

CIS survey in Belgium

Anneleen Bruylant

Belgian Science Policy Office

Belgium?



Bloomberg Innovation Index

Brazil, Cyprus & Romania made to the top 50 this time while China retained its 21st rank.

2017 rank	2016 rank	YoY change	Economy	Total score	R&D intensity	Manufacturing value-added	Productivity	High-tech density	Tertiary efficiency	Researcher concentration	Patent activity
1	1	0	S. Korea	89.00	1	1	32	4	2	4	1
2	3	+1	Sweden	83.98	5	11	15	7	18	5	6
3	2	-1	Germany	83.92	9	3	16	5	12	16	9
4	5	+1	Switzerland	83.64	8	6	2	11	16	14	4
5	7	+2	Finland	83.26	4	13	20	15	5	3	5
6	6	0	Singapore	83.22	14	5	12	17	1	6	12
7	4	-3	Japan	82.64	3	9	28	8	27	9	3
8	9	+1	Denmark	81.93	6	17	5	13	22	2	11
9	8	-1	U.S.	81.44	10	22	10	1	34	20	2
10	11	+1	Israel	81.23	2	30	30	3	20	1	18
11	10	-1	France	80.99	12	34	18	2	10	18	10
12	13	+1	Austria	80.46	7	7	11	23	6	10	17
13	16	+3	Belgium	77.18	11	21	9	10	19	19	25
14	14	0	Norway	76.89	19	36	3	12	25	8	15
15	18	+3	Netherlands	75.23	17	24	19	6	44	15	19
22	23	+1	Poland	67.47	35	16	35	22	15	35	24
23	25	+2	Malaysia	66.98	27	12	37	21	26	34	33
24	26	+2	Italy	65.57	25	20	29	18	37	36	37
25	28	+3	Iceland	65.27	18	23	7	-	36	7	22
26	12	-14	Russia	65.24	31	48	42	24	3	27	16
27	30	+3	Hungary	63.15	24	8	40	28	41	31	34
28	31	+3	Czech Rep.	62.72	16	4	33	-	38	24	26
29	27	-2	Spain	62.51	30	29	22	36	9	32	29
30	33	+3	Greece	61.80	38	45	13	29	11	30	38
31	29	-2	Portugal	60.65	26	33	26	37	17	23	39
32	32	0	Lithuania	60.50	33	15	26	-	8	28	42
33	34	+1	Estonia	59.80	23	27	23	-	14	25	43
34	35	+1	Luxembourg	59.20	28	41	4	-	49	11	13
35	37	+2	Hong Kong	57.49	41	50	17	27	29	26	30
36	39	+3	Slovakia	57.17	36	10	24	-	40	29	44
37	36	-1	Turkey	57.11	34	26	39	35	32	42	32
38	-	-	Romania	57.06	49	14	41	25	31	46	35
45	46	+1	Tunisia	46.79	45	39	49	39	35	38	46
46	-	-	Brazil	46.40	29	46	45	30	50	50	47
47	-	-	Cyprus	46.39	48	49	38	31	42	48	41
48	50	+2	Kazakhstan	45.56	50	42	34	-	23	49	28

Belgium,

a quick overview

Communities:

Each community has its own legislative body, and own government:

which decide upon matters such as culture, education, language, health care, etc...



Regions:

they decide
upon matters
such as
housing,
economy,
transportation,
public works,
the
environment,
spatial
planning,
energy, land
use etc..



CIS in Belgium

- Belgium, as all EU member states, follows the Oslo Manual for international comparability
- The CIS is not compulsory in Belgium. This leads to many (sometimes angry) phone calls, inquiring whether they really, *really* have to answer
- The accompanying letter mentions the EU Directive EC 995/2012, this has helped our response rate somewhat

Stratified Sampling

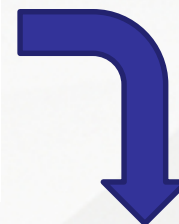
- Survey sectors are defined by Eurostat
- Excluded: enterprises with <10 employees
- Stratification: economic activities, size classes (10-49, 50-249, and 250+), and NUTS 2 (regional)
- If fewer than 6 enterprises in one stratum, all should be selected
- Flanders always includes all R&D enterprises, not so in the rest of Belgium

Adjusting the official CIS

- We conduct cognitive tests of new Eurostat questions
- We ask our respective governments which voluntary questions they prefer for policy, we then integrate the most chosen questions if there is room (so as to limit response burden)
- Questionnaire design and adjustments, based on past experience and remarks made by companies, are tested

- e.g. Brussels switched to a different design/layout (without other changes) for CIS 2012 which had a sizeable impact on the response rate: 36% in 2010 vs. 57% in 2012

