VARIO
Vlaamse Adviesraad voor Innoveren & Ondernemen

INNOVATIEVE BENCHMARKLANDEN EN –REGIO'S VOOR VLAANDEREN

MAART 2020

Vlaanderen
is ambitieus

De Vlaamse Adviesraad voor Innoveren en Ondernemen (VARIO) adviseert de Vlaamse Regering en het Vlaams Parlement over het wetenschaps-, technologie-, innovatie-, industrie-, en ondernemerschapsbeleid. De raad doet dit zowel op eigen initiatief als op vraag. VARIO werd bij besluit opgericht door de Vlaamse Regering op 14 oktober 2016. VARIO werkt onafhankelijk van de Vlaamse Regering en de partijen in het werkveld. De voorzitter en leden van VARIO zetelen in eigen naam:

Lieven Danneels (voorzitter)

Dirk Van Dyck (plaatsvervangend voorzitter)

Katrin Geyskens

Wim Haegeman

Johan Martens

Koen Vanhalst

Vanessa Vankerckhoven

Marc Van Sande

Reinhilde Veugelers

Het secretariaat is gevestigd in Brussel:
Koolstraat 35
1000 Brussel
+32 (0)2 553 24 40
vario@vlaanderen.be
https://www.vario.be

INNOVATIEVE BENCHMARKLANDEN EN –REGIO'S VOOR VLAANDEREN

Maart 2020

//

//

MAART 2020   VARIO ADVIES NR. 10 INNOVATIEVE BENCHMARKLANDEN EN -REGIO'S   pagina 3 van 18

COLOFON

Ontwerp: Vlaamse Overheid/VARIO
Maart 2020

Alle publicaties zijn gratis te downloaden via www.vario.be of via
https://www.vlaanderen.be/nl/publicaties

Coverfoto © www.shutterstock.com

AUTEURSRECHT

INHOUD

//

//

MAART 2020   VARIO ADVIES NR. 10 INNOVATIEVE BENCHMARKLANDEN EN -REGIO'S   pagina 5 van 18

MANAGEMENTSAMENVATTING

In het kader van de ambitie van de Vlaamse Regering om de top van kennis- en innovatieregio's te bereiken, vroegen minister-president Jan Jambon en minister van Economie en Innovatie Hilde Crevits relevante Europese benchmarklanden en -regio's te selecteren (**Eerste Fase** van de adviesvraag).

VARIO selecteerde <u>**VIJF INNOVATIEVE BENCHMARKLANDEN**</u>:

- **Zwitserland, Zweden, Denemarken, Finland en Nederland**

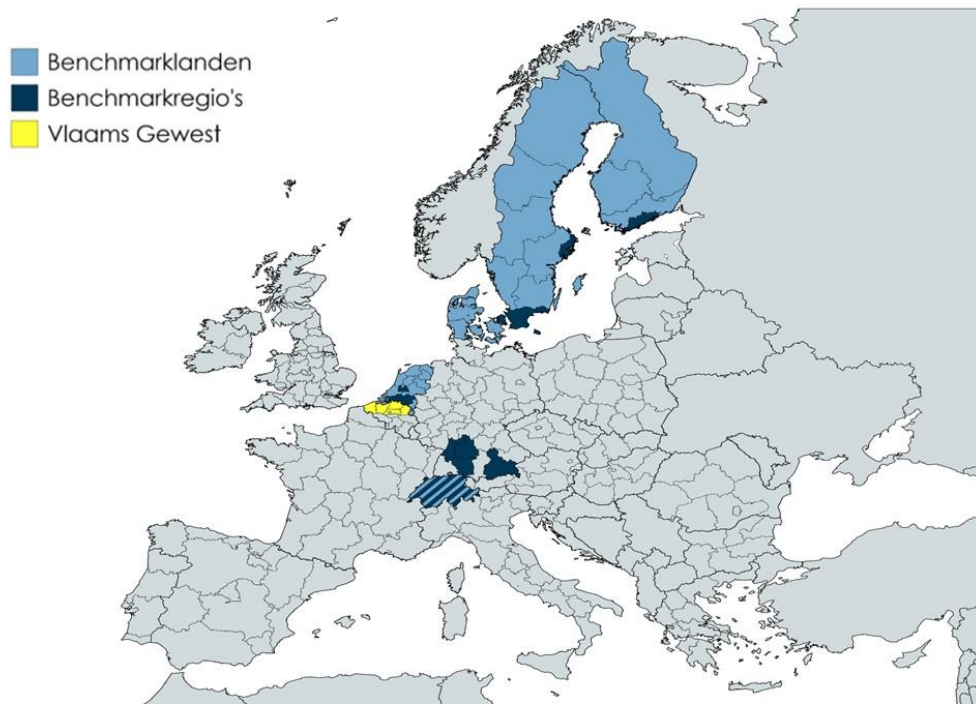Bijkomend werden <u>**ZEVENTIEN INNOVATIEVE BENCHMARKREGIO'S**</u> geselecteerd:

- Zeven uit Zwitserland: **Zürich, Région Lémanique, Espace Mittelland, Nordwest-schweiz, Ostschweiz, Zentralschweiz** en **Ticino**
- Twee uit Zweden: **Stockholm** en **Sydsverige**
- Een uit Denemarken: **Hovedstaden**
- Een uit Finland: **Helsinki-Uusimaa**
- Twee uit Nederland: **Utrecht** en **Noord-Brabant**
- Vier uit Duitsland: **Oberbayern, Karlsruhe, Tübingen** en **Stuttgart**

De geselecteerde landen en regio's (**Figuur 1A**) **behoren in grote lijnen tot** de grote stedelijke agglomeratie **de Blauwe Banaan** enerzijds, **en tot Scandinavië** anderzijds. Alhoewel ook Vlaanderen tot de Blauwe Banaan behoort, kunnen we Vlaanderen op dit moment nog niet tot de Europese topregio's rekenen. De topregio's Sydsverige (Malmö) en Hovedstaden (Kopenhagen) vormen samen de **Zweeds-Deense grensoverschrijdende topregio**, met de bekende Sontbrug als fysieke verbinding.

VARIO benadrukt dat een **benchmarkbenadering altijd beperkingen inhoudt**. Er zullen altijd fundamentele (en onveranderbare) verschillen bestaan tussen Vlaanderen en zijn benchmarklanden of regio's (vb. in economische structuur, infrastructuur, historische beslissingen en investeringen). De context van een land of regio is belangrijk: een goede praktijk in de ene regio kan niet zondermeer worden getransfereerd naar een andere regio. VARIO merkt daarnaast op dat Vlaanderen niet alleen kan leren van succesverhalen, maar **tegelijkertijd ook** kan **leren van landen of regio's zoals bijvoorbeeld Oostenrijk die in hun strategie gefaald hebben om de top te bereiken**.

In een **Tweede Fase** van de adviesvraag zal VARIO tegen de zomer van 2020 **concrete aanbevelingen voor een roadmap voor het Vlaams Gewest formuleren**, om tegen 2030 aan te sluiten bij de selecte groep van topregio's. Deze aanbevelingen zullen steunen op een uitgebreide analyse van de rankings (innovatie en competitiviteit), literatuuronderzoek en kwalitatief onderzoek op basis van interviews.

FIGUUR 1A: Benchmarklanden en -regio's voor Vlaanderen

Bron: Mapchart.net; Eigen bewerking

EXECUTIVE SUMMARY: INNOVATIVE BENCHMARK COUNTRIES AND REGIONS FOR FLANDERS

As part of the ambition of the Flemish Government to reach the top of knowledge and innovation driven regions, Minister-President Jan Jambon and Minister of Economy and Innovation Hilde Crevits asked to select relevant European benchmark countries and regions (**First Phase** of the request for advice).

VARIO[1] selects <u>**FIVE INNOVATIVE BENCHMARK COUNTRIES**</u>:

- **Switzerland, Sweden, Denmark, Finland** and **The Netherlands**.

Additionally, <u>**SEVENTEEN INNOVATIVE BENCHMARK REGIONS**</u> are selected:

- Seven from Switzerland: **Zürich, Région Lémanique, Espace Mittelland, Nordwest-schweiz, Ostschweiz, Zentralschweiz and Ticino**
- Two from Sweden: **Stockholm and Sydsverige**
- One from Denmark: **Hovedstaden**
- One from Finland: **Helsinki-Uusimaa**
- Two from the Netherlands: **Utrecht and Noord-Brabant**
- Four from Germany: **Oberbayern, Karlsruhe, Tübingen and Stuttgart**
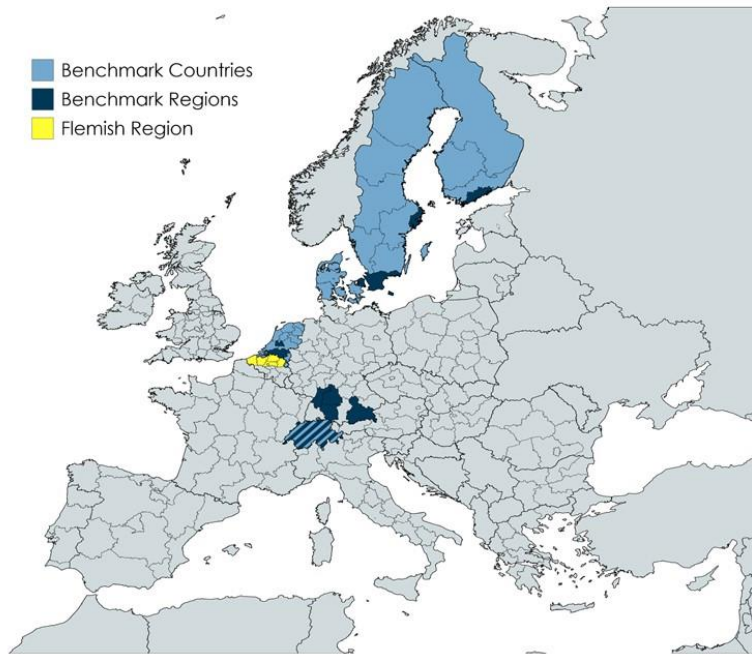
The selected countries and regions (**Figure 1B**) largely **belong to the** large corridor of urbanization the **Blue Banana** on the one hand, **and the Scandinavian countries** on the other. Although Flanders belongs to the Blue Banana, we cannot yet count the Flemish Region among the top European regions. The top regions Sydsverige (Malmö) and Hovedstaden (Copenhagen) together, form the **Swedish-Danish top cross border innovative region**, with the famous Öresund Bridge as its physical link.

VARIO emphasizes that **a benchmark approach always has its limitations**. There will always be fundamental (and immutable) differences between Flanders and its benchmark countries of regions (e.g. in economic structure, infrastructure, historical decisions and investments…). The context of a country or region is always important: a good practice in one region cannot simply be transferred to another. VARIO also notes that Flanders can not only **learn from success stories but also from countries or regions such as Austria that have failed in their strategy to reach the top**.

