CIS 2018
the impact of the new Oslo Manual

Executive summary

The 2018 European Innovation Survey (CIS 2018) is the first CIS to implement the new Oslo Manual (OECD, 2018) recommendations, rendering comparisons with innovation results from previous years a little difficult. The main difference between the previous Oslo Manual and the current one revolves around the definition of Process Innovation. Business Process Innovation now includes not just Process Innovations, but also Organizational, and Marketing innovations. A break in series was to be expected for process innovations, yet that expectation was not met. Or rather, it *was* met when decomposing business process innovations into its composing innovation types.

Overall, the rate of innovation active enterprises is stable compared to 2016 (68%), product innovation is down from 35% in 2016 to 30% in 2018. Process innovation (old definition) has increased considerably (54% compared to 37% in 2016), but remains more or less stable when using the new definition (58%), the reason being that both organizational and marketing innovations have decreased substantially (down 9% and 15% respectively).

The downward trend in cooperation for innovation seems to have hit a rather small bump in the road: up from 38% in 2016 to 42% in 2018. It will be interesting to see the results for CIS 2020 as the COVID19 pandemic and the ensuing economic crisis may increase (as firms might be forced to bundle their diminished resources) or even decrease (firms protecting their know-how to secure or protect their share of an uncertain and volatile market) cooperation.

A one-on-one comparison between the 2016 and 2018 results for who developed a firm's business process innovations is not really possible, as this question was only asked for process innovations in the past, thus excluding marketing and organizational innovations. It is an open question whether the increased share of process innovators reporting they innovated by themselves stems from organizational and marketing innovations being "simpler or easier" to do on your own, without outside help, or not.

The increasing share of firms having ongoing or abandoned innovation activities continues: 49% in 2018 vs. 40% in 2016. This question has not changed between 2016 and 2018, the increase thus seems to indicate a real development and not the result of the new Oslo Manual recommendations.

1. Introduction

This document describes the main impact the new Oslo Manual had on the European Community Innovation Survey (CIS) 2018 in Belgium. After the Oslo Manual (OM) revision in 2018, this CIS is the first one to implement the suggested changes. We focus on highlighting the differences between CIS 2016 and CIS 2018 and investigate whether the OM revision has had an influence on said differences.

2. Methodology

The Belgian Science Policy Office (Belspo) coordinates the Belgian CIS so as to ensure maximum comparability *between* regions as well as internationally, in close cooperation with Regional authorities: Innoviris for the Brussels Capital Region and DG06 (SPW) for the Walloon region, and data producers, namely ECOOM for the Flemish region.

The CIS is a stratified survey. Each region samples firms by size (small: 10-49 employees, medium: 50-249 employees, and large: 250+ employees) and aggregated sector. Not all sectors are covered, as prescribed by Eurostat (B-M73, Nace Rev.2).

The reference population was provided by the business register from the National Social Security Office (RSZ-ONSS) extracted on December 31, 2018. The frame population has 14 515 firms of which 8.325 firms were sampled. The overall response rate was 57.35% and extrapolations were made to represent the entirety of the population.

3. Definitions and classifications

The Oslo Manual (OECD, 2018, p. 20) offers the following definition for innovation:
"*An **innovation** is a new or improved product or process (or combination thereof) that differs significantly from the unit's previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process).*"

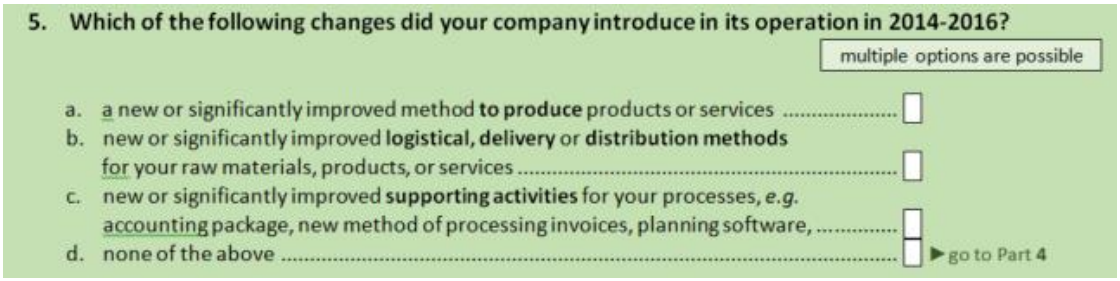
But the main novelty, found on page 21, concerns process innovation:
*"A **business process innovation** is a new or improved business process for one or more business functions that differs significantly from the firm's previous business processes and that **has been brought into use** by the firm*. (...) The taxonomy of business functions proposed in this manual maps reasonably well onto the previous edition's categories of process, marketing, and organizational innovations."