Cochez "Aucune" si votre entreprise n'a effectué aucune dépense en 2008		Aucune
R&D intra-muros (Recherche et développement interne) (y compris les dépenses en capital relatives aux bâtiments et aux équipements spécifiquement consacrés aux activités de R&D)	<div> <div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div> </div>	<div> <div>€</div> <div></div> </div>
R&D extra-muros (Recherche et développement externe) (Acquisition de R&D)	<div> <div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div> </div>	<div> <div>€</div> <div></div> </div>
Acquisition de machines, d'équipements et de logiciels (à l'exclusion des dépenses pour des équipements destinés à la R&D)	<div> <div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div> </div>	<div> <div>€</div> <div></div> </div>
Acquisition d'autres connaissances externes	<div> <div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div> </div>	<div> <div>€</div> <div></div> </div>
Total de ces quatre catégories de dépenses d'innovation	<div> <div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div> </div>	<div> <div>€</div> <div></div> </div>



a. R&D intra-muros (Recherche et développement interne):

Y compris les dépenses en personnel (et frais connexes), les dépenses de fonctionnement et capital relative aux bâtiments et aux équipements **spécifiquement consacrés aux activités de R&D.**

Milliards Millions Milliers €

b. R&D extra-muros (Recherche et développement externe):

Acquisition d'activités de R&D effectuées par d'autres entreprises.

€

c. Acquisition de machines, d'équipements, de logiciels et de bâtiments:

A l'exclusion des dépenses faites spécifiquement pour des équipements destinés à la R&D, celles-ci doivent être rapporté sous "a."

€

d. Acquisition de connaissances externes d'autres entreprises ou organisations:

L'acquisition de connaissance externe d'autres entreprises ou d'organisations.

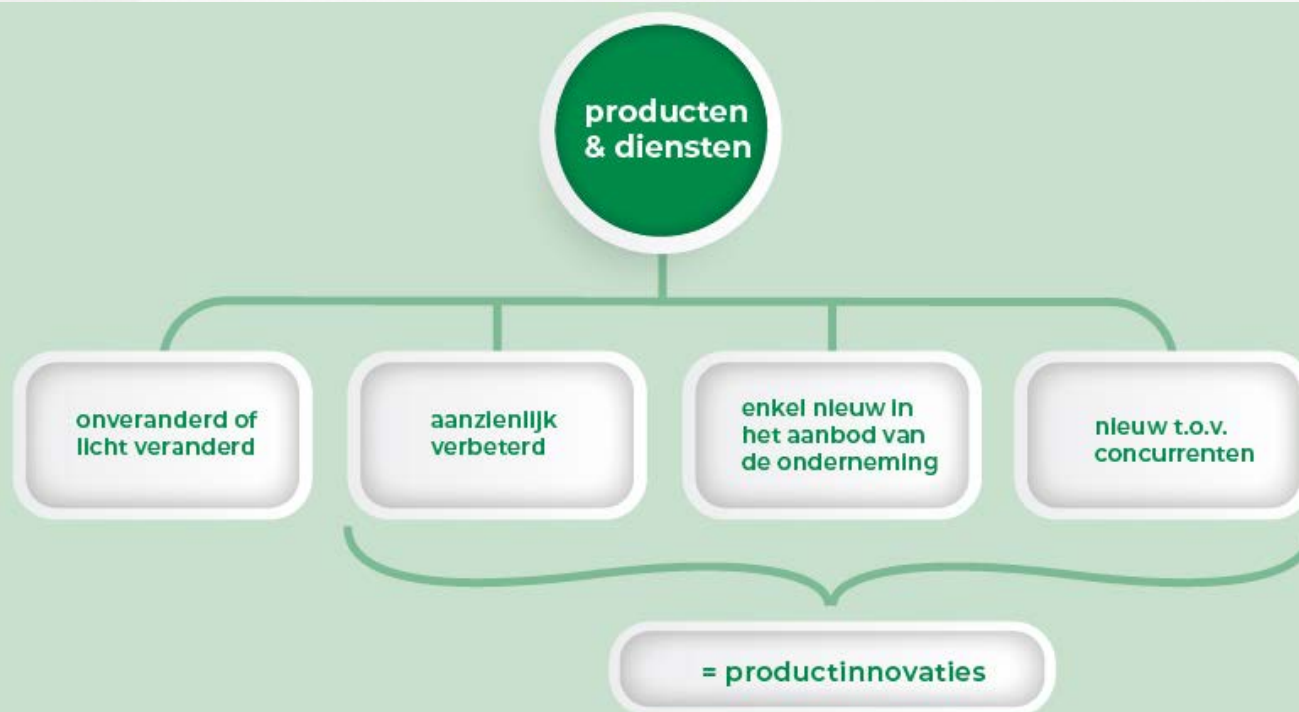
€

Part 2 - New services or products

definition

If your company introduces **products or services** on the market that are **new** or **significantly improved** with respect to their characteristics, capabilities, user friendliness, components, ... they are considered to be **product or service innovations**.