In a **Second Phase** of the request for advice, VARIO will formulate **concrete recommendations for a roadmap for the Flemish Region** by the summer of 2020, in order to join the select group of top regions by 2030. These recommendations will be based on an extensive analysis of the rankings (innovation and competitiveness), literature research and qualitative research based on interviews.

FIGURE 1B: Benchmark Countries and Regions for the Flemish Region

Source: Mapchart.net; Own editing

ADVIES

1. SITUERING

In het kader van de ambitie van de Vlaamse Regering om Vlaanderen een top-vijf positie te laten verwerven tussen de meest innovatieve regio's en landen in Europa, willen minister-president Jan Jambon en minister van Economie en Innovatie Hilde Crevits VARIO actief inschakelen in twee fasen:

1. In een **eerste fase** voorstellen te doen voor (1) relevante benchmarklanden en -regio's, en (2) transparante strategische beleidsindicatoren die periodiek beschikbaar zijn, ook op het niveau van Vlaanderen;

2. In een **tweede fase** werk te maken van concrete aanbevelingen en adviezen die aansluiten op de eerste fase t.a.v. (1) gerichte optimalisering van het Vlaamse wetenschaps- en innovatiebeleid en onderwijsbeleid om de top-5 ambitie te realiseren; (2) adviezen voor de andere actoren (bedrijven, speerpuntclusters, kennisinstellingen...) om zich hierin te engageren; (3) aanbevelingen t.a.v. een internationaliseringsstrategie en profilering van Vlaanderen als innovatieve topregio.

Voorliggend advies beperkt zich tot de 1ste fase van de adviesvraag t.a.v. **relevante benchmarkregio's en/of -landen.**

2. WAT VERSTAAT VARIO ONDER BENCHMARKLANDEN OF –REGIO'S?

Benchmarklanden en -regio's zijn **Europese referentie- of '*best practice*'-landen en -regio's die vooroplopen in socio-economische ontwikkeling** (economische toplanden of topregio's, '*Innovation Powerhouses*'...) en **waarvan Vlaanderen zoveel mogelijk kan leren**, met als ambitie de top van Europa te bereiken van kennis- en innovatieregio's.

Voor het bepalen van relevante benchmarkregio's en -landen baseerde VARIO zich zowel op **innovatie- als op competitiviteitsindicatoren** (Regionaal Innovatiescorebord (RIS), Regionale Competitiviteitsindex (RCI), Europees Innovatie Scoreboard (EIS), WEF Competitiviteitsrapport (GCI), Global Innovation Index (GII)...). Een hoge score op innovatie hangt immers in grote mate samen met sterke prestaties op het gebied van competitiviteit[2] of concurrentievermogen, een hoge score op competitiviteit gaat op zijn beurt in sterke mate samen met een hoog Bruto Nationaal Product (BNP) (maar is er niet gelijk aan, zie vb. RCI2019).

2.1. Selectiecriteria

VARIO maakte maximaal gebruik van volgende selectiecriteria, met het oog op het selecteren van de meest relevante benchmarklanden en -regio's:

1. **Consistent hoge scores op de meeste indicatoren <u>van zowel innovatie als competitiviteit</u>:**

---

[2] WEF definieert Competitiviteit als volgt: "the set of institutions, policies and factors that determine the level of productivity of a country." Other definitions exist, but all generally include the word "productivity" zie https://www.weforum.org/agenda/2019/10/the-worlds-most-competitive-economies-global-report/

- Innovatie:
  - Europees Innovatie Scorebord (**EIS2019**): enkel de Innovatieleiders;
  - Regionaal Innovatie Scorebord (**RIS2019**): enkel Innovatie Leiders+ en Innovatie Leiders (zonder de Innovation Leaders-)
- Competitiviteit:
  - Regionale CompetitiviteitsIndex (**RCI2019**): Top25
  - Globale CompetitiviteitsIndex (WEF) (**GCI2019**): Top20

2. **Consistentie** van de scores **over de tijd** (periode 2011-2019);

3. **Agglomeratievoordelen:** grootstedelijke regio's en (hoofd-)steden (*capital/metropolitan regions*) spelen een belangrijke rol in innovatie en economische competitiviteit (zie vb. EU-RCI, 2019) omwille van agglomeratievoordelen[3]. Bedrijven, kennisinstellingen, talent... clusteren in elkaars nabijheid, wat leidt tot een aantal baten zoals gemeenschappelijke infrastructuur, toegang tot talent en skills. We nemen **bevolkingsdichtheid (aantal inwoners/km^2)** – samen met de grootte van de regio (NUTS-classificatie) - mee in de analyse (**Appendix I**, zie ook **Appendix II en III**: '*Structural differences*'), alhoewel zeker geen perfecte indicator voor agglomeratievoordelen (vb. Ajmone Marsan & Maguire, 2011). Om de vergelijking met Vlaanderen te maken **sluiten we de '*city-success*' regio's uit**, met name die regio's waar het succes hoofdzakelijk steunt op één bepaalde stad, eerder dan het een succes is voor een hele regio. Dan denken we aan Londen en Berlijn.

4. Vergelijkbare e**conomische structuur** (zie profielen van geselecteerde benchmarklanden en -regio's in **Appendix II en III**);

5. **Regio's hebben (verregaande) beleidscompetenties m.b.t. innovatie.**

3. RELEVANTE BENCHMARKLANDEN EN -REGIO'S

In dit hoofdstuk gaat VARIO eerst in op (**3.1.**) de gemeenschappelijke kenmerken van benchmarklanden of -regio's, vervolgens (**3.2.**) op de selectie van een aantal benchmarklanden en -regio's en ten slotte (**3.3.**) op de beperkingen van een benchmarkbenadering en de rol van context.

3.1. Gemeenschappelijke kenmerken van benchmarklanden of –regio's

Op basis van de analyses van VARIO (Naar de top van kennis- en innovatieregio's, in voorbereiding) blijken topregio's en toplanden volgende algemene kenmerken gemeenschappelijk te hebben:

1. **Topregio's scoren consistent hoog op de meeste[4] indicatoren van innovatie en competitiviteit.** Om een topregio te worden is een globale, brede transformatie nodig met aandacht voor alle ingrediënten van een kennis- en innovatiegedreven economie. Dit vergt **een uitgesproken kwaliteitsstreven in het hele maatschappelijk weefsel**: in het bedrijfsleven, het onderwijs, de

---

[3] https://nl.wikipedia.org/wiki/Agglomeratie-effect
[4] Er bestaat hier zeker een aantal uitzonderingen. We verwijzen hier o.a. naar Nederland dat over het algemeen zeer goed scoort op innovatie- en competitiviteitsindicatoren maar bijvoorbeeld op het aandeel afgestudeerden in de STEM-richtingen zeer laag scoort als rode lantaarn in Europa.

overheidsdiensten... Het is een **EN-EN-verhaal** met een cultuur van innovatie, ambitieus ondernemen en internationalisering als de hoofdingrediënten[5]. O&O-investeringen, levenslang leren... zijn slechts een deel van een complexe puzzel; ook andere ingrediënten spelen een rol zoals vormen van vraaggedreven innovatie (vb. overheidsaanbestedingen gericht op innovatie en duurzaamheid), culturele uitwisseling van '*mindset*' (vb. in Silicon Valley): jonge ondernemers die door bepaalde regio's worden aangetrokken en nadien opnieuw vertrekken ('*brain circulation*')...

Om een metafoor te gebruiken uit het wielrennen: **een topregio is zoals een topteam** met een vast aantal renners **in een ploegentijdrit**. Het beste team wordt niet bepaald door de tijd van de eerste renner, maar die van de laatste renner: ook de renners '*Levenslang Leren*', '*Ambitieus ondernemen*' ... dienen tijdig of zo snel mogelijk de meet te halen om een topprestatie van het team neer te zetten...

VARIO benadrukt hier dat indicatoren zorgvuldig dienen te worden geïnterpreteerd. (Nog) hoger scoren op een indicator is bijvoorbeeld niet altijd beter en kan aanleiding geven tot efficiëntiekosten. Volgens Foray & Hollanders (2015) zou geen enkel land of regio er bijvoorbeeld baat bij hebben als heel de bevolking een tertiaire opleiding zou hebben... of als de O&O-intensiteit 50% zou bedragen van het BBP. Het is duidelijk dat er voor de meeste indicatoren een soort van **U-vormige performantiecurve** bestaat (met een keerpunt), waar bij lage niveaus het de moeite waard is om het prestatieniveau nog te verbeteren, maar dat verdere verbeteringen (na het keerpunt) kunnen leiden tot inefficiënties[6].

2. Topinnovatie dient zich ook te vertalen in economisch succes (impact). **Zo lijken bijvoorbeeld landen met een bovengemiddeld aandeel in hightechindustrie** beter te **scoren op veel van de innovatie-indicatoren (EIS2019.** VARIO merkt hierbij wel op dat de term 'hightechindustrie' met de nodige voorzichtigheid dient worden geïnterpreteerd. Zo is de categorie high-tech (export) gebaseerd op de NACE-codes 21 (Manufacture of basic pharmaceutical products and pharmaceutical preparations) en 26 (Manufacture of computer, electronic and optical products). Dit komt echter niet altijd overeen met de realiteit en is slechts een benaderende indicatie voor hightech (export). In Vlaanderen zijn bijvoorbeeld delen van de textielsector (nieuwe materialen die niet onder de NACE-codes 21 en 26 vallen) ook hightech (vb. technisch of medisch textiel). Deze mismatch geldt echter niet alleen voor Vlaanderen maar ook voor andere landen en regio's. Zo scoorde China een aantal jaar terug al hoog op deze indicator door loutere assemblage van elektronische componenten. Bijkomende voorzichtigheid in de interpretatie van deze indicator is ook geboden omdat in Vlaanderen de noemer groter is door

---

[5] Zie De Voldere en collega's (2014) voor een goed overzicht en model van (geavanceerde) economische ontwikkeling.

[6] Foray & Hollanders (2015) verwijzen o.a. naar het (te) hoge aantal jonge mensen met een diploma uit het tertiair onderwijs in landen zoals vb. Luxemburg of het hoge aandeel nieuwe doctoraathouders in Zweden of Zwitserland, de (mogelijk te) hoge O&O-intensiteit in Zweden of Zwitserland: *"A possible case is the high R&D intensities in Finland and Sweden. Although a significant share of these countries' GDP is spent on R&D activities, per capita income is not among the highest in Europe. One could argue that these countries have been overinvesting in their R&D activities. [...] For several countries, the share of their population aged 30–34 years having completed tertiary education might be reaching the above-mentioned turning point. In Ireland, Cyprus, Luxembourg, Finland, Sweden, and Norway, the indicator is already above 45%, and in Switzerland, the 44.2% might also be close to this turning point. [...] A similar argument could be made for new doctorate graduates where Sweden and Switzerland are the only countries with a share above 3%."*

de doorvoerhandel in zijn havens (Antwerpen, Zeebrugge en Gent). Wallonië scoort bijvoorbeeld beter op deze indicator (o.a. GSK speelt hier een rol in), maar heeft een kleinere noemer *mede* doordat het geen havens heeft.

