Innovation profiles of enterprises - results

Statistics Explained

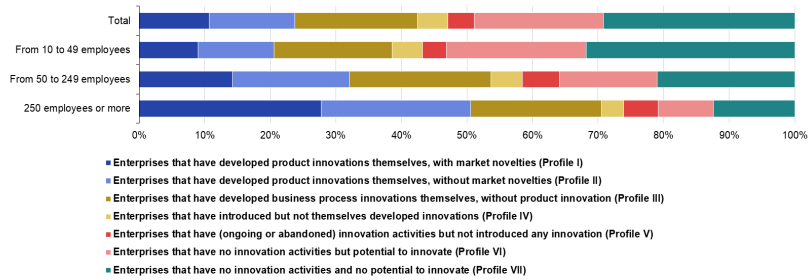
Data extracted in April 2025
Planned article update: May 2027

Highlights The breakdown of EU enterprises by innovation profile allows an in-depth analysis of their positioning according to their efforts to develop and/or introduce innovation.

In 2020-2022, around 51% of EU enterprises were innovation-active, while 47% introduced an innovation, 4% not (yet).

The propension of enterprises to adopt a behaviour aimed at innovation is strongly related to their characteristics in terms of size, economic activity and age, and their ability to mobilise relevant inputs.

Breakdown of enterprises by innovation profiles, by size class, EU, 2020-2022



Note: covers the following 18 EU countries es for which data are available: Belgium, Bulgaria, Czechia, Germany, Estonia, Greece, Spain, Croatia, Italy, Lithuania, Malta, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, and Sweden
Source: Eurostat (online data code: inn_cis13_bas_ip)

eurostat

This article provides a first analysis of the large amount of data available from the 2022 wave of the Community Innovation Survey (CIS2022) broken down by innovation profile.

First, the analysis focuses on how to evaluate the innovative character of European companies. Next, the analysis is taken a step further by dividing European firms into a spectrum of innovation profiles. They describe behaviours in terms of efforts aimed at innovation. The distribution of firms across innovation profiles is influenced by companies' size, sector, and age, as well as their ability to mobilise relevant resources. Finally, it assesses the turnover share of each profile to highlight the importance of innovative companies in the European economy.

How innovative are European businesses?

Around 51% of European enterprises were considered innovation-active in the period 2020-2022.

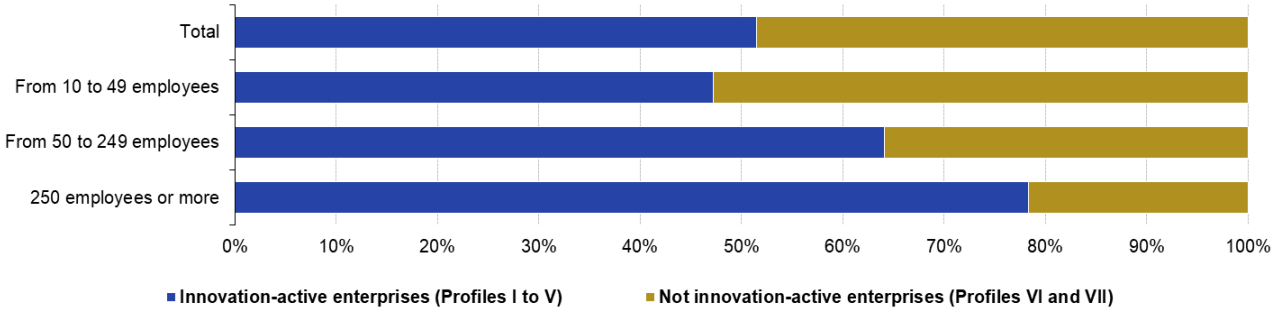
This concept of innovation-active firms (Profiles I to V) is the most widely used. It includes:

- firms that have introduced a product or a business process innovation, i.e. firms that have brought to their market a new product (good or service) or that have implemented a new process in their value creation chain in the broad sense: production process or method linked to other support activities (Profiles I to IV)

- firms that are only involved in innovation activities, including R&D, without having introduced any innovation (Profile V)

However, the picture is very different according to the different size classes identified in terms of employment. Larger enterprises are inherently more likely than smaller ones to have an innovation feature in one of their different market segments or business activities. Among Europe's largest firms with 250 or more employees, 78% are innovation-active, compared with 64% among enterprises with 50-249 employees, and 47% among enterprises with 10-49 employees (see Figure 1).

Enterprises by whether they are innovation-active, by size class, EU, 2020-2022

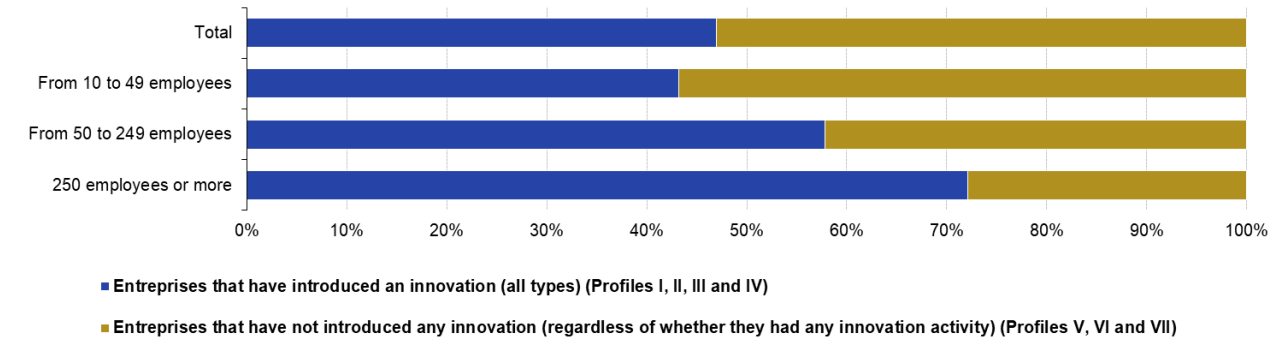


Note: covers the 27 EU countries
Source: Eurostat (online data code: inn_cis13_bas_ip)

Figure 1: Enterprises by whether they are innovation-active, by size class, EU Source: Eurostat (inn_cis13_bas_ip)

As the notion of innovation-active firms is broad, we can zoom in further, to see which enterprises have actually introduced innovations. This excludes enterprises from Profile V which only have activities aimed at innovation but have not introduced anything in terms of product or business process innovation during the observation period. Around 47% of European firms have introduced a product or business process innovation during the observation period (Profiles I to IV). Here again, the picture is very different depending on the size of the enterprise (see Figure 2).