- product or service innovations (new or improved) **must be new to your company's offer, but need not be new in relation to your competitors' offer**
- the product or service innovations may have been developed originally by your company or by other companies or institutions
- you can find some concrete examples of product and service innovations:
www.belspo.be/stat/inno_info/fr



productinnovaties moeten niet zelf ontwikkeld zijn, maar kunnen aangekocht zijn

- The official Eurostat questionnaire is translated into our 3 national languages + English. Each translation entails its own hurdles.
 - *e.g. New-to-Market: understood in French, yet need to describe what is meant by “market” in the Dutch version*
- Questions of local interest are added
 - *e.g. reduction of costs due to process innovation? Reasons for location of enterprise, etc.*
- We conduct experiments when possible:
 - e.g. list the different aspects of the question as options to tick, rather than giving a long definition (CIS2014)

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Part 2 - New services or goods

1. What new or improved services or goods did your company release in 2014-2016?

multiple options are possible

a. a new service or product

- i. which was also new in relation to your competitors' services or goods ☐
- ii. which was only new in relation to your company's existing services or goods (your competitors already offered it) ☐

b. an existing service or product which was improved

- i. by changing its **composition** (e.g. different parts, materials, software, ...) ☐
- ii. by adding new **applications** or new **features** ☐
- iii. by making it more **user-friendly** ☐

c. customization

- i. a **completely new** service or product developed at the explicit request of a customer ☐
- ii. applying a **change** to an existing service or product, by modifying the function or an application at the request of a customer ☐
- iii. minor adjustments at the request of a customer (e.g. machine settings, interface, layout, branding, ...) ☐

d. purely seasonal changes ☐

e. an improved service or product, other than the above ☐

f. none of the above ☐

► go to Part 3

- In the 2016 questionnaire we added a link with concrete examples of different types of innovation

- you can find some concrete examples of product and service innovations:
www.belspo.be/stat/inno_info/fr

- The link wasn't used by respondents, so we left it out in the CIS 2018
- Flanders offered a chat-option for respondents, but it was never used, so it was dropped
- Sending the questionnaire earlier in the year does not raise the response rate

- We put a lot of effort in establishing personal relationships with respondents. We visit, on average, 15 companies per year.
- In the same spirit, Flanders sends a summary of sectorial results from the last survey to respondents
- Brussels contacts responding companies almost immediately when there are issues with their answer. This is much appreciated by the respondents.

- Flanders implemented non-response adjusted weights based on a non-response survey which increased overall innovation rates by roughly 10%
- This was abandoned following a redesign of the questionnaire in 2017
- Brussels conducts a non-response survey but its results are not used to adjust the weights, the Walloon region does not conduct a non-response survey due to a lack of resources

Common problems

- Nace 72 (Scientific research and development) companies often claim they have no R&D-activities

8. Did your company conduct contract research and/or clinical trials (phase 1, 2, or 3) in 2014-2016?

no ☐
yes ☐

- R&D done by sister-companies is seen as done by the company itself, resulting in a group-level answer

b. outsourced R&D: R&D activities carried out by another company (within
or outside the group) or institution and purchased by your company

- Companies don't like giving estimates without some kind of a guarantee that we know it's only an estimate

<u>sales</u> within Belgium	approximately	<input type="text"/>	%
<u>export</u> within Europe	approximately	<input type="text"/>	%
<u>export</u> to the rest of the world	approximately	<input type="text"/>	%

- And some have a great need to express themselves...

Comments on your answers or suggestions for improvement of the questionnaire



Some problems never get better

- Expenditures: in thousands, in units, it doesn't seem to make a difference:

a. R&D (Research and Development) done in-house

Include labor and related costs, other operating expenses and capital expenditures made for buildings and equipment specifically bought for R&D.

Billion Million Thousand None
 € . . .

a best estimate suffices

none

Research & Development done internally (R&D)..... €

an estimate to the best of your abilities suffices

none

for **internal** R&D €

- Sum of %'s often don't add up to 100...

