due to prior innovations by the enterprise	
		Percent											
A-N: All industries	2 088	25	22	16	21	13	16	13	21	24	20	15	59
C10 Food products	286	26	23	18	18	13	13	13	28	28	18	15	54
C16 Wood and wood products	104	50	50	37	43	22	28	37	43	50	50	22	22
C25 Fabricated metal prod.	231	33	25	17	30	14	14	14	22	42	22	14	42
C28 Machinery and equipment	80	7	32	32	46	32	39	39	7	7	39	39	54
G46 Wholesale trade	559	21	16	11	16	11	11	11	21	21	21	21	79
I55 Accommodation	241	8	14	4	31	18	22	12	18	12	31	8	57
J58 Publishing activities	143	23	5	5	5	5	-	5	18	23	10	5	72
J62 Computer programming, consultancy	94	27	36	18	10	10	10	10	18	18	-	-	55
M71 Architecture, engineering act.	349	32	26	25	15	13	23	11	15	19	8	13	53

Source: Statistics Norway, CIS 2010

**A11.15a Cooperation partners on innovation activities, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises with innovation activity	Enterprises with innovation co-operation	Cooperation partner									
			Number of	Percent	Other enterprises within your enterprise group	Suppliers	Clients or customers	Competitors	Consultants	Commercial labs, or private R&D institutes	Universities or higher education institutes	Government or private research institutes
A-N: All industries	1 451	34	58	71	68	42	39	35	36	40		
C10 Food products	169	33	37	62	75	31	31	37	31	50		
C16 Wood and wood products	53	50	49	100	37	37	37	12	12	12		
C25 Fabricated metal prod.	171	34	66	83	71	66	36	65	35	59		
C28 Machinery and equipment	100	25	75	88	56	12	44	56	56	69		
G46 Wholesale trade	384	27	80	100	60	40	40	40	40	40		
I55 Accommodation	115	38	59	41	76	41	51	24	24	41		
J58 Publishing activities	112	30	40	30	100	40	40	20	20	40		
J62 Computer programming, consultancy	185	40	52	43	67	24	38	29	52	14		
M71 Architecture, engineering act.	163	43	50	75	70	65	39	20	35	35		

**A11.15a Cooperation partners on innovation activities, 2008-2010. Voluntary sample**

NACE Rev. 2	Enterprises with innovation activity	Enterprises with innovation co-operation	Cooperation partner									
			Number of	Percent	Other enterprises within your enterprise group	Suppliers	Clients or customers	Competitors	Consultants	Commercial labs, or private R&D institutes	Universities or higher education institutes	Government or private research institutes
A-N: All industries	1 703	25	50	62	76	39	40	39	39	48		
C10 Food products	162	9	50	100	100	50	100	50	50	100		
C16 Wood and wood products	127	42	29	100	100	58	87	58	58	58		
C25 Fabricated metal prod.	186	38	36	55	82	45	36	63	54	63		
C28 Machinery and equipment	80	79	80	41	82	41	9	41	50	63		
G46 Wholesale trade	530	17	100	67	67	67	67	67	33	67		
I55 Accommodation	154	6	100	-	-	-	-	-	-	-		
J58 Publishing activities	111	6	100	-	-	-	-	-	-	-		
J62 Computer programming, consultancy	190	32	30	70	70	15	15	15	43	15		
M71 Architecture, engineering act.	164	40	20	50	80	20	30	20	20	30		