Enterprises by whether they introduced an innovation, by size class, EU, 2020-2022



Note: covers the 27 EU countries
Source: Eurostat (online data code: inn_cis13_bas_ip)

Figure 2: Enterprises by whether they introduced an innovation, by size class, EU Source: Eurostat (inn_cis13_bas_ip)

Another way of answering the question is to focus on the activities themselves rather than on the introduction of innovations. In other words, the focus is on firms that have 'innovation capabilities', see Figure 3. This excludes Profile IV (i.e., firms that have acquired innovations rather than developed them in-house) from the broader category of innovation-active firms. Around 46% of European firms are considered to have innovation capabilities (Profiles I, II, III and V). The situation differs considerably according to size classes; 74% of the largest enterprises with 250 employees or more have innovation capabilities.

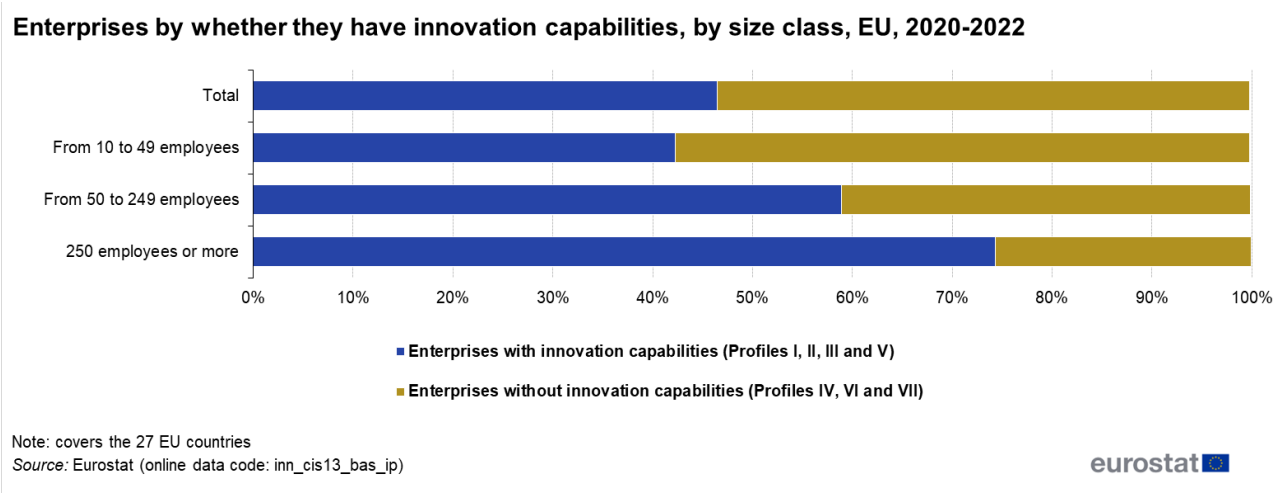


Figure 3: Enterprises by whether they have innovation capabilities, by size class, EU Source: Eurostat (inn_cis13_bas_ip)

The 7 individual innovation profiles

The seven individual innovation profiles allow us to delve deeper into both innovation-active (Profiles I to V) and not innovation-active firms (Profiles VI and VII), see Figure 4.

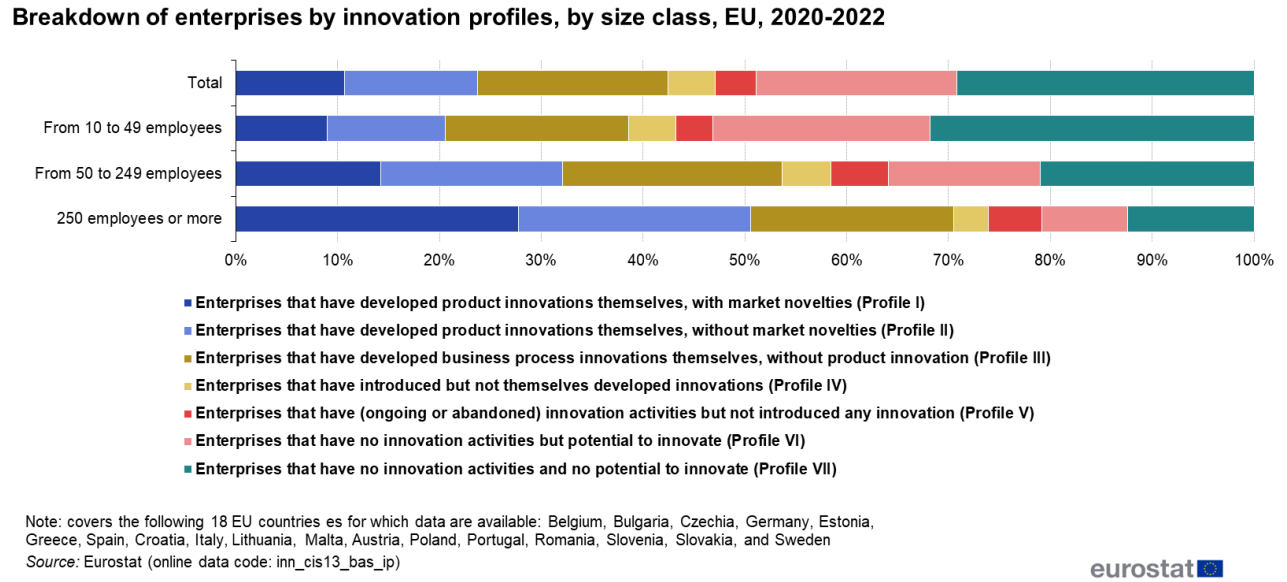


Figure 4: Breakdown of enterprises by innovation profiles, by size class, EU Source: Eurostat (inn_cis13_bas_ip)