3. **De meeste Europese topregio's huisvesten grootstedelijke gebieden.** Zij spelen een belangrijke rol in het concurrentievermogen van de regio (cf. supra m.b.t. agglomeratievoordelen). Vertaald naar Vlaanderen betreft het dan bijvoorbeeld de Vlaamse Ruit, Antwerpen (en zijn haven), Lille-Kortrijk-Doornik, Brussels Hoofdstedelijk Gewest[7].

4. **De kans op een sterke regionale innovatieprestatie stijgt wanneer de regio behoort tot een land dat ook sterk presteert** (landen zoals Zwitserland, Denemarken, Zweden...);

5. **Topregio's omarmen de toekomst** (vb. 5G, E-commerce, adoptie van AI, duurzaamheid...): "[...] *Being forward-thinking and embracing the future is another key theme for the top players, alongside making technology an integral part of policy. The US, which is second on the overall list, comes top for business dynamism and second for innovation capability*"[8]

6. **Innovatie maakt deel uit van het hele economisch systeem**: "*What really is a differentiating factor is the innovation ecosystem,*" [...] "*Creating the conditions for innovation to become part of the entire economy, not just pockets of excellence. That takes a lot of effort.*"[9]

7. ...

3.2. Meest relevante benchmarklanden of –regio's

Op basis van de analyse in **Appendix I** selecteert VARIO eerst de meest relevante Europese benchmarklanden, vervolgens relevante benchmarkregio's.

3.2.1. Benchmarklanden

Van de Europese landen selecteert VARIO alle EIS-2019-innovatieleiders: **Zwitserland, Denemarken, Zweden, Finland en Nederland**.

Zwitserland is het enige Europese land dat zowel in zijn geheel als met elk van zijn regio's (NUTS-2) zeer sterke prestaties neerzet. Bovendien situeerden alle zeven Zwitserse regio's zich consistent in de TOP-25 van RIS over de periode 2011-2019.

Van Zwitserland kan Vlaanderen (en met uitbreiding België) in sterke mate leren op systemisch niveau (waaronder op vlak van het interinstitutioneel kader), de mix van maatregelen op federaal en kantonniveau, de beleidsinstrumenten (zoals vb. het ETH-domein van Zürich en Lausanne, fiscaliteit...), historische investeringen en beleidsbeslissingen... Deze hebben geleid tot de uitzonderlijk sterke prestatie van Zwitserland. Het adviestraject van VARIO '*Naar de topgroep van Kennis- en Innovatieregio's*' (in prep.) bevat een diepgaande analyse van het Zwitserse O&O&I- en onderwijssysteem.

---

[7] https://en.wikipedia.org/wiki/List_of_metropolitan_areas_in_Europe
[8] Charlton, 2019
[9] Charlton, 2019

Naast Zwitserland selecteert VARIO alle andere innovatieleiders uit EIS(2019): Denemarken, Zweden, Finland en Nederland. Ook in EIS(2011) waren deze Scandinavische landen al Innovatieleiders. In EIS(2011) was Nederland nog een innovatievolger (net als België), maar heeft de laatste jaren als runner-up veel vooruitgang geboekt. Nederland is op dit moment een Innovatieleider (EIS2019) en in de Global Competitiveness Index (GCI) 2019 bekleedt Nederland een bijzonder knappe vierde plaats (na Singapore, de VS en Hong Kong). Wat kan Vlaanderen leren van deze recente dynamiek in Nederland?

In **Appendix II** voegen we alle profielen van de geselecteerde landen uit EIS2019 toe, samen met het profiel van België.

VARIO merkt nog op dat de race naar kennis- en innovatie-economieën op wereldniveau wordt gevoerd (Atkinson & Ezell, 2012). Het adviestraject van VARIO '*Naar de topgroep van Kennis- en Innovatieregio's*' (in prep.) bevat daarom ook een diepgaande analyse van **Singapore**. Deze eilandstaat is sinds 2019 het meest competitieve land ter wereld en heeft de meest open economie. Wat betreft innovatie staat Singapore globaal op een mooie 8ste plaats en is het de regionale innovatieleider in Zuidoost-Azië, Oost-Azië en Oceanië (Global Innovation Index 2019).

3.2.2. Benchmarkregio's

VARIO selecteert in totaal 17 regio's uit 6 landen. Uit Zwitserland selecteert VARIO alle NUTS2 regio's. Een overzicht tonen we in **Figuur 2**.

FIGUUR 2: Innovatieperformantie van Zwitserse Nuts-2 regio's (RIS2019)

REGIO	Bevolkingsdichtheid	RII	Rang	Groep
Région Lémanique (CH01)	152 inw./km2	140,7	10	Leader +
Espace Mittelland (CH02)	171 inw./km2	134,8	17	Leader
Nordwest-schweiz (CH03)	591 inw./km^2	149,6	7	Leader +
Zürich (CH04)	870 inw./km^2	160,1	1	Leader +
Ostschweiz (CH05)	104 inw./km^2	150,2	6	Leader +
Zentralschweiz (CH06)	181 inw./km^2	146,1	8	Leader +
Ticino (CH07)	126 inw./km^2	156,8	2	Leader +

Bron: RIS2019; Eurostat; Nota: NUTS-2 regio's zijn vergelijkbaar met de grootte van Belgische provincies.

Naast de NUTS-2 regio's uit Zwitserland, selecteert VARIO een reeks andere NUTS-2 regio's uit volgende landen[10] die evenzeer sterke prestaties neerzetten:

- Zweden (Innovatieleider in EIS2019):
  - **Stockholm** (RIS2019: n°4; RCI2019: n°1)
  - **Sydsverige** (RIS2019: n°13; RCI2019: n°24)
- Denemarken (Innovatieleider in EIS2019):
  - **Hovedstaden** (RIS2019: n°5; RCI2019: n°6)
- Finland (Innovatieleider in EIS2019):
  - **Helsinki-Uusimaa** (RIS2019: n°3; RCI2019: n°10)
- Nederland (Innovatieleider in EIS2019):
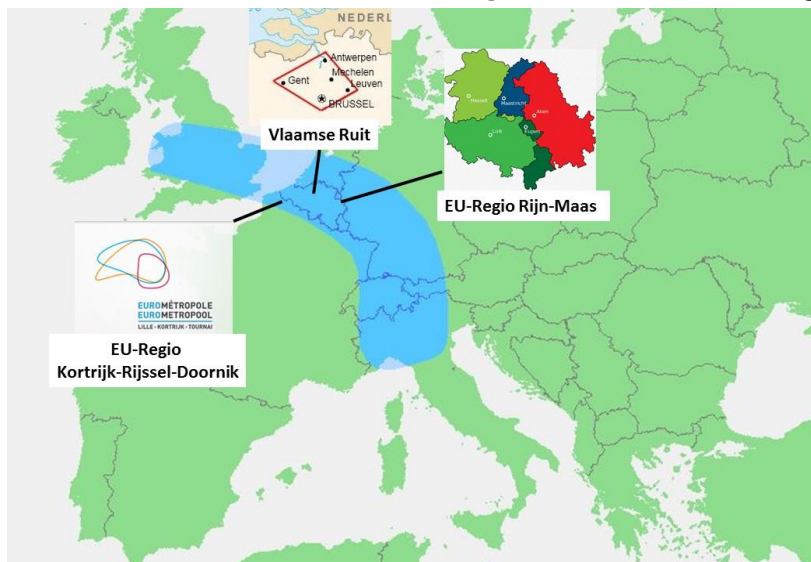 - **Utrecht** (RIS2019: n°18; RCI2019: n°3)
  - **Noord-Brabant** (RIS2019: n°24; RCI2019: n°20)
- Duitsland:
  - **Oberbayern** (RIS2019: n°11; RCI2019: n°8)
  - **Karlsruhe** (RIS2019: n°14; RCI2019: n°15)
  - **Tübingen** (RIS2019: n°19; RCI2019: n°23)
  - **Stuttgart** (RIS2019: n°23; RCI2019: n°18)

Deze benchmarkregio's behoren in grote lijnen tot de '*blauwe banaan*'[11] (**Figuur 3**) enerzijds, en de Scandinavische landen (exclusief Noorwegen) anderzijds. Van de Scandinavische regio's vormen Sydsverige (Malmö) en Hovedstaden (Copenhagen) bovendien de **Zweeds-Deense grensoverschrijdende topregio** met de bekende **Sontbrug**[12] als fysieke verbinding.

FIGUUR 3: De geografisch uitgestrekte stedelijke agglomeratie de Blauwe Banaan waartoe ook Vlaanderen (m.i.v. de Vlaamse Ruit en de EU-metropolen RIJN-Maas en Kortrijk-Rijsel-Doornik) behoort

Bron: https://nl.wikipedia.org/wiki/Blauwe_Banaan, https://nl.wikipedia.org/wiki/Vlaamse_Ruit, https://nl.wikipedia.org/wiki/Euregio_Maas-Rijn en https://nl.wikipedia.org/wiki/Eurometropool_Rijsel-Kortrijk-Doornik

---

[10] Voor Noorwegen ontbreken regionale competitiviteitsindicatoren en staat Noorwegen in de Global Competitiveness Index 2020 "slechts" op een 17de plaats.
[11] https://nl.wikipedia.org/wiki/Blauwe_Banaan
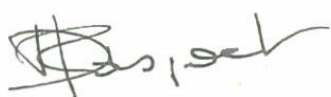[12] https://nl.wikipedia.org/wiki/Sontbrug_(Kopenhagen_-_Malm%C3%B6)

VARIO stelt vast dat alhoewel **Vlaanderen (en België)** tot de Blauwe Banaan behoort, we noch België noch Vlaanderen[13] op dit moment tot de Europese toplanden/regio's qua innovatie en competitiviteit kunnen rekenen. Vlaanderen is daarin niet alleen; ook de Franse, Italiaanse en Oostenrijkse deelgebieden binnen de Blauwe Banaan, maar ook Wales behoren niet tot de topregio's.

In **Appendix III** voegen we de profielen van alle geselecteerde regio's uit RIS2019 toe, samen met de profielen van het Vlaams Gewest en het Brussels Hoofdstedelijk Gewest.