In the previous Oslo Manual (OECD, 2005, p. 46), process, marketing, and organizational innovation are defined as follows:

"*A **process innovation** is defined as the implementation of a new or significantly improved production or delivery method (including support activities).*
*A **marketing innovation** happens when a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing is implemented.*
*An **organizational innovation** is defined as the implementation of a new organizational method in the firm's business practices, workplace organization, or external relations (excluding mergers and acquisitions)*."

4. Impact on questionnaire design

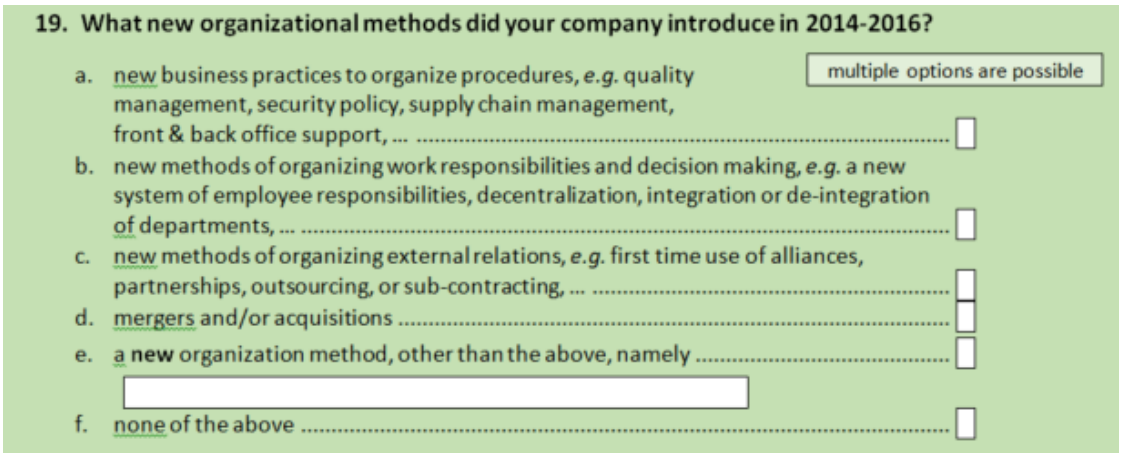
The impact on questionnaire design of basically combining three innovations types (old definition) into one type is quite substantial. Experience has taught us that respondents rarely read definitions, so to avoid false negatives, we had implemented list-based questions which worked quite well. As shown below, the CIS 2016 questions on process innovation (Q 5), organizational (Q 19), and marketing innovation (Q 20) are all manageable on their own. Making these into one list would result in a *very* long question. This would potentially lead to higher non-response and more ticks for the first items, combined with substantially fewer ticks for the items lower on the list. As companies still express a preference for hard copies, alternating the order in which items appear in the list is not an option, even though this would mitigate the effects of this tendency to tick only the first item on the list that applies.