- **Profile I** : Among the innovation-active firms, we can distinguish, on the very left, those that are closest to what most would intuitively recognise as 'innovators': enterprises that have introduced a product innovation (good or service) to their market, provided that they developed that product themselves, and that it was new to their market (their product innovation is said to be 'new-to-market'). Around 11% of the total number of enterprises in the covered EU countries fit this description.

- **Profile II** : In the second section from the left, there are companies that have also introduced a product innovation developed in-house, but are seen 'less' as innovators from a market point of view: the innovation they introduced already existed elsewhere in their market (it was already offered by competitors). Hence, their product innovation is said to be only 'new-to-firm'. Profile II represents 13% of enterprises in the countries concerned.

- **Profile III** : These are companies that have not introduced any in-house-developed product innovation but have introduced a business process innovation, provided that the business process was developed in-house[1]. This is a substantial category, accounting for 19% of enterprises in the countries under consideration.

- **Profile IV** : These companies have introduced innovations (product or business process) that were not developed in-house. Consequently, firms classified in this profile are deemed not to possess 'innovation capabilities'; 5% of the enterprises fit this definition.

- **Profile V** : The last category of innovation-active firms are those which have activities aimed at developing an innovation, but have not introduced any. In other words, in the period 2020-2022, these firms were involved in ongoing, abandoned, suspended, or completed innovation activities (including R&D) that have not (yet) led to the introduction of an innovation. This profile represents 4% of the enterprises under consideration.

- **Profile VI** : From the 6th place onwards, we enter the broader category of firms that are not innovation-active. Profile VI enterprises have neither introduced nor attempted to develop innovations, but they are not entirely alien to the idea of innovating in the sense that they see a need to innovate. However, they experience a lack of resources or other reasons (linked to strategy, risk, timing, or low expected returns) that prevent them from innovating. Profile VI accounts for 20% of the total number of enterprises considered.

- **Profile VII** : The enterprises in Profile VII have no innovation potential. They have neither introduced nor developed an innovation. They have not identified a reason that prevents them from innovating. They do not see a need to innovate. Profile VII is the most substantial profile, accounting for 29% of the total number of enterprises considered.

It is interesting to look at the different distributions of profiles in the different size classes. The most 'profound' innovators, Profiles I and II, are better represented in larger enterprises than in smaller ones. Conversely, the profiles furthest away from innovation, Profiles VI and VII, are more common in smaller enterprises. The intermediate profiles (Profiles III, IV, and V) appear in fairly similar proportions across the size classes considered.

Figure 5 shows the distribution of profiles according to the main sectoral breakdown that can be identified: companies in industry versus those in services (belonging to the population of enterprises under consideration[2]). Firms with the most pronounced innovation characteristics (Profiles I and II) are more represented among companies in industrial sectors than in services. The opposite is true for the enterprises furthest away from

[1] Until the CIS2022 round, firms with product innovations that were not developed in-house were not checked further for their possible business process innovations developed in-house. Such companies were classified under Profile IV despite their innovation capabilities. This has been improved from the CIS2024 onwards: now all firms that either had no product innovation or had a product innovation but not developed in-house, but that on the other hand had in-house developed business process innovations are included in Profile III. This allows Profile III to belong unambiguously to the overarching group of those companies WITH innovation capabilities. On the other side of the border, Profile IV then includes firms that have not developed any of their innovations in-house, regardless of whether they are product or business process innovations. This clearly places Profile IV within the overarching group of those firms WITHOUT innovation capabilities. This change in methodology was analysed in depth and tested by the CIS Task Force. The impact on the results is expected to be very limited. It consists exclusively of a slight shift of firms from Profile IV to Profile III, allowing the necessary shift from the group of firms without innovation capabilities to that with innovation capabilities.

[2] I.e. enterprises with 10 or more employed persons in NACE Rev. 2 Sections B, C, D, E, H, J, K, and Divisions 46, 71, 72 and 73.

innovation (Profiles VI and VII).