Other hurdles

- Getting past secretary/receptionist is an art
- Respondent's role within the enterprise brings its own specific challenges:
 - e.g. accountants will fill in figures with 2 decimals, even if asked for rounded figures. If an accountant does not have the exact figures, he/she will be very reluctant to answer the question at all
 - R&D managers are more likely to underestimate expenditure for innovation, other than R&D costs

- Appealing to the respondent's pride in their work by telling them we will have to answer for them if they do not respond, triggers a response more often than not
- R&D and innovation are often seen as one and the same

Part 5 - Investments in innovation (excluding Research and Development, R&D)

10. What were the gross expenses for the following innovation activities in 2018?

an estimate to the best of your abilities suffices

none

- | | | | | |
|---|---|----------------------|-------|--------------------------|
| a. <u>purchase</u> of machinery, equipment, or buildings to be used for innovations | € | <input type="text"/> | | <input type="checkbox"/> |
| b. <u>purchase</u> of software, building or maintaining data banks, <u>data</u> analysis for innovations | € | <input type="text"/> | | <input type="checkbox"/> |
| c. <u>purchase</u> of existing know-how, patented or non-patented inventions for innovations | € | <input type="text"/> | | <input type="checkbox"/> |
| d. <u>other</u> in-house or contracted out activities for innovations, <u>e.g.</u> feasibility studies, testing, routine software development, <u>engineering</u> activities, design, training, market research, | € | <input type="text"/> | | <input type="checkbox"/> |

TOTAL = €

- It is important to keep in mind that a survey creates an “environment” for the respondent, so the respondent interprets the survey’s goal and answers with that goal in mind
 - Combining R&D and Innovation surveys gives many respondents the impression that R&D is needed to have innovations (→lower innovation rates)
 - Asking about having PhD-holders in the CIS gives the impression one needs doctorate holders in order to have innovations
- When designing the questionnaire, test, and (preferably) conduct an experiment in the field to really assess how the survey is interpreted by respondents!

Data collecting practices

- Mixed-mode method: mainly paper & online, some interviews over the phone
- Brussels: paper booklet, a paper postcard (1st reminder), a letter (2nd reminder), then e-mails, if needed
- Flanders: paper booklet, paper postcard (1st reminder), paper booklet (2nd reminder), then phone calls to top
- Wallonia: paper booklet, 2 letter reminders

- Personalized wherever possible: contact & prefilling (turnover, personnel, R&D expenditure, ...)
- Online: follow-up questions grey out if 'no' is ticked, but respondents still get to see follow-up questions

1. Heeft uw onderneming nieuwe of aanzienlijk verbeterde producten of diensten verkocht in 2016-2018?

niet inbegrepen

- het **louter** doorverkopen van nieuwe producten die van een andere onderneming zijn aangekocht of afgenomen, **tenzij** het gaat om een **geheel nieuwe lijn** van producten
- veranderingen van louter esthetische aard

a. ja (ook als het enkel opgelegd werd door het moederbedrijf)..... ☐

b. neen..... ☒ ► ga naar vraag 5

2. Wie heeft de productinnovaties ontwikkeld die uw onderneming verkocht in 2016-2018?

meerdere opties zijn mogelijk

a. uw onderneming **zelf**..... ☐

b. uw onderneming **samen** met andere ondernemingen (binnen of buiten de groep) of (overheids)instellingen..... ☐

c. producten of diensten ontwikkeld door andere ondernemingen (binnen of buiten de groep) of (overheids)instellingen en **aangepast** door uw onderneming..... ☐

d. **andere** ondernemingen (binnen of buiten de groep) of (overheids)instellingen..... ☐

3. Hoe zou u uw productinnovaties uit 2016-2018 omschrijven?

ja neen

a. nieuw ten opzichte van het aanbod van uw concurrenten..... ☐ ☐

b. enkel nieuw in het aanbod van uw onderneming (uw concurrenten boden het al aan)..... ☐ ☐

- Gentle warnings online (e.g. if the sum does not add up to 100%) but incorrect answers are allowed

aanangepast door uw onderneming

Ten minste één veld op deze pagina van de vragenlijst bevat onjuiste informatie!
Gelieve dit te corrigeren aub.
Om de pagina ondanks de fout te verlaten, drukt u nog een tweede keer op de knop.

OK

uw onderneming (uw concurrenten boden het al aan)..... ☐ ☐

deel in uw totale omzet van elk van de volgende groepen van producten

een schatting naar best vermogen vo

anbod van uw concurrenten	ongeveer	17	%
uw onderneming (uw concurrenten boden het al aan)	ongeveer		%
aanzienlijk verbeterd of veranderd	ongeveer		%
s licht veranderd	ongeveer	3	%
.....		20	%

- The online questionnaire is made to look (as much as possible) like the paper version

Did it pay off?

- Response rates for the CIS have increased steadily over time:
 - CIS 2012: 51%
 - CIS 2014: 56%
 - CIS 2016: 60%
- With limited resources, we have managed to increase our response rate!