5. Which of the following changes did your company introduce in its operation in 2014-2016?

multiple options are possible

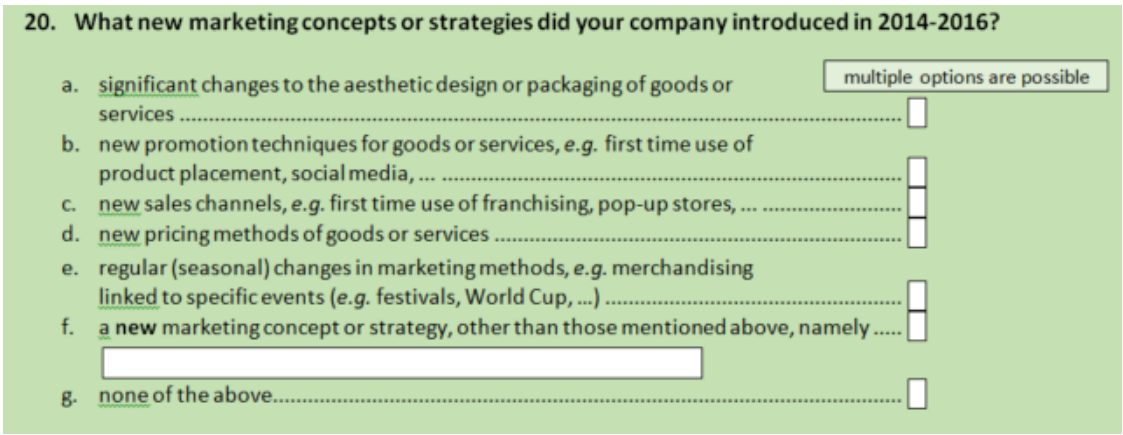
a. a new or significantly improved method **to produce** products or services ☐
b. new or significantly improved **logistical, delivery** or **distribution methods** for your raw materials, products, or services ☐
c. new or significantly improved **supporting activities** for your processes, *e.g.* accounting package, new method of processing invoices, planning software, ☐
d. none of the above ☐ ▶go to Part **4**



19. What new organizational methods did your company introduce in 2014-2016?

multiple options are possible

a. new business practices to organize procedures, *e.g.* quality management, security policy, supply chain management, front & back office support, … ☐
b. new methods of organizing work responsibilities and decision making, *e.g.* a new system of employee responsibilities, decentralization, integration or de-integration of departments, … ☐
c. new methods of organizing external relations, *e.g.* first time use of alliances, partnerships, outsourcing, or sub-contracting, … ☐
d. mergers and/or acquisitions ☐
e. a **new** organization method, other than the above, namely ☐
f. none of the above ☐



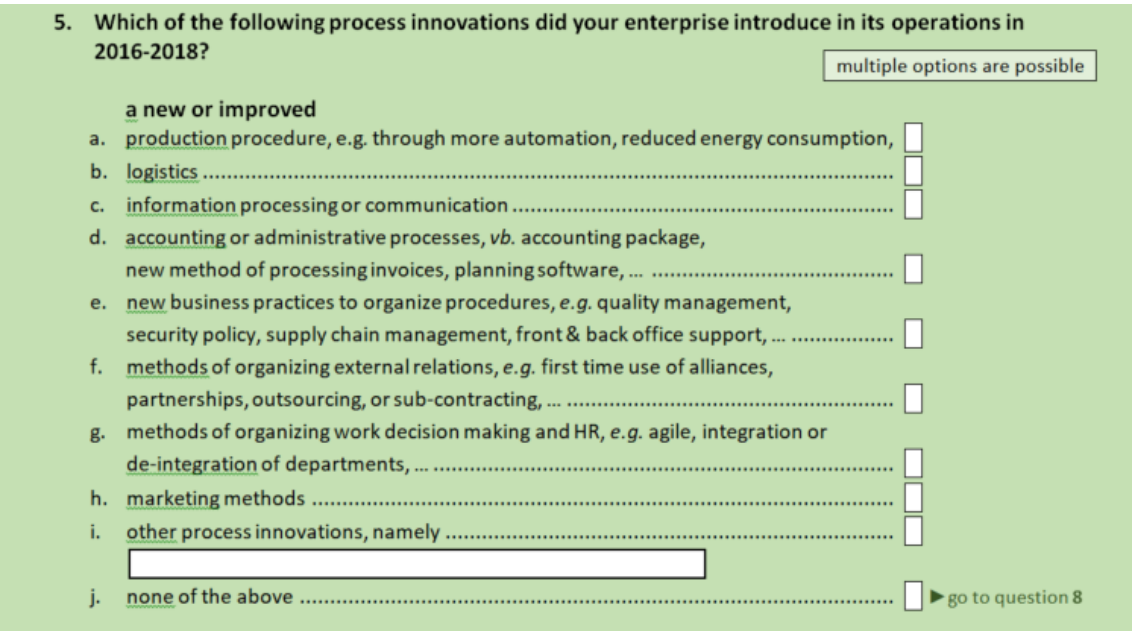
20. What new marketing concepts or strategies did your company introduced in 2014-2016?