3.3. Beperkingen van een benchmarkbenadering: het belang van context

Een benchmarkbenadering heeft beperkingen. De perfecte benchmarkregio of -land bestaat niet. Gezien het beperkt aantal regio's en landen - er zijn er geen tienduizenden om uit te kiezen - zullen er altijd fundamentele verschillen bestaan tussen Vlaanderen en zijn benchmarkregio's. We verwijzen o.a. naar (meestal op korte termijn onveranderbare) verschillen[14] in economische structuur (vb. eerder B2B of B2C[15]...), infrastructuur (vb. de aanwezigheid van een grote haven), mate van verstedelijking, historische investeringen en beleidsbeslissingen, democratische bestuursvorm (vb. al dan niet ingebed in Federaal-Democratische unie), het al dan niet hebben van grondstoffen (vb. de gasvelden van Nederland of Noorwegen)... De **context van een regio is belangrijk**, een goede praktijk (*best practice*) in het ene land of regio kan niet zondermeer worden getransfereerd naar een ander land of regio. Een zeker pragmatisme en gezond verstand zijn noodzakelijk.

VARIO merkt op dat Vlaanderen niet alleen kan leren van succesverhalen, maar tegelijkertijd ook **van landen die** hierin **hebben gefaald**[16]. Bijvoorbeeld, ondanks een gestage groei van zijn O&O-intensiteit van 2,4% (2007) naar 3,16% (2017) (3%-nota, juni 2019), in het kader van een gerichte strategie of roadmap om van Strong Innovator (in 2010) naar Innovation Leader (2020) te gaan, behoort **Oostenrijk** vandaag (nog) niet tot de innovatieleiders (EIS 2019). Wat kunnen we van deze case leren? Anderzijds is Nederland ondanks een daling van zijn O&O-intensiteit wel opgeklommen van innovatievolger naar innovatieleider. Wat kunnen we leren zowel van de succesverhalen als van de verhalen die minder goed slaagden?

Danielle Raspoet
Directeur

Lieven Danneels
Voorzitter

---

4. REFERENTIES

Ajmone Marsan, G., & Maguire, K. (2011). Categorisation of OECD Regions Using Innovation-Related Variables. OECD Regional Development Working Papers, 2011/03, OECD Publishing. http://dx.doi.org/10.1787/5kg8bf42qv7k-en

Atkinson, R. D., & Ezell, S. J. (2012). Innovation Economics: The Race for Global Advantage. Yale University Press. New Haven and London.

Charlton, E. (2019). The secrets of the world's most competitive economies. https://www.weforum.org/agenda/2019/10/the-worlds-most-competitive-economies-global-report/

Cornell University, INSEAD & WIPO (2019). Global Innovation Index 2019: Creating Healthy Lives–The Future of Medical Innovation. Ithaca, Fontainebleau, and Geneva. https://www.wipo.int/publications/en/details.jsp?id=4434

De Voldere, B., Buelens, M., De Stobbeleir, K., Debruyne, M., Meuleman, M., & Sleuwaegen, L. (2014). De inspiratie-economie: een toekomst voor de regionale ontwikkeling van Vlaanderen. Onderzoeksrapport. Flanders DC en Vlerick Business School.

Europese Commissie (2011). European Innovation Scoreboard. Luxemburg: Publications office of the European Union. https://op.europa.eu/en/publication-detail/-/publication/705c770c-68f7-4f90-ac2b-618cc6cc8ed7/language-en/format-PDF

Europese Commissie (2012). Regional Innovation Scoreboard 2011. Luxemburg: Publications office of the European Union. https://op.europa.eu/en/publication-detail/-/publication/aaff75f0-8d26-4503-96a4-a61a7906d133

Europese Commissie (2019a). Regional Innovation Scoreboard 2019. Luxemburg: Publications office of the European Union. https://ec.europa.eu/growth/industry/innovation/facts-figures/regional_nl

Europese Commissie (2019b). The EU Regional Competitiveness Index 2019. Luxemburg: Publications office of the European Union. https://ec.europa.eu/regional_policy/sources/docgener/work/2019_03_rci2019.pdf

Europese Commissie (2019c). European Innovation Scoreboard 2019. Luxemburg: Publications office of the European Union. https://ec.europa.eu/docsroom/documents/38781

Foray, D., & Hollanders, H. (2015). An assessment of the innovation union scoreboard as a tool to analyse national innovation capacities: the case of Switzerland. Research evaluation 24, pp. 213-228. doi:10.1093/reseval/rvu036

OESO (2013). Regions and Innovation: Collaborating across Borders. OECD Reviews of Regional innovation. OECD Publishing. http://dx.doi.org/10.1787/9789264205307-en

VARIO (in prep.). Naar de Topgroep van Kennis- en Innovatieregio's.

WEF (2019). <u>The Global Competitiveness Report 2019</u>. Switzerland: World Economic Forum.
http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf

APPENDIX I: BENCHMARKANALYSE

VARIO maakte maximaal gebruik van de eerdergenoemde selectiecriteria in Hoofdstuk 2.1. We bekijken hiervoor eerst de indicatoren op landenniveau, vervolgens op regioniveau.

Europese benchmarklanden

De **Europese toplanden** wat betreft innovatie (innovatieleiders) zijn volgens EIS2019 (zie **FIGUUR A**):

- Zwitserland
- Zweden
- Denemarken
- Finland
- Nederland

We weerhouden enkel de innovatieleiders uit EIS2019. We merken op dat België in EIS2019 een Strong Innovator is, de categorie onder Innovatieleider.

FIGUUR A: Innovatieleiders in Europees perspectief (EIS2019)

Bron: Europese Commissie, Europees Innovatiescorebord (EIS) 2019

Wat betreft **competitiviteit** van Europese landen dienen we te kijken naar het recente Global Competitiviteitsrapport 2019 (op wereldniveau) van het Wereld Economisch Forum. Hier zien we dat de 5 innovatieleiders uit EIS ook opduiken in de Wereldtop-20 (**Tabel 1**). De andere Europese landen in de Top-20, **Duitsland**, het **Verenigd Koninkrijk, Frankrijk, Noorwegen en Luxemburg weerhouden we niet omdat ze geen innovatieleider zijn**. België staat op positie 22.

TABEL 1: Top-20 Landen op Global Competitiveness Index (GCI 2019)

RANGORDE	LAND	GCI-SCORE
1	Singapore	84,4
2	VS	83,7
3	Hong Kong	83,1
4	Nederland	82,4
5	Zwitserland	82,3
6	Japan	82,3
7	Duitsland	81,8
8	Zweden	81,2
9	Verenigd Koninkrijk	81,2
10	Denemarken	81,2
11	Finland	80,2
12	Taiwan	80,2
13	Zuid-Korea	79,6
14	Canada	79,6
15	Frankrijk	78,8
16	Australië	78,7
17	Noorwegen	78,1
18	Luxemburg	77,0
19	Nieuw-Zeeland	76,7
20	Israël	76,7
...	...	...
22	België	76,4

Bron: GCI 2019

Conclusie: we selecteren de EIS-2019-Innovatieleiders, die ook behoren tot de GCI-2019-Top20, zijnde:

- Zwitserland
- Zweden
- Denemarken
- Finland
- Nederland

Europese Benchmarkregio's

Om de **Europese topregio's** te vinden, kunnen we kijken naar en RIS2019 (**FIGUUR B**) en RCI2019 (**FIGUUR C**). Het Vlaams Gewest bevindt zich in RIS2019 op plaats 40 in de categorie Stong Innovator+.

FIGUUR B: Regionale innovatieprestaties in Europees perspectief (RIS2019)

Bron: Europese Commissie, Regionaal Innovatiescorebord 2019

FIGUUR C: Regionale competitiviteit in Europees perspectief (RCI, 2019)

Bron: Europese Commissie, Regional Competitiveness Index – RCI 2019

Nota: gegevens voor Zwitserse en Noorse regio's ontbreken

TABEL 2: Top 25 Regionale Innovatieleiders (RIS 2019)

	REGIO	LAND	Rang (2011)
1	Zürich	Zwitserland	1
2	Ticino	Zwitserland	12
3	Helsinki-Uusimaa	Finland	9
4	Stockholm	Zweden	4
5	Hovedstaden	Denemarken	3
6	Ostschweiz	Zwitserland	14
7	Nordwestschweiz	Zwitserland	2
8	Zentralschweiz	Zwitserland	5
9	Berlin	Duitsland	20
10	Région lémanique	Zwitserland	11
11	Oberbayern	Duitsland	7
12	Västsverige	Zweden	16
13	Sydsverige	Zweden	6
14	Karlsruhe	Duitsland	8
15	Trøndelag	Noorwegen	<25 (top25 sinds 2015)
16	Oslo og Akershus	Noorwegen	<25 (top25 sinds 2017)
17	Espace Mittelland	Zwitserland	22
18	Utrecht	Nederland	<25 (top25 sinds 2013)
19	Tübingen	Duitsland	10
20	Östra Mellansverige	Zweden	13
21	Braunschweig	Duitsland	<25 (eenmaal top25 in 2013)
22	South East	Verenigd Koninkrijk	<25 (top25 sinds 2017)
23	Stuttgart	Duitsland	15
24	Noord-Brabant	Nederland	<25 (tweemaal top25 in 2013 en 2015)
25	Mittelfranken	Duitsland	19
	…	…	
40	Vlaams Gewest	België	Innovation Leader (Medium)

Bron: RIS2019

Nota: Enkel Innovation Leaders+ en Innovation Leaders (11% sterkst presterende regio's van in totaal 238 regio's) worden getoond. De Innovation Leaders- (waaronder BHG) worden niet weergegeven in de tabel.

TABEL 3: Top-25 meest competitieve regio's (RCI 2019)

	REGIO	LAND
1	Stockholm	Zweden
2	London & its commuting zones (Inner London West & Inner London East & Outer London East-North-East & Outer London West North West & Bedfroshire/Hertfordshire & Essex)	Verenigd Koninkrijk
3	Utrecht	Nederland
4	Berkshire, Buckinghamshire and Oxfordshire	Verenigd Koninkrijk
5	Surrey, East and West Sussex	Verenigd Koninkrijk
6	Hovedstaden	Denemarken
7	Luxembourg	Luxemburg
8	Oberbayern	Duitsland
9	Amsterdam & its commuting zones (Flevoland&Noord-Holland)	Nederland
10	Helsinki-Uusimaa	Finland
11	Île de France	Frankrijk
12	Hamburg	Duitsland
13	Darmstadt	Duitsland
	Zuid-Holland	Nederland
15	Karlsruhe	Duitsland
	Hampshire and Isle of Wight	Verenigd Koninkrijk
17	Cheshire	Verenigd Koninkrijk
18	Stuttgart	Duitsland
19	Köln	Duitsland
20	Gelderland	Nederland
	Noord-Brabant	Nederland
22	Gloucestershire, Wiltshire & Bristol/Bath area	Verenigd Koninkrijk
23	Tübingen	Duitsland
24	Sydsverige	Zweden
25	Brussels & its commuting zones (Vlaams &Waals Brabant)	België
…		
29	Antwerpen	België
…	…	…
31	Oost-Vlaanderen	België
…	…	…
56	Limburg	België
…	…	…
63	West-Vlaanderen	België

Bron: RCI2019; 268 regio's

Nota: gegevens voor Noorwegen of Zwitserland werden niet meegenomen in RCI2019; In GCI2019 staat Zwitserland als land op plaats 5.