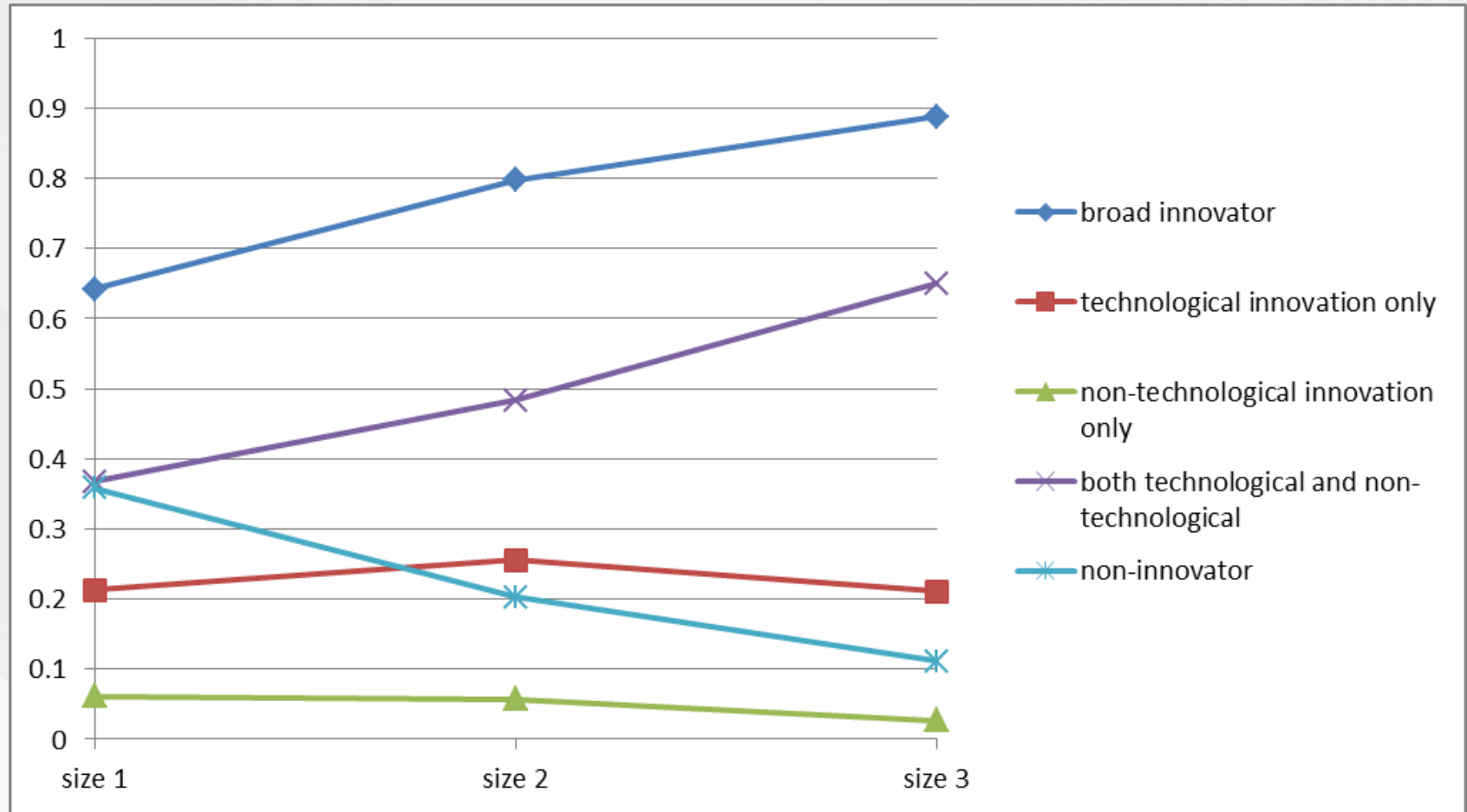
Cleaning

- Item non-responses are corrected as much as possible using logic and common sense or publicly available sources (yearly reports, financial statements, firm's website, ...)
- If inconsistencies are found but cannot be solved, we contact the firms, especially the top R&D firms as their figures have the biggest influence on the overall results
- Comparisons are made between R&D survey and CIS, and with previous CIS years