multiple options are possible

a. significant changes to the aesthetic design or packaging of goods or services ☐
b. new promotion techniques for goods or services, *e.g.* first time use of product placement, social media, … ☐
c. new sales channels, *e.g.* first time use of franchising, pop-up stores, … ☐
d. new pricing methods of goods or services ☐
e. regular (seasonal) changes in marketing methods, *e.g.* merchandising linked to specific events (*e.g.* festivals, World Cup, …) ☐
f. a **new** marketing concept or strategy, other than those mentioned above, namely ☐
g. none of the above ☐

We sought to reduce the list as much as possible, while maintaining the essence of the three separate questions from previous years. The result is a list of 9 items, a fairly long list but considerably less intimidating than if we had maintained all 14 items by simply putting the three innovation types together.

We chose to keep the order in which items appear, i.e. process innovation first, followed by organizational innovations, and marketing innovations last. This choice may have influenced our results to a certain extent, as most respondents tend to only tick the first item which applies to them, leaving all other items that apply not ticked.
Process innovations are the most frequent type of business process innovations, marketing innovations the least frequent. Switching the order of the three innovation types may have given us different results, potentially underreporting process innovations, but most likely putting respondents off in responding *altogether*. The CIS is a voluntary questionnaire in Belgium and having to entice unwilling respondents into answering a question with a long list of options is a real challenge. By placing the most frequently picked options first, we avoid respondents getting frustrated and opting out of answering the question or even the rest of the questionnaire.



5. **Which of the following process innovations did your enterprise introduce in its operations in 2016-2018?**

multiple options are possible

a new or improved

a. production procedure, e.g. through more automation, reduced energy consumption, ☐
b. logistics ☐
c. information processing or communication ☐
d. accounting or administrative processes, *vb.* accounting package, new method of processing invoices, planning software, … ☐
e. new business practices to organize procedures, *e.g.* quality management, security policy, supply chain management, front & back office support, … ☐
f. methods of organizing external relations, *e.g.* first time use of alliances, partnerships, outsourcing, or sub-contracting, … ☐
g. methods of organizing work decision making and HR, *e.g.* agile, integration or de-integration of departments, … ☐
h. marketing methods ☐
i. other process innovations, namely ☐

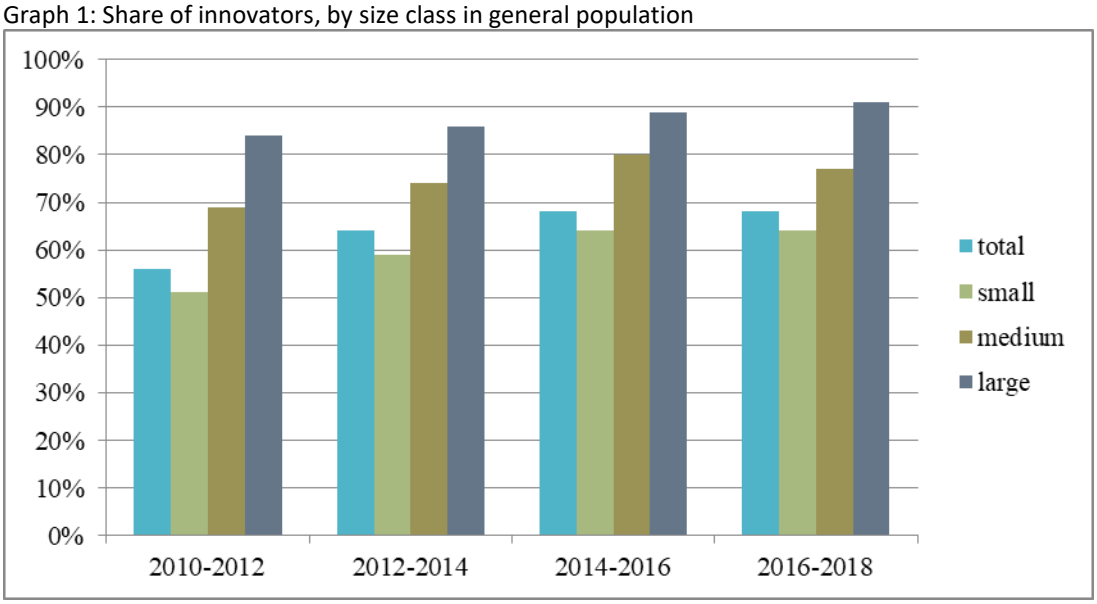
j. none of the above ☐ ▶go to question 8