Op basis van Tabel 2 en Tabel 3 en de selectiecriteria (in Hoofdstuk 2.1.), worden in totaal zeventien benmarkregio's (Tabel 4) weerhouden: uit Zwitserland (alle zeven regio's), Denemarken (1 regio), Finland (1 regio), Zweden (2 regio's), Duitsland (4 regio's) en Nederland (2 regio's).

TABEL 4: Zeventien weerhouden benchmarkregio's o.b.v. selectiecriteria uitgevoerd op Tabel 2 en 3

	REGIO	LAND	NUTS (grootte van de regio)	Bevolkingsdichtheid (inw./km^2)
1	Zürich	Zwitserland	2	870
2	Ticino	Zwitserland	2	126
3	Helsinki-Uusimaa	Finland	2	181
4	Stockholm	Zweden	2	351
5	Hovedstaden	Denemarken	2	745
6	Ostschweiz	Zwitserland	2	104
7	Nordwestschweiz	Zwitserland	2	591
8	Zentralschweiz	Zwitserland	2	181
9	Région lémanique	Zwitserland	2	152
10	Oberbayern	Duitsland	2	270
11	Sydsverige	Zweden	2	108
12	Karlsruhe	Duitsland	2	406
13	Espace Mittelland	Zwitserland	2	171
14	Utrecht	Nederland	2	918
15	Tübingen	Duitsland	2	212
16	Stuttgart	Duitsland	2	390
17	Noord-Brabant	Nederland	2	508
	Vlaams Gewest		1	487
	West-Vlaanderen		2	380
	Oost-Vlaanderen		2	508
	Antwerpen		2	648
	Limburg		2	361
	Vlaams-Brabant		2	544
	Brussels Hoofdstedelijk Gewest		1/2	7422
	Vlaamse ruit		-	820

Bron: RCI2019, RIS2019; Wikipedia

Nota: Voor NUTS-classificatie zie: https://nl.wikipedia.org/wiki/Nomenclatuur_van_territoriale_eenheden_voor_de_statistiek

Alle weerhouden regio's bevinden zich op NUTS-2 niveau (qua grootte vergelijkbaar met Belgische provincies) en vallen onder de leidende innovatielanden in EIS2019, samen met de vier NUTS-2 regio's uit Duitsland. We merken op dat in de top25 van RCI2019 ook heel wat sterk competitieve regio's uit het Verenigd Koninkrijk voorkomen. In RIS2019 komt er echter slechts 1 Britse regio voor (South East), dat pas sinds 2017 in de top 25 van het Regionale Innovatie Scoreboard voorkomt en daardoor niet weerhouden werd. Een aantal Duitse (Braunschweig, Berlijn) en Zweedse regio's (Västsverige, Östra Mellansverige) komen wel voor in de top25 van RIS2019 maar niet in de top25 van RCI2019 of omgekeerd

en werden daardoor niet weerhouden. Bovendien is Berlijn als city-succes regio te beschouwen en daardoor ook niet vergelijkbaar met Vlaanderen.

De meeste topregio's (zie **Tabel 2 en Tabel 3**) uit Nederland, Zwitserland, Duitsland en het Verenigd Koninkrijk volgen niet toevallig de bekende, uitgestrekte stedelijke agglomeratie de **Blauwe Banaan** (**FIGUUR D**), een Europese megalopolis, met meer dan 85 miljoen inwoners[1]. We stellen vast dat alhoewel Vlaanderen (en België) tot de **Blauwe Banaan** behoort, we Vlaanderen[2] op dit moment nog niet tot de Europese toplanden of regio's qua innovatie en competitiviteit kunnen rekenen. Vlaanderen is daarin niet alleen; ook de Franse, Italiaanse en Oostenrijkse deelgebieden binnen de Blauwe Banaan, maar ook Wales behoren niet tot de topregio's. In RCI2019 staat enkel het Brussels Hoofdstedelijk Gewest met de woon-werkzones (*commuting zones*) Vlaams en Waals Brabant, in de top25 (plaats 25).

FIGUUR D: De Vlaamse Ruit, de EU-regio Kortrijk-Rijsel-Doornik en de EU-Regio Rijn-Maas als

onderdelen van de geografisch veel uitgestrektere stedelijke agglomeratie de Blauwe Banaan

Bron: https://nl.wikipedia.org/wiki/Blauwe_Banaan, https://nl.wikipedia.org/wiki/Vlaamse_Ruit,

https://nl.wikipedia.org/wiki/Euregio_Maas-Rijn en https://nl.wikipedia.org/wiki/Eurometropool_Rijsel-Kortrijk-Doornik

---

[1] https://nl.wikipedia.org/wiki/Blauwe_Banaan
[2] Het Brussels Hoofdstedelijk Gewest is Innovatieleider-

APPENDIX II: PROFIELEN VAN BENCHMARKLANDEN EN BELGIË

Belgium is a **Strong Innovator.** Over time, performance has increased relative to that of the EU in 2011.

Linkages, Innovators and *Attractive research systems*, are the strongest innovation dimensions. Belgium scores particularly well on Innovative SMEs collaborating with others, International scientific co-publications, and Enterprises providing ICT training. *Employment impacts* and *Intellectual assets* are the weakest innovation dimensions. Overall, Belgium scores weakest on Employment fast-growing enterprises of innovative sectors, Opportunity-driven entrepreneurship, and Non-R&D innovation expenditures.

Structural differences with the EU are shown in the table below. Top R&D spending enterprises per 10 million population are well above the EU average, whereas the turnover share of large enterprises, FDI net inflows, and enterprise births are well below the EU average.

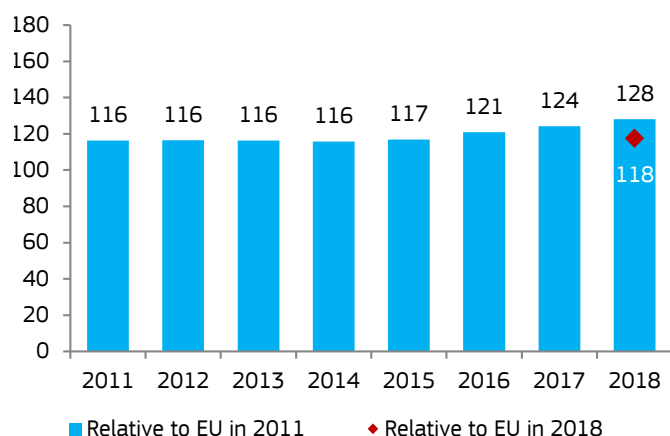| Belgium	Relative to EU 2018 in 2018	Performance relative to EU 2011 in 2011	2018
SUMMARY INNOVATION INDEX	**117.7**	**116.3**	**128.1**
Human resources	**106.1**	**115.1**	**129.7**
New doctorate graduates	94.2	100.0	136.7
Population with tertiary education	143.1	163.4	170.9
Lifelong learning	75.5	77.1	77.1
Attractive research systems	**128.5**	**147.9**	**144.7**
International scientific co-publications	176.3	189.8	256.4
Most cited publications	116.6	127.2	127.7
Foreign doctorate students	187.4	152.6	179.2
Innovation-friendly environment	**106.4**	**173.0**	**168.2**
Broadband penetration	161.1	177.8	322.2
Opportunity-driven entrepreneurship	48.9	169.8	63.3
Finance and support	**108.3**	**95.5**	**118.4**
R&D expenditure in the public sector	130.3	90.7	120.5
Venture capital expenditures	89.7	101.1	115.9
Firm investments	**119.6**	**123.0**	**142.6**
R&D expenditure in the business sector	130.0	116.3	148.9
Non-R&D innovation expenditures	62.1	83.5	72.6
Enterprises providing ICT training	168.4	173.3	213.3
Innovators	**148.8**	**130.7**	**135.2**
SMEs product/process innovations	148.9	132.5	144.6
SMEs marketing/organizational innovations	137.6	114.1	117.5
SMEs innovating in-house	159.4	145.7	143.5
Linkages	**157.7**	**151.6**	**163.8**
Innovative SMEs collaborating with others	196.5	210.9	209.8
Public-private co-publications	148.4	142.2	174.2
Private co-funding of public R&D exp.	130.9	112.2	125.7
Intellectual assets	**89.7**	**97.8**	**87.2**
PCT patent applications	98.1	94.4	89.3
Trademark applications	104.6	108.7	116.6
Design applications	66.3	92.2	61.1
Employment impacts	**76.4**	**74.7**	**79.8**
Employment in knowledge-intensive activities	116.5	126.9	126.9
Employment fast-growing enterprises	45.2	36.9	45.8
Sales impacts	**100.1**	**81.1**	**103.1**
Medium and high-tech product exports	79.2	80.8	85.4
Knowledge-intensive services exports	100.6	97.4	103.8
Sales of new-to-market/firm innovations	127.0	62.8	123.2

The colours show normalised performance in 2018 relative to that of the EU in 2018: dark green: above 120%; light green: between 90% and 120%; yellow: between 50% and 90%; orange: below 50%. Normalised performance uses the data after a possible imputation of missing data and transformation of the data.

	BE	EU
Performance and structure of the economy		
GDP per capita (PPS)	34,600	29,500
Average annual GDP growth (%)	1.5	2.2
Employment share manufacturing (NACE C) (%)	12.6	15.5
of which High and medium high-tech (%)	35.1	37.5
Employment share services (NACE G-N) (%)	40.2	41.8
of which Knowledge-intensive services (%)	36.5	35.0
Turnover share SMEs (%)	39.8	37.9
Turnover share large enterprises (%)	35.7	44.4
Foreign-controlled enterprises – share of value added (%)	13.1	12.6
Business and entrepreneurship		
Enterprise births (10+ employees) (%)	0.6	1.5
Total Entrepreneurial Activity (TEA) (%)	6.2	6.7
FDI net inflows (% GDP)	2.1	4.3
Top R&D spending enterprises per 10 million population	29.2	19.6
Buyer sophistication (1 to 7 best)	4.4	3.7
Governance and policy framework		
Ease of starting a business (0 to 100 best)	71.9	76.8
Basic-school entrepren. education and training (1 to 5 best)	2.0	1.9
Govt. procurement of advanced tech products (1 to 7 best)	3.5	3.5
Rule of law (-2.5 to 2.5 best)	1.4	1.2
Demography		
Population size (millions)	11.4	511.3
Average annual population growth (%)	0.4	0.2
Population density (inhabitants/km2)	373.0	117.5

EU targets for 2020

Indicator	2014	Latest	Target[1]
Gross domestic expenditure on R&D (% of GDP)	2.39	2.58	3.00
Tertiary educational attainment (% of population aged 30-34)	43.8	47.6	47.0

1 Sources are provided in the introduction to the country profiles.

European Semester country report and country specific recommendations:

https://rio.jrc.ec.europa.eu/en/library/research-and-innovation-analysis-european-semester-2019-country-reports

https://rio.jrc.ec.europa.eu/en/library/country-specific-recommendations-2019-research-and-innovation-analysis

Denmark is an **Innovation Leader.** Over time, performance has remained the same compared to that of the EU in 2011.