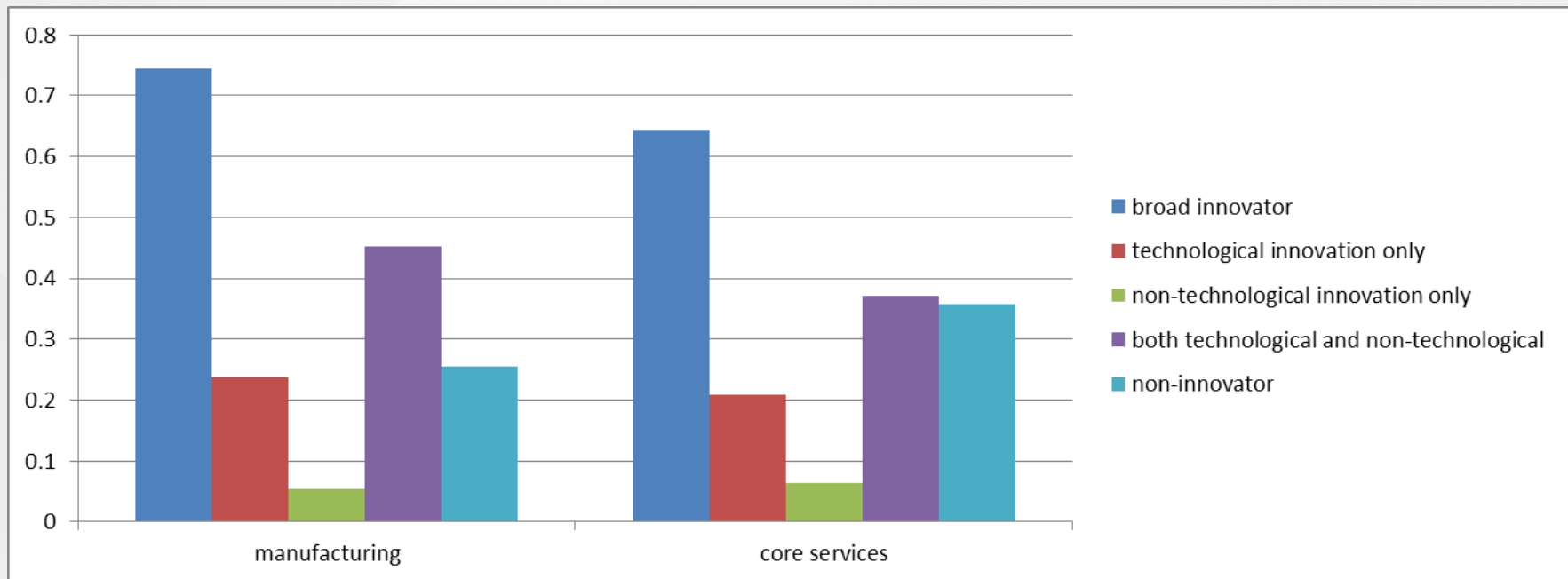
Data use

- Belgian data are delivered to Eurostat and the OECD
- Belgian CIS data are published on: innovationdata.be
- The regions publish their data separately, e.g. vlaamsindicatorenboek.be for Flanders, belspo.be for Brussels
- All CIS data are intensively used by academics