5. Most salient differences between CIS 2018 and previous editions

5.1 Innovators

As shown in the first graph below, the overall innovation rate remains stable at 68%, it thus seems to be unaffected by the revised Oslo Manual recommendations and the redesigned question on business process innovation. There is only a slight decrease in the share of medium-sized firms with innovations (80% in 2016, 77% in 2018), but this decrease is off-set by a slight increase in the share of large firms with innovations (89% in 2016 and 91% in 2018).

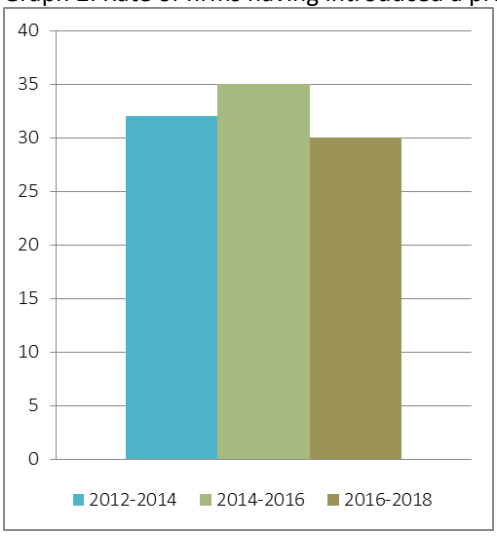
Graph 1: Share of innovators, by size class in general population



Considering the stability of the overall innovation rate, one would have to delve deeper to see whether the new Oslo Manual has had an influence on these results. One would expect product innovation to remain stable, as this question did not change. The figure below shows a decrease, though. From 35% in 2016 to 30% in 2018. As this question was not altered, the decrease must be a real change.

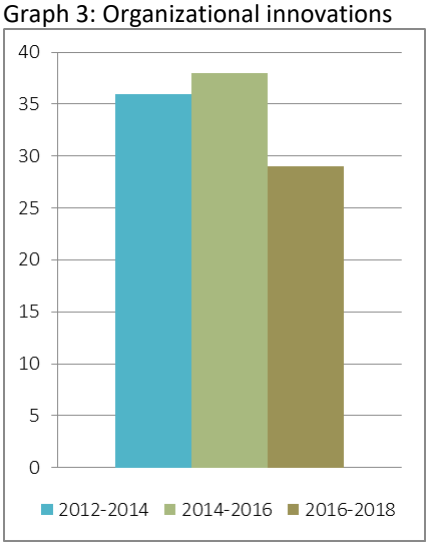
5.2 Product and (business) process innovators

Graph 2: Rate of firms having introduced a product innovation (goods or services)