■ Relative to EU in 2011   ◆ Relative to EU in 2018

Attractive research systems, Innovation-friendly environment and *Human resources* are the strongest innovation dimensions. Denmark scores particularly well on Public-private co-publications, International scientific co-publications, and Lifelong learning. *Sales impacts* and *Innovators* are the weakest innovation dimensions. Overall, Denmark's lowest indicator scores comprise Sales of new-to-market and new-to-firm product innovations, Non-R&D innovation expenditures, and Venture capital expenditures.

Structural differences with the EU are shown in the table below. GDP per capita and top R&D spending enterprises per 10 million population are well above the EU average. Enterprise births and FDI net inflows are well below the EU average.

Denmark	Relative to EU 2018 in 2018	Performance relative to EU 2011 in 2011	2018
SUMMARY INNOVATION INDEX	**129.5**	**140.7**	**140.9**
Human resources	**180.4**	**192.5**	**220.6**
New doctorate graduates	157.2	146.2	228.3
Population with tertiary education	143.1	167.2	170.9
Lifelong learning	262.2	267.7	267.7
Attractive research systems	**183.8**	**160.0**	**207.0**
International scientific co-publications	265.1	257.0	385.6
Most cited publications	143.5	144.1	157.1
Foreign doctorate students	174.0	120.2	166.4
Innovation-friendly environment	**182.3**	**244.6**	**288.1**
Broadband penetration	177.8	266.7	355.6
Opportunity-driven entrepreneurship	187.0	229.6	242.2
Finance and support	**106.7**	**128.2**	**116.7**
R&D expenditure in the public sector	174.7	141.1	161.6
Venture capital expenditures	49.1	112.9	63.5
Firm investments	**104.5**	**119.7**	**124.6**
R&D expenditure in the business sector	145.7	166.1	166.9
Non-R&D innovation expenditures	45.3	45.9	52.9
Enterprises providing ICT training	126.3	153.3	160.0
Innovators	**95.7**	**103.4**	**86.9**
SMEs product/process innovations	96.1	109.1	93.3
SMEs marketing/organizational innovations	114.2	100.2	97.5
SMEs innovating in-house	77.5	100.9	69.8
Linkages	**139.2**	**175.5**	**144.6**
Innovative SMEs collaborating with others	109.8	215.5	117.2
Public-private co-publications	315.1	349.3	369.7
Private co-funding of public R&D exp.	70.5	71.5	67.7
Intellectual assets	**163.8**	**152.4**	**159.3**
PCT patent applications	175.1	171.7	159.3
Trademark applications	142.6	135.2	158.9
Design applications	173.2	146.5	159.7
Employment impacts	**100.7**	**127.3**	**105.1**
Employment in knowledge-intensive activities	110.6	120.5	120.5
Employment fast-growing enterprises	93.0	132.1	94.0
Sales impacts	**75.3**	**91.2**	**77.6**
Medium and high-tech product exports	79.8	68.1	86.1
Knowledge-intensive services exports	112.8	123.1	116.4
Sales of new-to-market/firm innovations	23.7	82.0	22.9

The colours show normalised performance in 2018 relative to that of the EU in 2018: dark green: above 120%; light green: between 90% and 120%; yellow: between 50% and 90%; orange: below 50%. Normalised performance uses the data after a possible imputation of missing data and transformation of the data.

	DK	EU
Performance and structure of the economy		
GDP per capita (PPS)	37,400	29,500
Average annual GDP growth (%)	1.8	2.2
Employment share manufacturing (NACE C) (%)	11.8	15.5
of which High and medium high-tech (%)	42.9	37.5
Employment share services (NACE G-N) (%)	41.4	41.8
of which Knowledge-intensive services (%)	34.8	35.0
Turnover share SMEs (%)	40.7	37.9
Turnover share large enterprises (%)	40.7	44.4
Foreign-controlled enterprises – share of value added (%)	10.6	12.6
Business and entrepreneurship		
Enterprise births (10+ employees) (%)	0.5	1.5
Total Entrepreneurial Activity (TEA) (%)	n/a	6.7
FDI net inflows (% GDP)	1.3	4.3
Top R&D spending enterprises per 10 million population	63.1	19.6
Buyer sophistication (1 to 7 best)	3.7	3.7
Governance and policy framework		
Ease of starting a business (0 to 100 best)	84.0	76.8
Basic-school entrepreneurial education and training (1 to 5 best)	n/a	1.9
Govt. procurement of advanced tech products (1 to 7 best)	3.5	3.5
Rule of law (-2.5 to 2.5 best)	1.9	1.2
Demography		
Population size (millions)	5.7	511.3
Average annual population growth (%)	0.6	0.2
Population density (inhabitants/km2)	135.4	117.5

EU targets for 2020

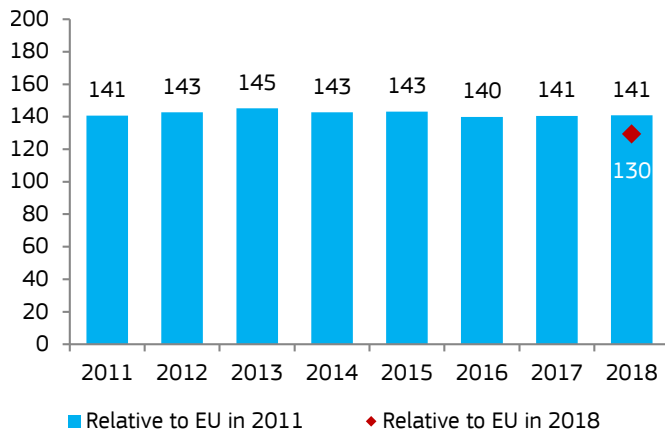| Indicator	2014	Latest	Target[1]
Gross domestic expenditure on R&D (% of GDP)	2.91	3.05	3.00
Tertiary educational attainment (% of population aged 30-34)	44.9	49.1	40.0

1 Sources are provided in the introduction to the country profiles.

European Semester country report and country specific recommendations:

https://rio.jrc.ec.europa.eu/en/library/research-and-innovation-analysis-european-semester-2019-country-reports

https://rio.jrc.ec.europa.eu/en/library/country-specific-recommendations-2019-research-and-innovation-analysis

The Netherlands is an **Innovation Leader**. Over time, performance has increased relative to that of the EU in 2011.

■ Relative to EU in 2011   ◆ Relative to EU in 2018

Attractive research systems, Innovation-friendly environment and *Linkages* are the strongest innovation dimensions. The Netherlands scores particularly well on Foreign doctorate students, International scientific co-publications, and Public-private co-publications. *Firm investments* and *Sales impacts* are the weakest innovation dimensions. Overall, the Netherlands' lowest indicator scores comprise Non-R&D innovation expenditures, Sales of new-to-market and new-to-firm product innovations, and Medium and high-tech product exports.

Structural differences with the EU are shown in the table below. The Netherlands scores high on various economic indicators. GDP per capita, the turnover share of SMEs, total entrepreneurial activity, FDI net inflows, and top R&D spending enterprises per 10 million population are well above the EU average. The employment share in high and medium high-tech manufacturing and enterprise births are well below the EU average.

Netherlands	Relative to EU 2018 in 2018	Performance relative to EU 2011 in 2011	2018
SUMMARY INNOVATION INDEX	**124.0**	**118.9**	**135.0**
Human resources	**142.1**	**152.8**	**173.7**
New doctorate graduates	107.9	130.8	156.7
Population with tertiary education	148.1	153.0	176.9
Lifelong learning	183.7	175.0	187.5
Attractive research systems	**170.0**	**172.4**	**191.4**
International scientific co-publications	191.8	198.4	279.0
Most cited publications	142.5	154.5	156.0
Foreign doctorate students	197.4	183.1	188.7
Innovation-friendly environment	**166.6**	**196.4**	**263.4**
Broadband penetration	172.2	166.7	344.4
Opportunity-driven entrepreneurship	160.7	216.7	208.2
Finance and support	**118.4**	**107.2**	**129.4**
R&D expenditure in the public sector	128.3	122.4	118.7
Venture capital expenditures	110.0	89.2	142.2
Firm investments	**71.2**	**81.9**	**84.9**
R&D expenditure in the business sector	85.8	88.8	98.3
Non-R&D innovation expenditures	13.9	77.0	16.2
Enterprises providing ICT training	115.8	80.0	146.7
Innovators	**125.7**	**76.8**	**114.1**
SMEs product/process innovations	153.3	87.0	148.8
SMEs marketing/organizational innovations	84.0	61.5	71.7
SMEs innovating in-house	135.4	81.9	122.0
Linkages	**143.5**	**149.0**	**149.1**
Innovative SMEs collaborating with others	124.5	118.0	132.9
Public-private co-publications	187.1	227.8	219.5
Private co-funding of public R&D exp.	136.1	137.8	130.6
Intellectual assets	**124.3**	**120.2**	**120.8**
PCT patent applications	156.5	149.5	142.3
Trademark applications	117.4	124.0	130.8
Design applications	98.2	86.7	90.5
Employment impacts	**113.8**	**120.5**	**118.8**
Employment in knowledge-intensive activities	134.1	146.2	146.2
Employment fast-growing enterprises	98.0	102.0	99.1
Sales impacts	**92.7**	**84.3**	**95.5**
Medium and high-tech product exports	82.6	71.2	89.1
Knowledge-intensive services exports	118.9	122.0	122.7
Sales of new-to-market/firm innovations	74.0	56.4	71.8

The colours show normalised performance in 2018 relative to that of the EU in 2018: dark green: above 120%; light green: between 90% and 120%; yellow: between 50% and 90%; orange: below 50%. Normalised performance uses the data after a possible imputation of missing data and transformation of the data.