Source: Statistics Norway, CIS 2010

**A11.18a Use of patents and other methods of protection, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises with PP-innovation activity	Method of protection								
		Number of	Patent application	Registered industrial design	Trademark	Percent			Lead-time advantage on competitors	No types of protection
						Copyright	Secrecy	Complexity of design		
A-N: All industries	1 451	12	7	21	12	23	18	33	47	
C10 Food products	169	8	2	22	6	35	8	18	47	
C16 Wood and wood products	53	0	6	12	6	6	19	25	56	
C25 Fabricated metal prod.	171	16	6	17	10	16	12	18	60	
C28 Machinery and equipment	100	11	3	11	8	22	19	37	41	
G46 Wholesale trade	384	14	19	41	16	19	19	32	43	
I55 Accommodation	115	0	0	19	6	9	0	25	68	
J58 Publishing activities	112	6	6	18	36	39	42	58	27	
J62 Computer programming, consultancy	185	7	4	11	11	27	17	41	45	
M71 Architecture, engineering act.	163	30	0	7	6	28	26	46	39	

**A11.18a Use of patents and other methods of protection, 2008-2010. Voluntary sample**

NACE Rev. 2	Enterprises with PP-innovation activity	Method of protection								
		Number of	Patent application	Registered industrial design	Trademark	Percent			Lead-time advantage on competitors	No types of protection
						Copyright	Secrecy	Complexity of design		
A-N: All industries	1 703	11	9	25	15	33	21	49	38	
C10 Food products	162	5	5	18	0	27	14	36	45	
C16 Wood and wood products	127	12	12	12	0	36	18	42	47	
C25 Fabricated metal prod.	186	0	3	14	3	31	38	38	52	
C28 Machinery and equipment	80	7	32	46	39	14	14	46	39	
G46 Wholesale trade	530	17	11	28	17	33	22	61	39	
I55 Accommodation	154	0	0	21	6	15	15	15	64	
J58 Publishing activities	111	34	0	34	17	81	23	40	19	
J62 Computer programming, consultancy	190	14	14	37	37	32	18	59	22	
M71 Architecture, engineering act.	164	4	12	16	20	32	16	64	16	

Source: Statistics Norway, CIS 2010

**A11.19a Organisational innovations, all enterprises, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises in population	Enterprises with organisational innovation	Type of organisational innovation				
			Number of	Percent	New methods for organising work		New methods for organising external relations
					New business practices	responsibilities and decision making	
A-N: All industries	3 791	21	55	76	46		
C10 Food products	448	18	63	92	38		
C16 Wood and wood products	231	13	79	57	66		
C25 Fabricated metal prod.	417	22	71	77	37		
C28 Machinery and equipment	160	20	55	90	60		
G46 Wholesale trade	1 089	20	57	76	52		
I55 Accommodation	395	15	43	76	70		
J58 Publishing activities	284	32	50	71	46		
J62 Computer programming, consultancy	284	39	47	75	37		
M71 Architecture, engineering act.	513	16	41	66	29		

**A11.19a Organisational innovations, all enterprises, 2008-2010. Voluntary sample**

NACE Rev. 2	Enterprises in population	Enterprises with organisational innovation	Type of organisational innovation				
			Number of	Percent	New methods for organising work		New methods for organising external relations
					New business practices	responsibilities and decision making	
A-N: All industries	3 791	26	67	86	48		
C10 Food products	448	20	67	83	42		
C16 Wood and wood products	231	39	58	75	16		
C25 Fabricated metal prod.	417	29	63	84	63		
C28 Machinery and equipment	160	4	0	100	100		
G46 Wholesale trade	1 089	27	80	90	70		
I55 Accommodation	395	25	47	90	33		
J58 Publishing activities	284	18	16	100	42		
J62 Computer programming, consultancy	284	46	86	80	41		
M71 Architecture, engineering act.	513	23	67	83	28		

Source: Statistics Norway, CIS 2010



**A11.24a Marketing innovations, all enterprises, 2008-2010. Mandatory sample**

	Enterprises in population	Enterprises with marketing innovation	Type of marketing innovation						
			Number of	Percent	Significant changes in design or packaging	New methods for product placement or sales channels			
						Percent	New media or techniques for promotion	Percent	New methods of pricing
<b>NACE Rev. 2</b>									
A-N: All industries	3 791	21	60	56	38	28			
C10 Food products	448	26	56	38	44	15			
C16 Wood and wood products	231	20	78	49	30	36			
C25 Fabricated metal prod.	417	15	56	61	39	17			
C28 Machinery and equipment	160	21	57	43	10	10			
G46 Wholesale trade	1 089	16	59	59	29	35			
I55 Accommodation	395	31	55	86	69	31			
J58 Publishing activities	254	36	63	41	44	44			
J62 Computer programming, consultancy	284	28	70	43	26	35			
M71 Architecture, engineering act.	513	11	56	69	19	6			