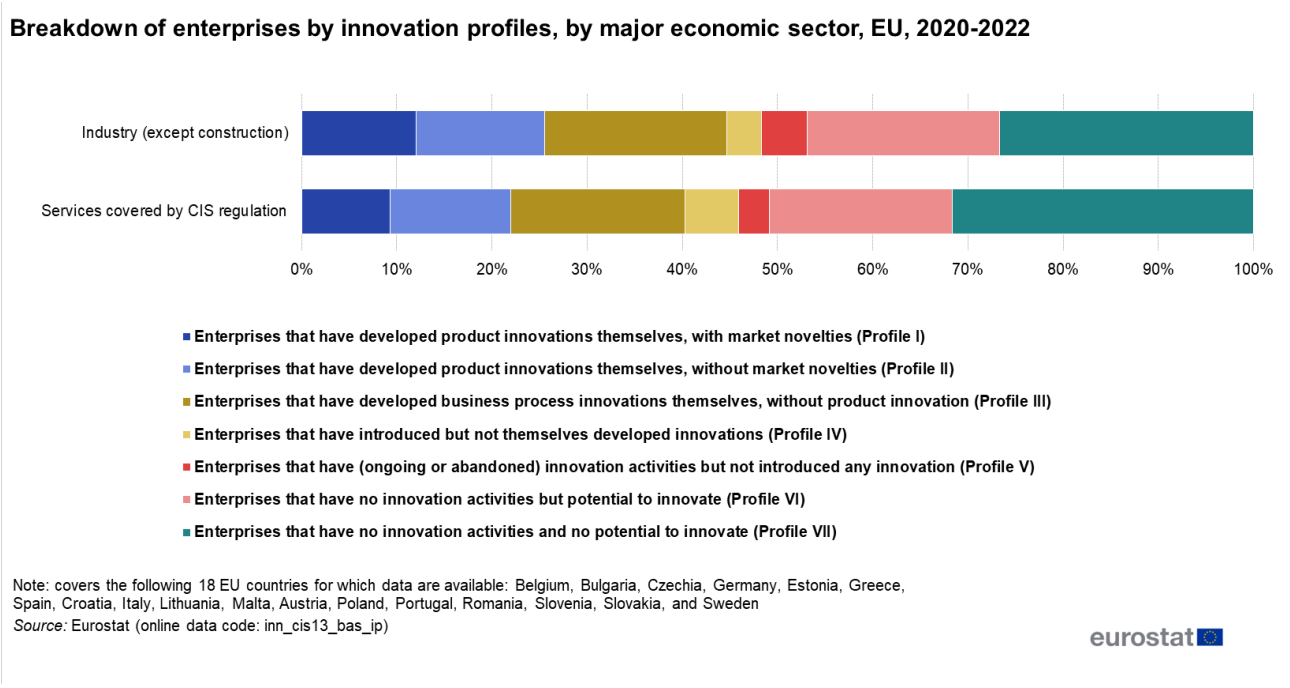


Figure 5: Breakdown of enterprises by innovation profiles, by major economic sector, EU Source: Eurostat (inn_cis13_bas_ip)

When the CIS enterprise population is broken down by age classes, the innovation profiles also show different distributions, see Figure 6. The most intensive profiles in terms of innovation (Profiles I and II) are increasingly common among older enterprises. The oldest firms, those created in 2013 and before, have the highest proportion of enterprises in these profiles.

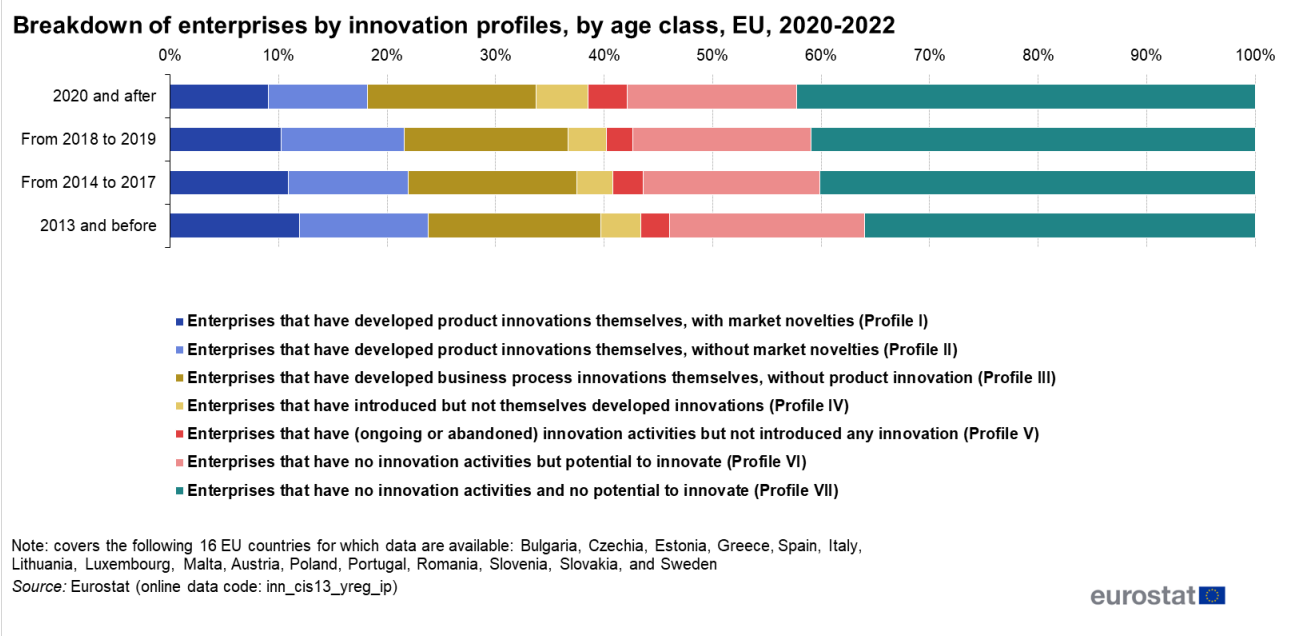


Figure 6: Breakdown of enterprises by innovation profiles, by age class, EU Source: Eurostat (inn_cis13_yreg_ip)

How does the behaviour of businesses differ according to their innovation profile?

Innovation profiles also provide an opportunity to investigate in greater detail the activities that firms use to innovate. One activity naturally stands out, research and development (R&D), which can be an important input to innovation. R&D is defined as “creative and systematic work undertaken in order to increase the stock of knowledge – including knowledge of humankind, culture and society – and to devise new applications of available knowledge” (Commission Implementing Regulation (EU) 2020/1197 of 30 July 2020). Each innovation-active Profile I to V is divided according to the presence or absence of R&D activity (whether in-house or subcontracted R&D). Figure 7 shows that just under a quarter (24%) of European enterprises are involved in R&D. Once again, the situation differs by size class. Larger enterprises are proportionally more likely to perform R&D (56% of enterprises with 250 employees or more perform R&D).