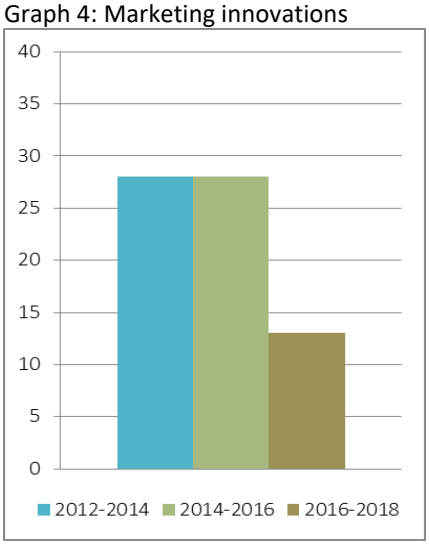


Process innovations must have increased then, in order for the overall innovation rate to remain stable. As pointed out earlier, one expects the first items on the business process innovation question to be ticked more often than the last items. As organizational and marketing innovations were placed *after* the old process innovations, those types of innovations would probably decrease compared to 2016. In short, the old process innovation items are probably responsible for the increase in business process innovations which in turn outweighs the decreased product innovation rate.

Graph 3: Organizational innovations

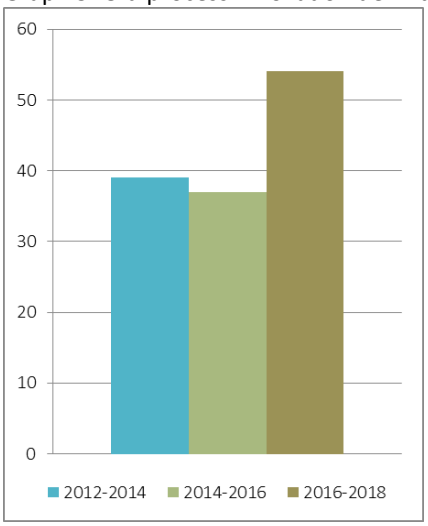


Graph 4: Marketing innovations

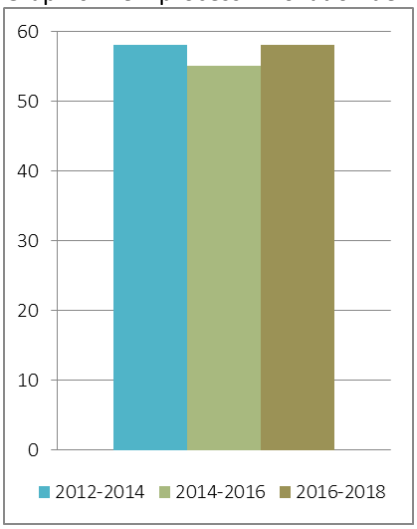


As graphs 3 and 4 show, the organizational and marketing innovation items were indeed not ticked as often as they were when they were still stand-alone questions in the CIS 2016. The expectations concerning process innovation rates are actually confirmed, as graphs 5 and 6 clearly show.
When comparing the 2014 and 2016 process innovation data (which are based on the old definition) with the 2018 data (using the old definition, thus excluding organizational and marketing innovations), the older data has much lower rates than the 2018 data (graph 5). This confirms the expectation that the old process innovation items have been ticked considerably more frequently than before. But when we combine the other 2 innovation types (organizational and marketing) with the old process innovation rates for the older data so as to obtain the new business process innovation concept and compare these to the business process innovation rate for 2018, the increase is much more modest (graph 6).

Graph 5: Old process innovation definition



Graph 6: New process innovation definition

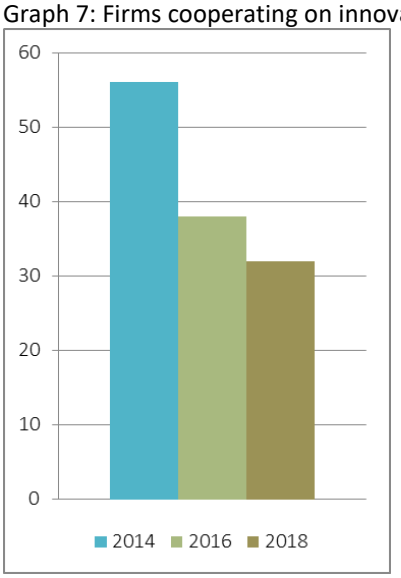


5.3 Cooperation

Cooperation has historically been a term prone to interpretation. Some firms consider subcontractors or consultants to be cooperation partners, others even consider clients who give suggestions of what they