**A11.24a Marketing innovations, all enterprises, 2008-2010. Voluntary sample**

	Enterprises in population	Enterprises with marketing innovation	Type of marketing innovation				
			Number of	Percent	Significant changes in design or packaging	New methods for product placement or sales channels	
						Percent	New media or techniques for promotion
<b>NACE Rev. 2</b>							
A-N: All industries	3 791	28	64	62	47	38	
C10 Food products	448	25	80	27	33	13	
C16 Wood and wood products	231	32	72	70	49	21	
C25 Fabricated metal prod.	417	22	64	64	36	7	
C28 Machinery and equipment	160	27	87	13	0	0	
G46 Wholesale trade	1 089	24	56	78	67	67	
I55 Accommodation	395	44	54	89	76	36	
J58 Publishing activities	254	31	91	9	9	0	
J62 Computer programming, consultancy	284	49	57	57	37	80	
M71 Architecture, engineering act.	513	18	57	71	29	21	

Source: Statistics Norway, CIS 2010

**A11.28a Employment of personnel with specific skills, all enterprises, 2008-2010. Mandatory sample**

NACE Rev. 2	Enterprises in population	Enterprises that employed individuals in-house or obtained from external source the following skills:									
		Number of	Graphic arts / layout / advertising	Design of objects or services	Multimedia	Web design	Software development	Market research	Engineering / applied sciences	Mathematics / statistics / database management	Percent
A-N: All industries	3 791	42	31	29	47	39	23	22	20		
C10 Food products	448	24	24	15	22	22	14	11	10		
C16 Wood and wood products	231	38	27	19	47	40	13	15	15		
C25 Fabricated metal prod.	417	32	32	18	35	33	23	33	21		
C28 Machinery and equipment	1 600	32	46	24	43	28	22	49	37		
G46 Wholesale trade	1 089	44	24	31	48	33	23	11	14		
I55 Accommodation	395	47	27	23	52	38	17	11	13		
J58 Publishing activities	254	88	71	63	81	75	63	28	35		
J62 Computer programming, consultancy	284	52	37	43	64	69	36	26	27		
M71 Architecture, engineering act.	513	37	32	31	51	40	14	43	30		

**A11.28a Employment of personnel with specific skills, all enterprises, 2008-2010. Voluntary sample**

NACE Rev. 2	Enterprises in population	Enterprises that employed individuals in-house or obtained from external source the following skills:									
		Number of	Graphic arts / layout / advertising	Design of objects or services	Multimedia	Web design	Software development	Market research	Engineering / applied sciences	Mathematics / statistics / database management	Percent
A-N: All industries	3 791	43	36	24	48	43	28	25	16		
C10 Food products	448	26	23	7	25	28	16	10	5		
C16 Wood and wood products	231	41	49	16	58	35	46	33	26		
C25 Fabricated metal prod.	417	40	43	22	43	23	25	32	14		
C28 Machinery and equipment	1 600	27	34	27	46	23	36	37	11		
G46 Wholesale trade	1 089	41	27	22	43	46	30	22	11		
I55 Accommodation	395	46	44	41	69	46	44	8	14		
J58 Publishing activities	254	81	51	36	56	59	19	22	38		
J62 Computer programming, consultancy	284	58	45	30	70	79	40	40	36		
M71 Architecture, engineering act.	513	40	35	27	44	44	18	35	15		