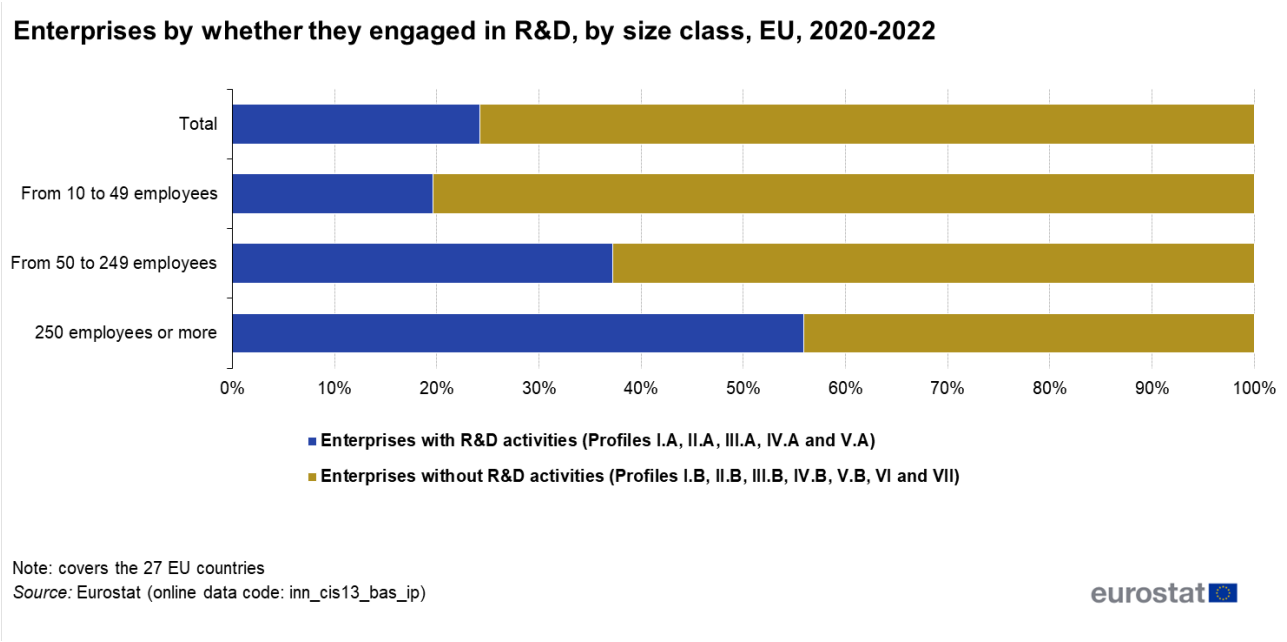


Figure 7: Enterprises by whether they engaged in R&D, by size class, EU Source: Eurostat (inn_cis13_bas_ip)

The most profound innovators, Profile I firms, invest a lot in R&D (72% of them are involved in R&D, among the 12 countries considered here), see Figure 8. Profile II firms naturally make less use of R&D (55%) and Profile III firms even less (24%). Profile IV enterprises are the least involved in R&D (15%) of all innovation-active Profiles (I to V). On the other hand, Profile V enterprises (i.e. enterprises with no implemented product or business process innovation, but with innovation activities) are involved in R&D in a large proportion (66%). This shows that although R&D is an important innovation activity, enterprises engaged in R&D sometimes work on projects that are removed from a near-market solution or from a business process close to implementation. Furthermore, some enterprises are innovation-active solely through their involvement in R&D; such enterprises are classified in Profile V. Since R&D is an inno-
vation activity, enterprises that are not innovation-active (Profiles VI and VII) are by definition all non-R&D performers.

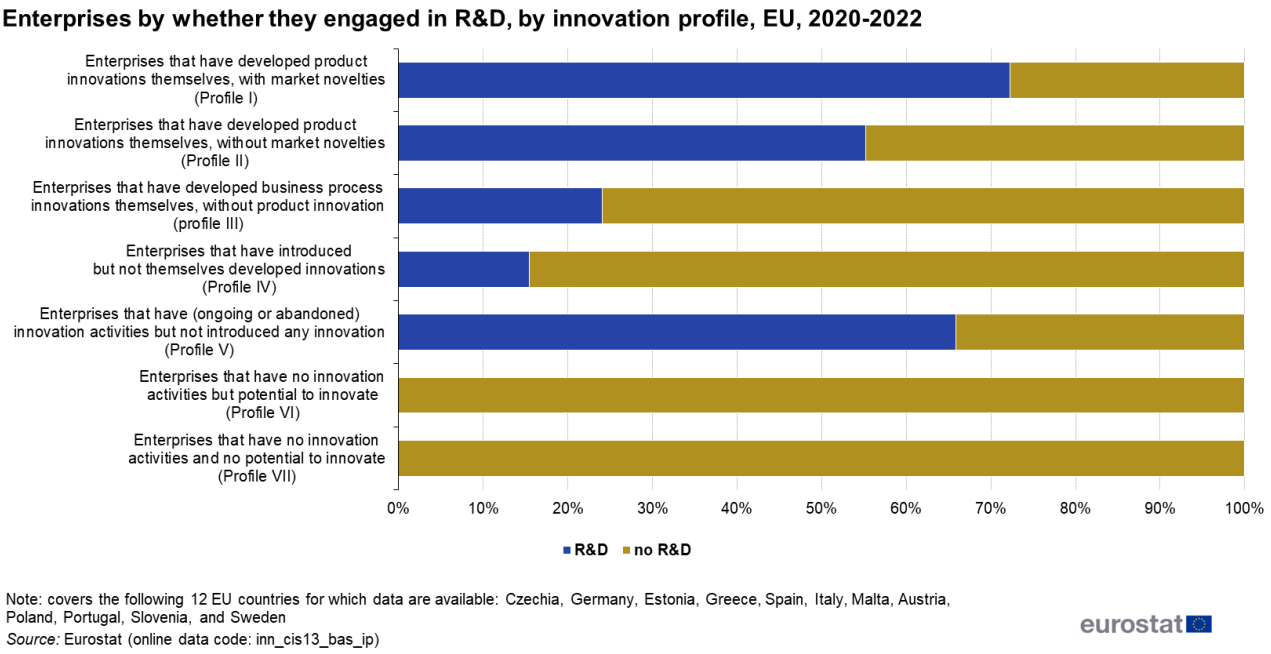


Figure 8: Enterprises by whether they engaged in R&D, by innovation profile, EU Source: Eurostat (inn_cis13_bas_ip)