Main results CIS2016: innovation by type



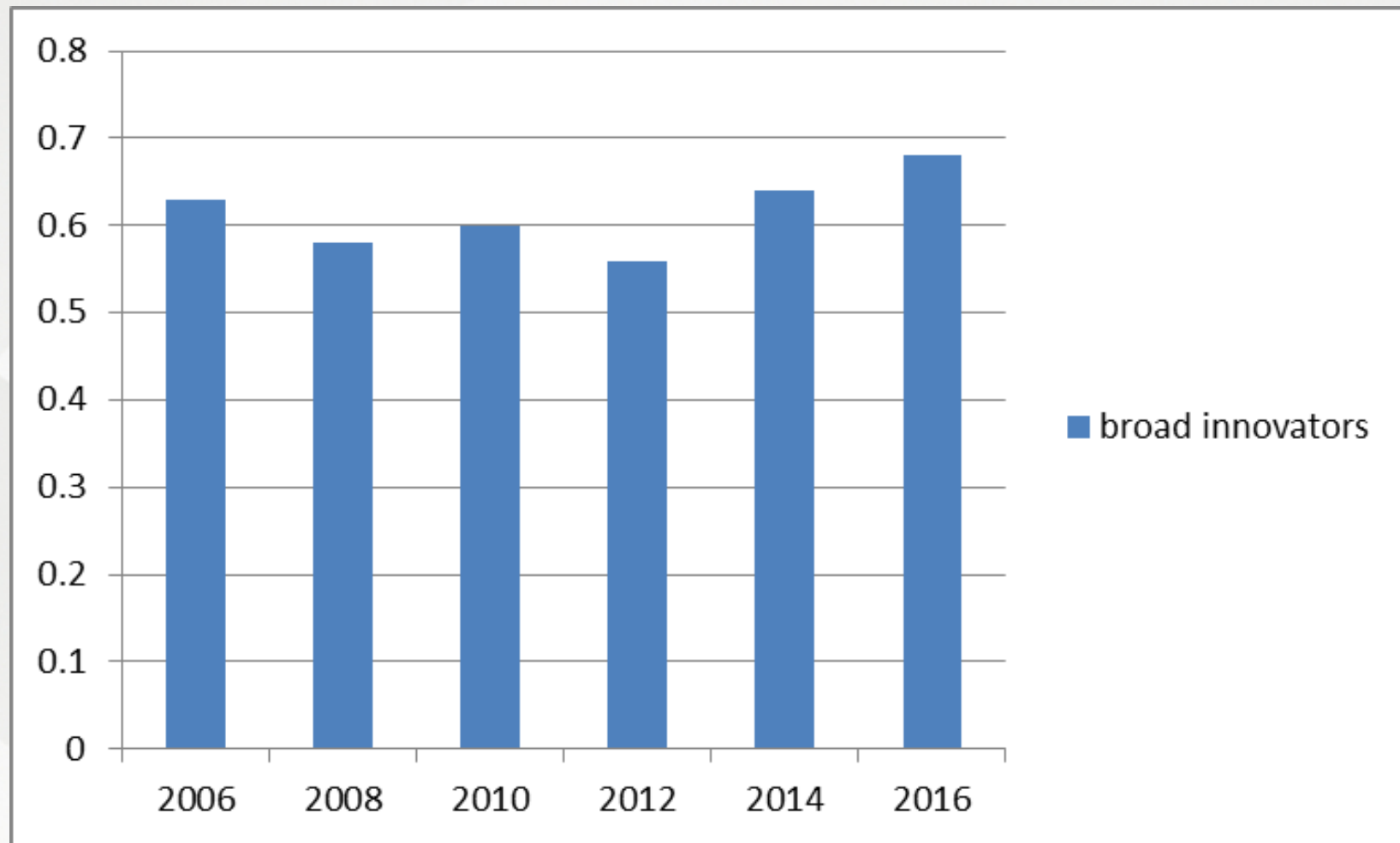
Innovation by sector



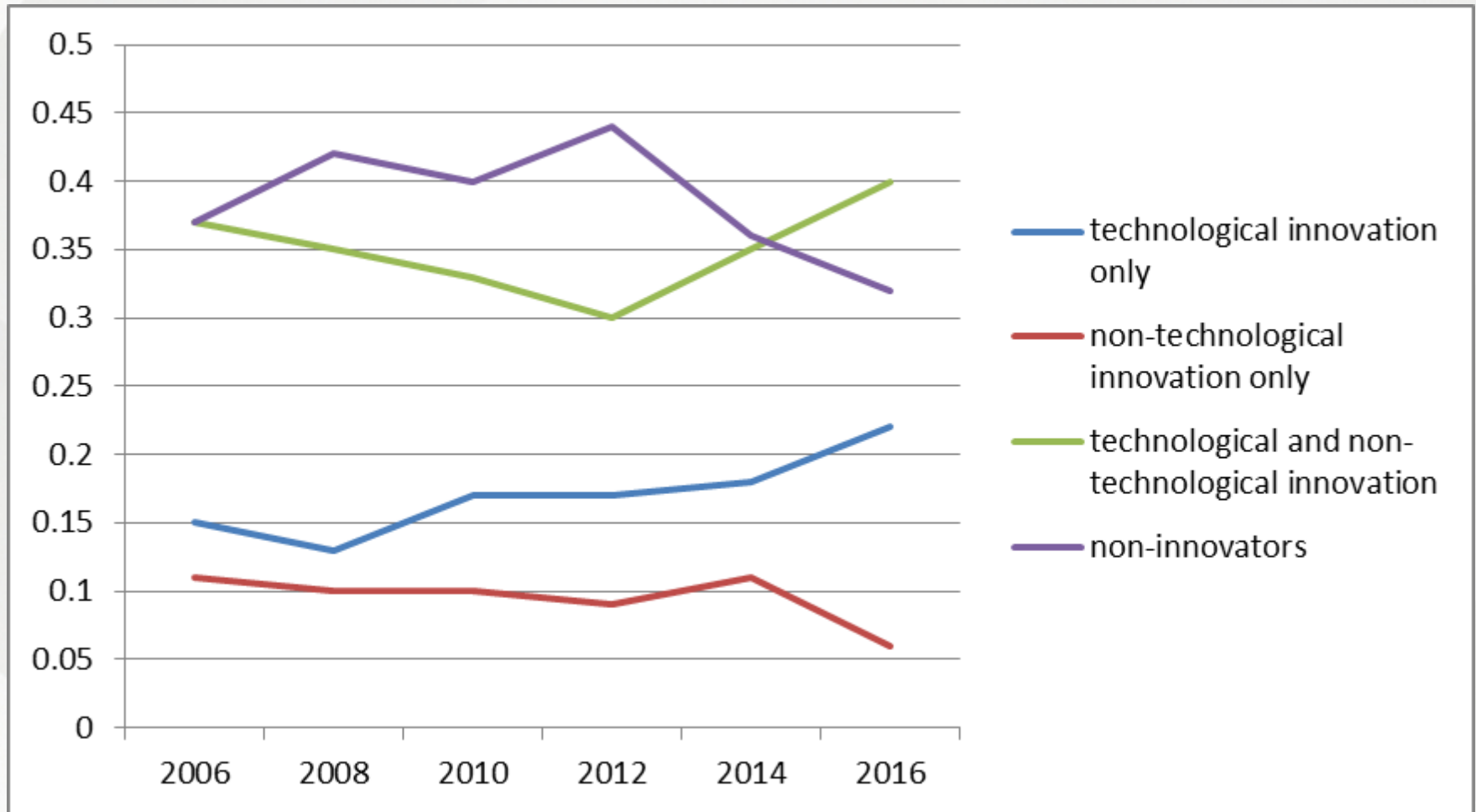
Manufacturing: C

Core services: G46, H, J, K, M71-72-73

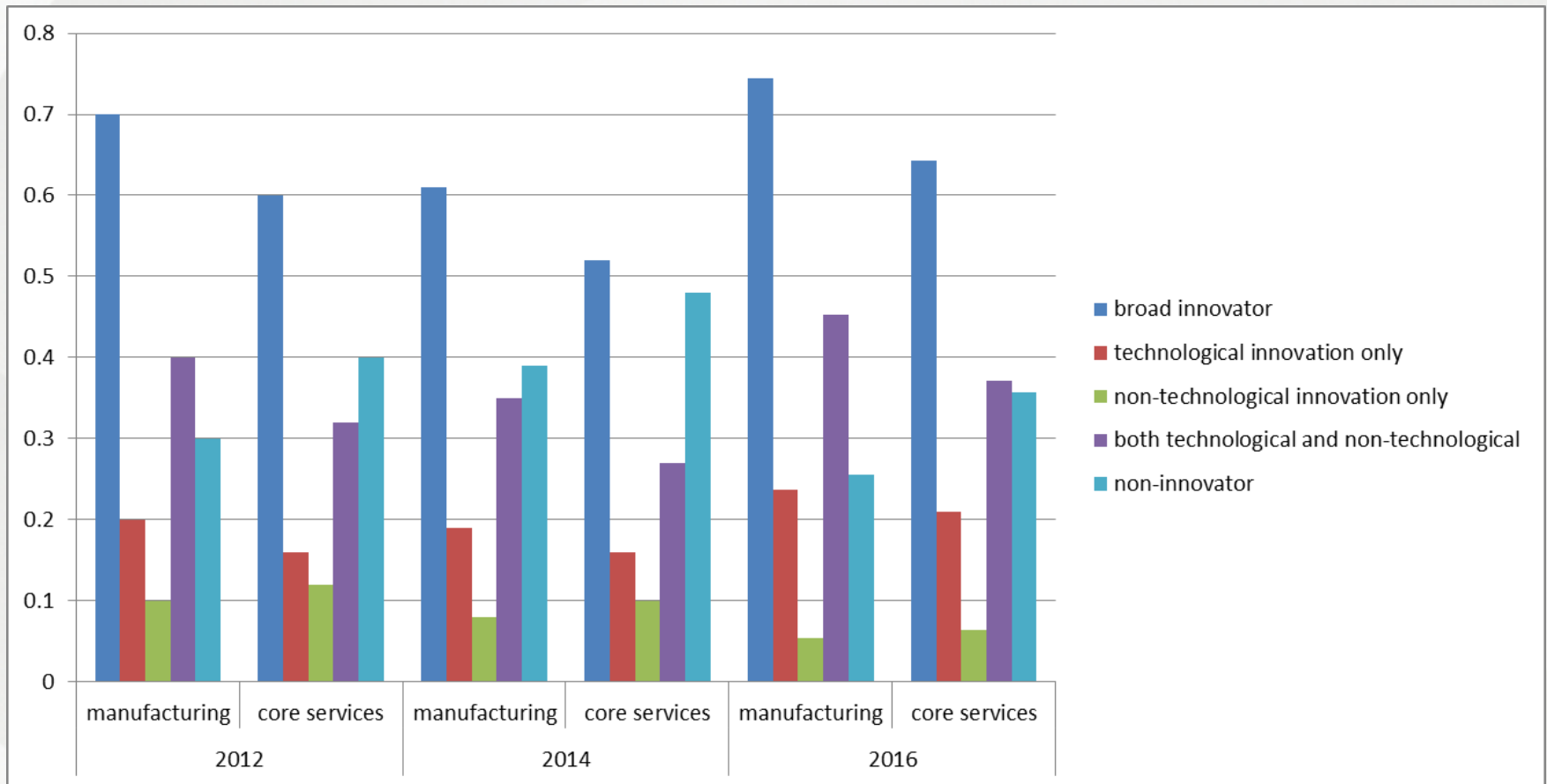
All innovation types over the years



By type of innovation



Innovation by sector



Manufacturing: C

Core services: G46, H, J, K, M71-72-73

Thank you for your attention!

Questions?

anneleen.bruylant@belspo.be