	NL	EU
Performance and structure of the economy		
GDP per capita (PPS)	37,900	29,500
Average annual GDP growth (%)	2.7	2.2
Employment share manufacturing (NACE C) (%)	10.3	15.5
of which High and medium high-tech (%)	30.3	37.5
Employment share services (NACE G-N) (%)	46.5	41.8
of which Knowledge-intensive services (%)	39.6	35.0
Turnover share SMEs (%)	47.7	37.9
Turnover share large enterprises (%)	37.3	44.4
Foreign-controlled enterprises – share of value added (%)	13.5	12.6
Business and entrepreneurship		
Enterprise births (10+ employees) (%)	0.9	1.5
Total Entrepreneurial Activity (TEA) (%)	11.1	6.7
FDI net inflows (% GDP)	27.7	4.3
Top R&D spending enterprises per 10 million population	29.0	19.6
Buyer sophistication (1 to 7 best)	4.4	3.7
Governance and policy framework		
Ease of starting a business (0 to 100 best)	75.7	76.8
Basic-school entrepren. education and training (1 to 5 best)	3.3	1.9
Govt. procurement of advanced tech products (1 to 7 best)	4.0	3.5
Rule of law (-2.5 to 2.5 best)	1.9	1.2
Demography		
Population size (millions)	17.1	511.3
Average annual population growth (%)	0.6	0.2
Population density (inhabitants/km2)	500.8	117.5

EU targets for 2020

Indicator	2014	Latest	Target[1]
Gross domestic expenditure on R&D (% of GDP)	1.98	1.99	2.50
Tertiary educational attainment (% of population aged 30-34)	44.8	49.4	40.0

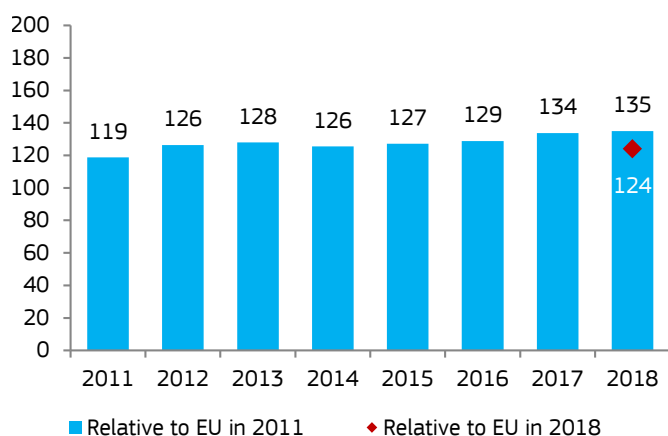*1 Sources are provided in the introduction to the country profiles.*

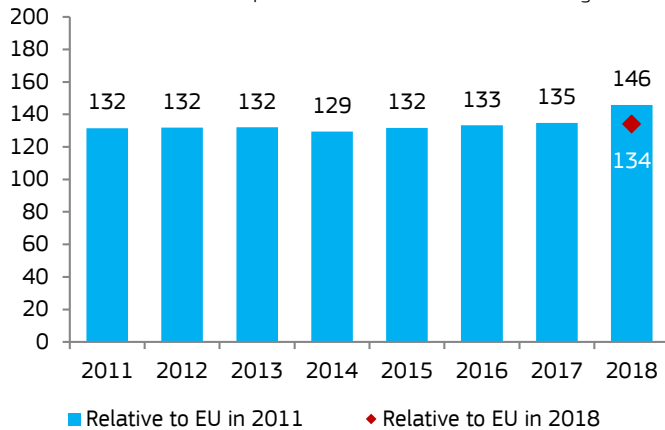**European Semester country report and country specific recommendations:**

https://rio.jrc.ec.europa.eu/en/library/research-and-innovation-analysis-european-semester-2019-country-reports

https://rio.jrc.ec.europa.eu/en/library/country-specific-recommendations-2019-research-and-innovation-analysis

Finland is an **Innovation Leader**. Over time, performance has increased relative to that of the EU in 2011. The strong increase in 2018 is almost entirely explained by improved performance on the indicators using CIS data.

Innovation-friendly environment, Innovators and *Human resources* are the strongest innovation dimensions. Performance on Lifelong learning, PCT patent applications, and International scientific co-publications is well above the EU average. *Employment impact*s and *Sales impacts* are the weakest innovation dimensions. Finland's lowest indicator scores are on Employment fast-growing enterprises of innovative sectors, Medium and high-tech product exports, and Venture capital expenditures.

Structural differences with the EU are shown in the table below. All indicators are close to the EU average, except for the share of enterprise births, which is well below the EU average, and top R&D spending enterprises per 10 million population, which is well above the EU average.

Finland	Relative to EU 2018 in 2018	Performance relative to EU 2011 in 2011	Performance relative to EU 2011 in 2018
SUMMARY INNOVATION INDEX	**134.0**	**131.6**	**145.9**
Human resources	**157.0**	**176.8**	**192.0**
New doctorate graduates	128.8	184.6	187.0
Population with tertiary education	102.5	123.1	122.4
Lifelong learning	268.4	228.1	274.0
Attractive research systems	**135.4**	**108.6**	**152.5**
International scientific co-publications	202.8	199.4	295.0
Most cited publications	112.8	107.9	123.5
Foreign doctorate students	107.8	49.0	103.1
Innovation-friendly environment	**182.3**	**161.2**	**288.1**
Broadband penetration	177.8	222.2	355.6
Opportunity-driven entrepreneurship	187.0	119.6	242.2
Finance and support	**113.6**	**158.5**	**124.2**
R&D expenditure in the public sector	152.5	161.6	141.1
Venture capital expenditures	80.6	154.8	104.3
Firm investments	**129.8**	**174.1**	**154.7**
R&D expenditure in the business sector	133.0	220.2	152.4
Non-R&D innovation expenditures	88.9	83.5	103.8
Enterprises providing ICT training	168.4	226.7	213.3
Innovators	**168.2**	**111.2**	**152.7**
SMEs product/process innovations	174.9	124.5	169.8
SMEs marketing/organizational innovations	136.6	71.3	116.6
SMEs innovating in-house	191.1	138.2	172.1
Linkages	**152.0**	**158.1**	**157.9**
Innovative SMEs collaborating with others	189.1	141.4	201.9
Public-private co-publications	202.2	234.6	237.2
Private co-funding of public R&D exp.	95.3	137.3	91.5
Intellectual assets	**151.8**	**142.4**	**147.6**
PCT patent applications	219.4	212.8	199.5
Trademark applications	137.1	115.4	152.7
Design applications	97.5	91.8	89.9
Employment impacts	**80.2**	**86.4**	**83.7**
Employment in knowledge-intensive activities	123.5	121.8	134.6
Employment fast-growing enterprises	46.5	60.8	47.0
Sales impacts	**85.4**	**80.2**	**88.0**
Medium and high-tech product exports	67.5	67.2	72.9
Knowledge-intensive services exports	106.6	56.4	109.9
Sales of new-to-market/firm innovations	83.1	123.1	80.6

The colours show normalised performance in 2018 relative to that of the EU in 2018: dark green: above 120%; light green: between 90% and 120%; yellow: between 50% and 90%; orange: below 50%. Normalised performance uses the data after a possible imputation of missing data and transformation of the data.

	FI	EU
Performance and structure of the economy		
GDP per capita (PPS)	32,100	29,500
Average annual GDP growth (%)	2.5	2.2
Employment share manufacturing (NACE C) (%)	13.4	15.5
of which High and medium high-tech (%)	36.1	37.5
Employment share services (NACE G-N) (%)	40.0	41.8
of which Knowledge-intensive services (%)	39.3	35.0
Turnover share SMEs (%)	40.1	37.9
Turnover share large enterprises (%)	44.3	44.4
Foreign-controlled enterprises – share of value added (%)	9.5	12.6
Business and entrepreneurship		
Enterprise births (10+ employees) (%)	0.4	1.5
Total Entrepreneurial Activity (TEA) (%)	6.7	6.7
FDI net inflows (% GDP)	4.9	4.3
Top R&D spending enterprises per 10 million population	67.4	19.6
Buyer sophistication (1 to 7 best)	4.6	3.7
Governance and policy framework		
Ease of starting a business (0 to 100 best)	80.4	76.8
Basic-school entrepren. education and training (1 to 5 best)	2.4	1.9
Govt. procurement of advanced tech products (1 to 7 best)	3.9	3.5
Rule of law (-2.5 to 2.5 best)	2.0	1.2
Demography		
Population size (millions)	5.5	511.3
Average annual population growth (%)	0.2	0.2
Population density (inhabitants/km2)	18.1	117.5

EU targets for 2020

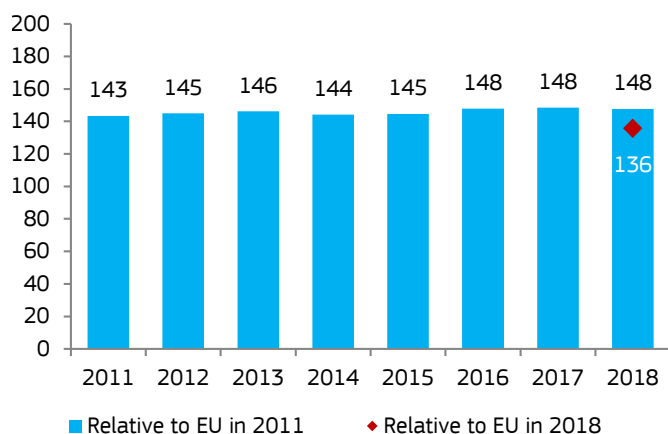| Indicator	2014	Latest	Target[1]
Gross domestic expenditure on R&D (% of GDP)	3.17	2.76	4.00
Tertiary educational attainment (% of population aged 30-34)	45.3	44.2	42.0

1 Sources are provided in the introduction to the country profiles.

European Semester country report and country specific recommendations:

https://rio.jrc.ec.europa.eu/en/library/research-and-innovation-analysis-european-semester-2019-country-reports

https://rio.jrc.ec.europa.eu/en/library/country-specific-recommendations-2019-research-and-innovation-analysis

Sweden is an **Innovation Leader.** Over time, performance has increased relative to that of the EU in 2011.

Human resources, *Innovation-friendly environment* and *Attractive research systems* are the strongest innovation dimensions. Sweden scores high on Public-private co-publications, Lifelong learning, and International scientific co-publications. *Sales impacts* is the weakest innovation dimension. Low-scoring indicators include Sales of new-to-market and new-to-firm product innovations, Venture capital expenditures, and Private co-funding of public R&D expenditure.

■ Relative to EU in 2011   ◆ Relative to EU in 2018

Structural differences with the EU are shown in the table below. GDP per capita and top R&D spending enterprises per 10 million population are well above the EU average. The employment share in manufacturing, enterprise births, and FDI net inflows are well below the EU average.