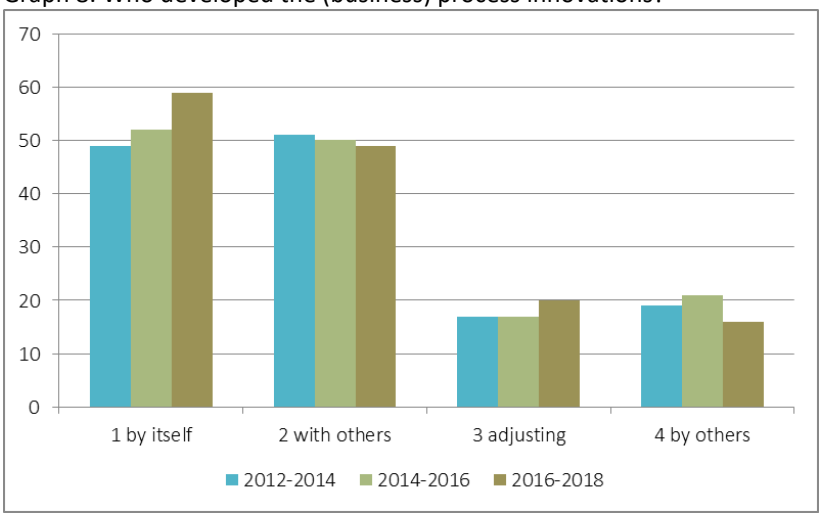
want as cooperation partners. Minor fluctuations may thus be indicative rather of respondents' interpretations, and not of real trends. In 2018 the share of firms declaring they cooperated so as to innovate continues to decline. In the graph below, it is clear that the change in cooperation rate was much bigger between 2014 and 2016 (56% in 2014, 38% in 2016). The decline is much slower now.

Graph 7: Firms cooperating on innovation



As the question on who developed process innovations includes organizational and marketing innovations, results may differ from previous years. We observe an increased amount of firms developing their own business processes (59% in 2018, 52% in 2016), a continued slight down-ward trend in development with others, an increased number of firms adjusted business processes developed by other firms to implement in their own firm (20% in 2018, 17% in 2016), and fewer paid others to develop their business process innovations for them (16% in 2018, 21% in 2016).

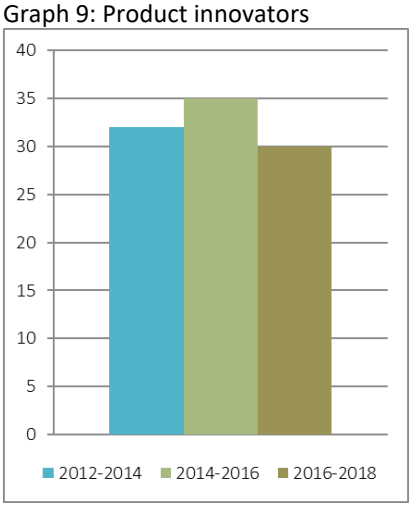
Graph 8: Who developed the (business) process innovations?



In the CIS 2018, questions on product innovation and who developed them were slightly different as we did not specifically ask about goods or services, as in previous years. We only asked about "product innovation". This means respondents might not have taken into account their service innovations, as the