The innovation profiles can cross-reference other aspects of business behaviour with the behaviour in terms of innovation. This reveals the contexts that are most conducive to successful innovation implementation. Firstly, the financing behaviour of firms, whether through equity or debt, varies according to each profile, as observed across the 12 countries studied, see Figure 9. Overall, innovation-active companies (Profiles I to V) are proportionally more likely to call on private funding, whatever the need covered (innovation-related or not). Furthermore, among Profiles I to V, debt financing (regardless of the activity financed) is singularly more common in Profiles I to IV than in Profile V.

The CIS can also help to identify when the funding is used for innovation activities (including R&D) rather than for any other purpose. By definition, this only applies to innovation-active Profiles (I to V). This is highlighted in the leftmost sections of the bars in Figure 9. Profile I firms, which are the most profound innovators, are more likely than others to use private funding for innovation purposes. Around 10% of them utilise equity financing for their innovation activities, while 17% of them rely on debt financing for their innovation activities. Interestingly, innovation-active firms that are further away from dedicated innovators, i.e. Profile IV (with innovations introduced but not developed themselves) and Profile V (innovation-active with no innovation introduced), also make quite substantial use of debt for their innovation activities (in proportions of 9% and 8%, respectively).

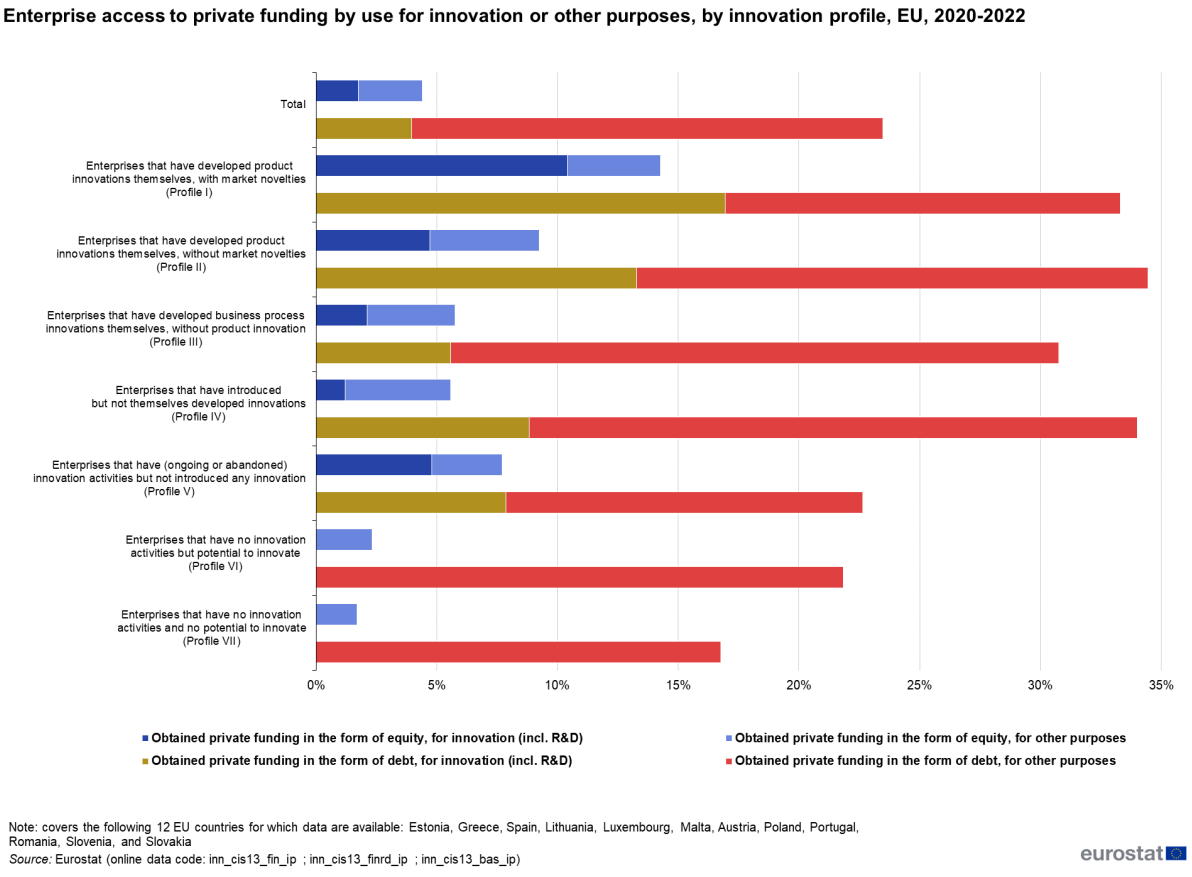


Figure 9: Enterprise access to private funding by use for innovation or other purposes, by innovation profile, EU Source: Eurostat (inn_cis13_fin_ip ; inn_cis13_finrd_ip ; inn_cis13_bas_ip)

In addition to private funding, the receipt of public funding can also be analysed by innovation profiles, as shown in Figure 10. Around 33% of enterprises in Profile I receive public funding to support innovation. Moreover, Profile I enterprises are the most likely to receive public funding in any form (47%), whether for innovation or not. It is followed by Profile V, with 45% of enterprises receiving any form of public funding, more than half of which (25%) receive innovation-related public funding. This highlights the specificity of Profile V, which includes enterprises with innovative projects, sometimes far from any implementation of an innovation, but involved in innovation activities (including R&D) and eager for funding solutions to do so. Profile V enterprises do not necessarily implement the innovations themselves but may sell the knowledge they have developed to their client companies, thereby contributing to innovation in the economy.