Source: Statistics Norway, CIS 2010

**A11.31a Methods to stimulate new ideas or creativity among staff, all enterprises, 2008-2010. Mandatory sample**

Enterprises in population	Enterprises having used the following methods:										Enterprises having successfully used the method:					
	Number of	JOB rotation of staff to different departments or other parts of the enterprise group				Non-financial incentives for employees to develop new ideas		Training employees on how to develop new ideas or creativity		Brainstorming sessions	Multi-disciplinary or cross-functional work teams	Percent of enterprises having used the method	JOB rotation of staff to different departments or other parts of the enterprise group	Financial incentives for employees to develop new ideas	Non-financial incentives for employees to develop new ideas	Training employees on how to develop new ideas or creativity
		Enterprises in population	Brainstorming sessions	Multi-disciplinary or cross-functional work teams	Non-financial incentives for employees to develop new ideas	Training employees on how to develop new ideas or creativity	Financial incentives for employees to develop new ideas	Non-financial incentives for employees to develop new ideas	Training employees on how to develop new ideas or creativity							
A-N: All industries	3 791	42	35	14	12	16	19	76	74	58	33	46	61			
C10: Food products	448	29	25	12	8	15	27	66	71	69	27	53	55			
C16: Wood and wood products	231	40	30	20	13	19	10	47	71	71	55	54	42			
C25: Fabricated metal prod.	417	31	31	11	12	16	17	70	65	38	40	47	71			
C28: Machinery and equipment	160	37	55	2	4	8	15	89	84	-	-	84	73			
G46: Wholesale trade	1 089	34	27	13	12	12	13	75	68	57	38	38	57			
I55: Accommodation	395	44	28	22	16	23	23	71	61	63	34	28	53			
J58: Publishing activities	254	72	60	12	21	23	27	89	78	22	13	24	45			
J62: Computer programming, consultancy	284	70	50	12	12	20	38	86	85	50	60	50	77			
M71: Architecture, engineering act.	513	52	43	19	10	20	25	79	87	70	14	66	66			

**A11.31a Methods to stimulate new ideas or creativity among staff, all enterprises, 2008-2010. Voluntary sample**

Enterprises in population	Enterprises having used the following methods:										Enterprises having successfully used the method:					
	Number of	JOB rotation of staff to different departments or other parts of the enterprise group				Non-financial incentives for employees to develop new ideas		Training employees on how to develop new ideas or creativity		Brainstorming sessions	Multi-disciplinary or cross-functional work teams	Percent of enterprises having used the method	JOB rotation of staff to different departments or other parts of the enterprise group	Financial incentives for employees to develop new ideas	Non-financial incentives for employees to develop new ideas	Training employees on how to develop new ideas or creativity
		Enterprises in population	Brainstorming sessions	Multi-disciplinary or cross-functional work teams	Non-financial incentives for employees to develop new ideas	Training employees on how to develop new ideas or creativity	Financial incentives for employees to develop new ideas	Non-financial incentives for employees to develop new ideas	Training employees on how to develop new ideas or creativity							
A-N: All industries	3 791	43	37	19	15	21	27	74	73	51	29	46	53			
C10: Food products	448	21	15	11	11	3	16	92	100	71	43	50	10			
C16: Wood and wood products	231	42	29	20	13	29	16	70	89	84	-	56	81			
C25: Fabricated metal prod.	417	36	29	14	14	12	12	87	95	77	55	62	62			
C28: Machinery and equipment	160	34	34	20	20	27	20	53	42	18	-	27	100			
G46: Wholesale trade	1 089	41	41	19	16	24	27	60	67	29	17	33	50			
I55: Accommodation	395	57	38	27	19	30	45	81	80	61	26	44	37			
J58: Publishing activities	254	52	42	6	3	6	41	86	93	-	-	50	68			
J62: Computer programming, consultancy	284	52	49	31	18	43	28	76	82	60	18	71	57			
M71: Architecture, engineering act.	513	56	50	17	15	21	32	77	72	46	67	44	68			

Source: Statistics Norway, C/S 2010

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