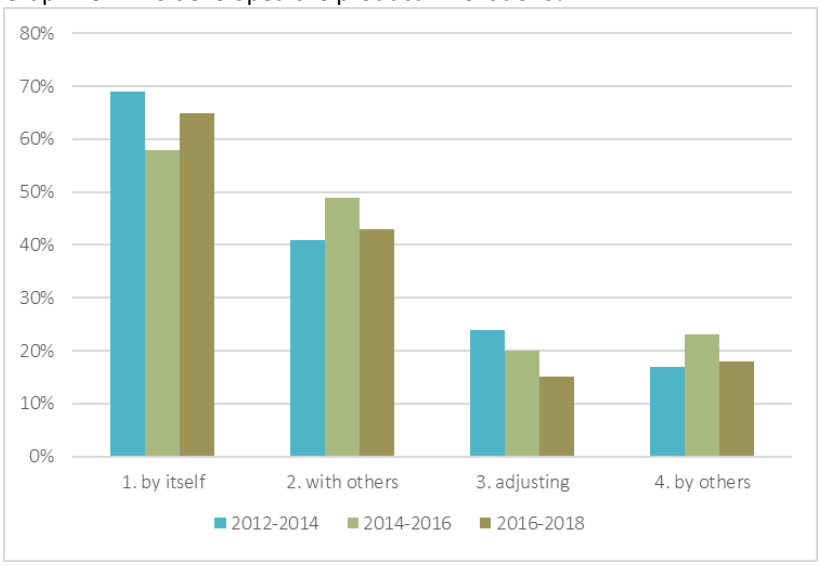
term "product innovation" generally conjures new goods rather than new services. This may also explain the decrease in product innovation observed in graph 9 below (from 35% in 2016 to 30% in 2018).

Graph 9: Product innovators



The graph below shows a rather mixed picture. It may be possible that respondents with product innovations did not account for their service innovations, and this type of innovation is maybe most often not developed by the same kind of enterprise than good innovations. This might explain that the trends showing between 2014 and 2016 is sometimes not continued in 2018. It is difficult to draw conclusions from this question, considering the difference in the CIS 2018 questionnaire.

Graph 10: Who developed the product innovations?

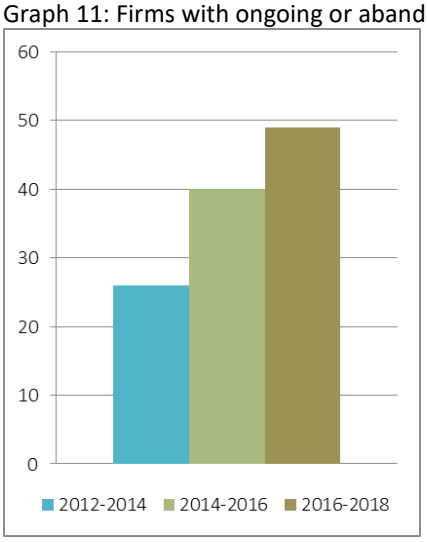


5.4 Ongoing or abandoned innovations

As the question on ongoing or abandoned innovations has not changed, the upward trend already present between 2014 and 2016 would be expected to continue, and so it does. From 40% in 2016 to 49% in 2018. The reason why more innovations seem to be unfinished or abandoned by the end of the observation period may be hard to uncover. A possible reason may be that, as the general level of

technological complexity involved in innovating products, services, or business processes rises, the gestation period for added complexity increases. Or the uncertainty of the outcome increases. Or the uncertainty of market demand increases. It could be a combination of all or some of these reasons. Further investigation would be needed to uncover the exact nature of this trend.

Graph 11: Firms with ongoing or abandoned innovations



6. Conclusions

As the new Oslo Manual recommendations were first used for the observation period 2016-2018, a break in series was expected especially for (business) process innovations. At first glance, this does not seem to be the case, but when broken down by the new definition's components, a clear shift appears towards the old definition's process innovations, away from organizational and marketing innovations. This seems to be the result of questionnaire design (the order of items) in itself a direct consequence of the new Oslo Manual.

This document did not make the comparison with other European countries, as their questionnaire design may differ, thus influencing results. Besides, the circumstances in which their National Statistical Offices operate are very different, most notably the obligatory nature of their CIS.

CIS 2020 will most certainly prove to be a very interesting edition, seeing it will cover the 2020 early pandemic period and its economic consequences. A drop in response, in R&D expenditure, in employment may be expected, but at the same time, a rise in innovation may also be a direct result of the pandemic. The resilience of firms has been thoroughly tested, and CIS 2020 will try to measure their efforts and results.