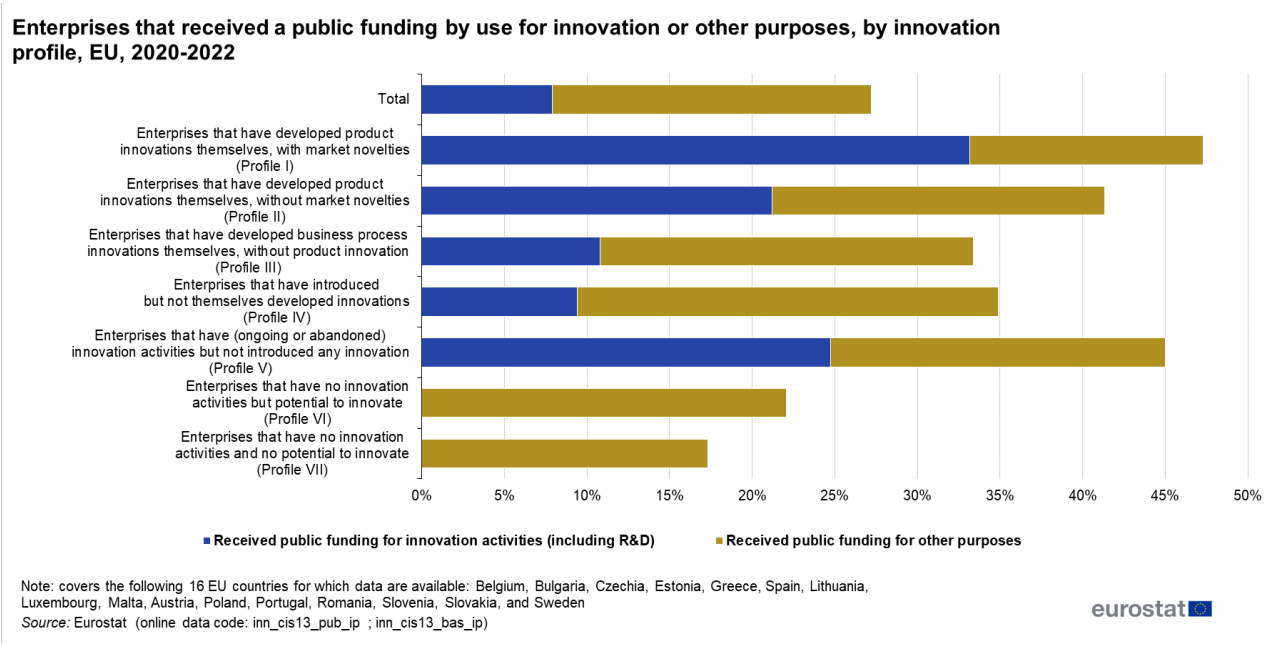


Figure 10: Enterprises that received a public funding by use for innovation or other purposes, by innovation profile, EU Source: Eurostat (inn_cis13_pub_ip ; inn_cis13_bas_ip)

What weight in terms of turnover does each innovation profile represent?

In addition to the number of enterprises, analysis by innovation profile is also possible by taking the total turnover of enterprises for 2022 as the unit of measurement. This analysis is shown in Figure 11. Overall, Profile I enterprises, with in-house developed new-to-market product innovation, account for 36% of total turnover across the 14 countries considered. Analysis by size class shows that larger enterprises generate proportionally more turnover in the most intensive profiles in terms of innovation.

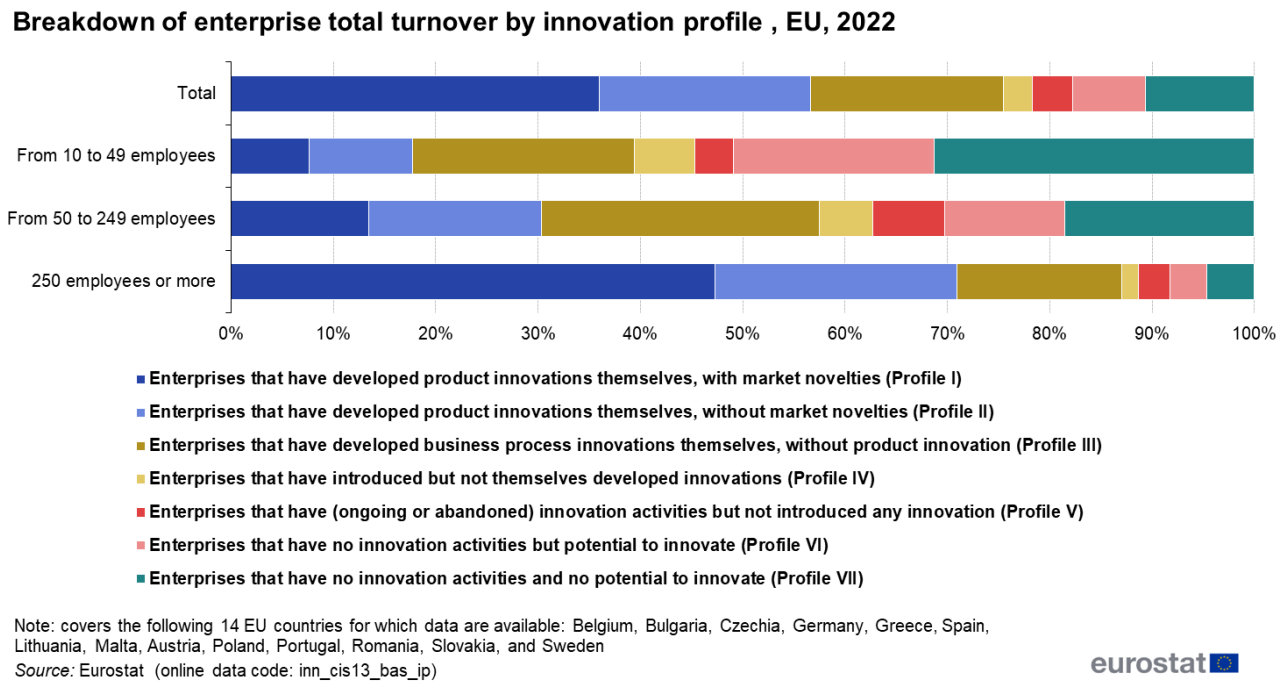


Figure 11: Breakdown of enterprise total turnover by innovation profile , EU Source: Eurostat (inn_cis13_bas_ip)

Conclusion

Innovation profiling facilitates a more comprehensive understanding of enterprise behaviour with respect to innovation. They allow for a switch from a single-variable approach to a multidimensional one, which gives the opportunity to leverage the information value of business innovation statistics without increasing the respondent burden.

As demonstrated in this article, analysing the CIS2022 results by innovation profile shows that the propension of enterprises to adopt a behaviour aimed at innovation is strongly related to their main characteristics in terms of size, economic activity and age. Their ability to mobilise relevant inputs, such as investment in R&D and access to private and public funding for innovation purposes, can be critical factors for successful innovation. Moreover, the turnover generated by enterprises with the most intensive innovation profiles shows their major importance for value creation in the economy.

Source data for tables and graphs

- Innovation profiles of enterprises - results: tables and graphs

Data sources

The **Community Innovation Survey** , abbreviated as **CIS** , is conducted in every European Union (EU) Member State to collect data on innovation in businesses, i.e. on product innovation (goods or services) and business process innovation (e.g. production methods; logistics; information processing and communication; accounting and administrative operations; organisational, management and marketing aspects).

The legal basis for CIS is Commission Implementing Regulation (EU) 2022/1092 of 30 June 2022 laying down technical specifications of data requirements for the topic 'Innovation' pursuant to Regulation (EU) 2019/2152.

The innovation profiles were created following the publication of the 4th edition of the Oslo Manual (OM) 'Guidelines

for collecting and using data on innovation' in 2018, with the aim of providing a comprehensive overview of the characteristics of enterprises with regard to innovation. The innovation profiles translate the information obtained from the questions on business innovation in the Community Innovation Survey (CIS) into a structure of enterprises that can be intuitively understood. This facilitates the interpretation of the results of surveys on business innovation, and demonstrates their relevance in the context of today's European business statistics.

Starting with wave 2022 of the CIS, innovation profiles have been more fully integrated into data reporting at national level, and a substantial number of variables are now available broken down by innovation profile. The CIS2022 observation period covers 2020 to 2022.

The innovation profiles allow the enterprise population to be divided into groups that are meaningful and easy to interpret in view of the innovativeness of the enterprises. A key principle of the innovation profiles is to cover the entire target population of enterprises from the CIS. Each enterprise is assigned to only one profile. The Statistics Explained article 'Innovation profiles of enterprises - methodology' gives a more detailed overview of the methodology used to create the innovation profiles and to classify enterprises along those profiles.

Though not all countries report data for the full detail of profiles for all aspects, the country coverage is sufficient - and results coherent enough - to demonstrate the relevance of the statistics.

Context

Innovation in businesses is a complex process that requires multiple skills and involves different activities, which can lead to different outcomes. Therefore, there are several ways of approaching the question of how innovative enterprises are. To help answer this question, one can start by looking at the bigger groups of enterprises. The innovation profiles are designed to represent both, 'major' groups of enterprises responding to the classical concepts of business innovation analysis, as well as to the more detailed individual innovation profiles that demonstrate how those are composed.

One of the main concepts defined in the Oslo Manual to characterise companies is that of 'innovation-active' firms. A firm is considered to be 'innovation-active' if it either introduced an innovation (product or business process innovation) during the observation period, or has been involved in any ongoing, abandoned, suspended, or completed innovation activity that has not (yet) led to the introduction of an innovation.

The 7 innovation profiles are:

- Profile I - Enterprises that have developed product innovations themselves, with market novelties
- Profile II - Enterprises that have developed product innovations themselves, without market novelties
- Profile III - Enterprises that have developed business process innovations themselves, without product innovation
- Profile IV - Enterprises that have introduced but not themselves developed innovations
- Profile V - Enterprises that have (ongoing or abandoned) innovation activities but not introduced any innovation
- Profile VI - Enterprises that have no innovation activities but potential to innovate
- Profile VII - Enterprises that have no innovation activities and no potential to innovate

Footnotes

Explore further

Other articles

- Innovation profiles of enterprises - methodology
- Community Innovation Survey 2022 - key indicators

Database

- Science and technology (scitech) , see:

Community innovation survey (inn)

Results of the community innovation survey 2022 (CIS2022) (inn_cis13)

Thematic section

- Science, technology and innovation
- Community Innovation Survey (CIS): Questionnaire library

Methodology

- EBS methodological manual on statistics on business innovation
- Oslo Manual
- Community innovation survey 2022 (CIS2022) (inn_cis13)

External links

- European Innovation Scoreboard (EIS) 2024 and Regional Innovation Scoreboard (RIS) 2023
- OECD — Innovation

Legislation

- Regulation (EU) No 2019/2152
- Regulation (EU) No 2020/1197
- Regulation (EU) No 2022/1092