Sweden	Relative to EU 2018 in 2018	Performance relative to EU 2011 in 2011	Performance relative to EU 2011 in 2018
SUMMARY INNOVATION INDEX	**135.8**	**143.4**	**147.7**
Human resources	**174.9**	**205.0**	**213.9**
New doctorate graduates	133.2	207.7	193.4
Population with tertiary education	149.4	165.7	178.4
Lifelong learning	268.4	245.8	274.0
Attractive research systems	**166.2**	**151.5**	**187.2**
International scientific co-publications	239.2	241.4	347.9
Most cited publications	121.0	125.3	132.5
Foreign doctorate students	173.7	132.7	166.1
Innovation-friendly environment	**172.3**	**232.7**	**272.4**
Broadband penetration	177.8	244.4	355.6
Opportunity-driven entrepreneurship	166.6	224.7	215.7
Finance and support	**109.3**	**141.8**	**119.5**
R&D expenditure in the public sector	158.5	154.2	146.7
Venture capital expenditures	67.5	127.2	87.3
Firm investments	**124.3**	**138.7**	**148.1**
R&D expenditure in the business sector	179.4	187.5	205.6
Non-R&D innovation expenditures	92.4	104.0	107.9
Enterprises providing ICT training	105.3	126.7	133.3
Innovators	**115.4**	**113.3**	**104.8**
SMEs product/process innovations	115.1	119.9	111.7
SMEs marketing/organizational innovations	102.8	89.1	87.7
SMEs innovating in-house	127.8	131.0	115.0
Linkages	**147.3**	**155.5**	**153.0**
Innovative SMEs collaborating with others	112.8	153.5	120.4
Public-private co-publications	314.5	306.5	369.0
Private co-funding of public R&D exp.	87.4	92.0	83.8
Intellectual assets	**156.2**	**149.8**	**151.9**
PCT patent applications	234.0	212.8	212.8
Trademark applications	132.5	126.3	147.6
Design applications	100.4	103.7	92.6
Employment impacts	**134.5**	**136.9**	**140.5**
Employment in knowledge-intensive activities	150.6	143.6	164.1
Employment fast-growing enterprises	122.0	132.0	123.4
Sales impacts	**88.0**	**91.7**	**90.6**
Medium and high-tech product exports	94.9	100.1	102.4
Knowledge-intensive services exports	106.2	111.1	109.6
Sales of new-to-market/firm innovations	56.6	59.5	54.9

The colours show normalised performance in 2018 relative to that of the EU in 2018: dark green: above 120%; light green: between 90% and 120%; yellow: between 50% and 90%; orange: below 50%. Normalised performance uses the data after a possible imputation of missing data and transformation of the data.

	SE	EU
Performance and structure of the economy		
GDP per capita (PPS)	36,100	29,500
Average annual GDP growth (%)	2.2	2.2
Employment share manufacturing (NACE C) (%)	10.3	15.5
of which High and medium high-tech (%)	42.5	37.5
Employment share services (NACE G-N) (%)	41.3	41.8
of which Knowledge-intensive services (%)	44.0	35.0
Turnover share SMEs (%)	38.4	37.9
Turnover share large enterprises (%)	43.0	44.4
Foreign-controlled enterprises – share of value added (%)	13.5	12.6
Business and entrepreneurship		
Enterprise births (10+ employees) (%)	0.4	1.5
Total Entrepreneurial Activity (TEA) (%)	7.2	6.7
FDI net inflows (% GDP)	3.0	4.3
Top R&D spending enterprises per 10 million population	81.8	19.6
Buyer sophistication (1 to 7 best)	4.6	3.7
Governance and policy framework		
Ease of starting a business (0 to 100 best)	81.1	76.8
Basic-school entrepren. education and training (1 to 5 best)	2.4	1.9
Govt. procurement of advanced tech products (1 to 7 best)	4.0	3.5
Rule of law (-2.5 to 2.5 best)	2.0	1.2
Demography		
Population size (millions)	10.0	511.3
Average annual population growth (%)	1.4	0.2
Population density (inhabitants/km2)	24.4	117.5

EU targets for 2020

Indicator	2014	Latest	Target[1]
Gross domestic expenditure on R&D (% of GDP)	3.14	3.40	4.00
Tertiary educational attainment (% of population aged 30-34)	49.9	52.0	45.0

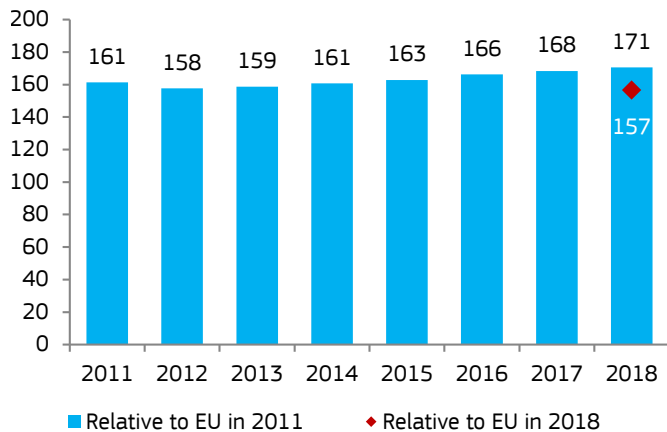*1 Sources are provided in the introduction to the country profiles.*

European Semester country report and country specific recommendations:

https://rio.jrc.ec.europa.eu/en/library/research-and-innovation-analysis-european-semester-2019-country-reports

https://rio.jrc.ec.europa.eu/en/library/country-specific-recommendations-2019-research-and-innovation-analysis

Switzerland is an **Innovation Leader**. Over time, performance has increased relative to that of the EU in 2011.

■ Relative to EU in 2011   ◆ Relative to EU in 2018

Attractive research systems, *Human resources* and *Firm investments* are the strongest innovation dimensions. Switzerland scores particularly well on Public-private co-publications, Foreign doctorate students, and Lifelong learning. *Employment impacts* and *Sales impacts* are the weakest innovation dimensions. Overall, Switzerland's lowest indicator scores comprise Employment fast-growing enterprises of innovative sectors, Innovative SMEs collaborating with others, and Medium and high-tech product exports.

Structural differences with the EU are shown in the table below. For several indicators data are not available. Many economic indicators are well above the EU average, including GDP per capita, the employment share in knowledge-intensive services, FDI net inflows, top R&D spending enterprises per 10 million population, and buyer sophistication. However, enterprise births is well below the EU average.

Switzerland	Relative to EU 2018 in 2018	Performance relative to EU 2011 in 2011	Performance relative to EU 2011 in 2018
SUMMARY INNOVATION INDEX	**156.7**	**161.4**	**170.6**
Human resources	**195.5**	**229.3**	**239.0**
New doctorate graduates	170.7	269.2	247.9
Population with tertiary education	166.9	152.2	199.3
Lifelong learning	268.4	274.0	274.0
Attractive research systems	**207.9**	**226.1**	**234.2**
International scientific co-publications	265.1	385.6	385.6
Most cited publications	141.9	157.1	155.4
Foreign doctorate students	268.8	228.4	257.1
Innovation-friendly environment §	**147.0**	**175.4**	**232.4**
Broadband penetration	N/A	N/A	N/A
Opportunity-driven entrepreneurship	150.8	147.5	195.3
Finance and support	**134.9**	**84.7**	**147.6**
R&D expenditure in the public sector	150.5	105.6	139.2
Venture capital expenditures	121.8	60.0	157.5
Firm investments §	**175.0**	**172.6**	**208.7**
R&D expenditure in the business sector	177.1	193.6	203.0
Non-R&D innovation expenditures	176.1	146.1	205.6
Enterprises providing ICT training	N/A	N/A	N/A
Innovators	**157.2**	**143.7**	**142.8**
SMEs product/process innovations	139.3	169.8	135.2
SMEs marketing/organizational innovations	190.5	170.0	162.6
SMEs innovating in-house	144.7	90.7	130.3
Linkages	**158.6**	**163.8**	**164.7**
Innovative SMEs collaborating with others	79.6	82.2	85.0
Public-private co-publications	315.1	369.7	369.7
Private co-funding of public R&D exp.	140.5	134.8	134.8
Intellectual assets	**173.4**	**187.5**	**168.6**
PCT patent applications	191.1	188.6	173.8
Trademark applications	186.4	223.8	207.6
Design applications	142.4	156.7	131.3
Employment impacts	**112.3**	**106.9**	**117.2**
Employment in knowledge-intensive activities	184.7	175.6	201.3
Employment fast-growing enterprises	55.9	57.3	56.6
Sales impacts	**115.8**	**130.6**	**119.2**
Medium and high-tech product exports	88.5	125.7	95.5
Knowledge-intensive services exports	102.5	97.5	105.7
Sales of new-to-market/firm innovations	167.9	174.5	162.9

The colours show normalised performance in 2018 relative to that of the EU in 2018: dark green: above 120%; light green: between 90% and 120%; yellow: between 50% and 90%; orange: below 50%. Normalised performance uses the data after a possible imputation of missing data and transformation of the data.

§ Due to missing data, the relative dimension score does not necessarily reflect that of the indicators.

	CH	EU
Performance and structure of the economy		
GDP per capita (PPS)	47,200	29,500
Average annual GDP growth (%)	2.1	2.2
Employment share manufacturing (NACE C) (%)	12.9	15.5
of which High and medium high-tech (%)	44.6	37.5
Employment share services (NACE G-N) (%)	45.1	41.8
of which Knowledge-intensive services (%)	45.7	35.0
Turnover share SMEs (%)	n/a	37.9
Turnover share large enterprises (%)	n/a	44.4
Foreign-controlled enterprises – share of value added (%)	n/a	12.6
Business and entrepreneurship		
Enterprise births (10+ employees) (%)	0.2	1.5
Total Entrepreneurial Activity (TEA) (%)	8.0	6.7
FDI net inflows (% GDP)	10.6	4.3
Top R&D spending enterprises per 10 million population	67.6	19.6
Buyer sophistication (1 to 7 best)	5.0	3.7
Governance and policy framework		
Ease of starting a business (0 to 100 best)	75.6	76.8
Basic-school entrepren. education and training (1 to 5 best)	2.2	1.9
Govt. procurement of advanced tech products (1 to 7 best)	3.8	3.5
Rule of law (-2.5 to 2.5 best)	1.9	1.2
Demography		
Population size (millions)	8.4	511.3
Average annual population growth (%)	0.9	0.2
Population density (inhabitants/km2)	209.7	117.5

APPENDIX III: PROFIELEN VAN BENCHMARKREGIO'S, HET VLAAMS GEWEST EN BHG

Regional Innovation Scoreboard 2019

Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest (BE1)

	Data	Norm alised score	Relative to BE	Relative to EU
Tertiary education	54.4	0.720	127	157
Lifelong learning	12.6	0.363	152	117
International scientific co-publications	3146	1.000	136	174
Most-cited scientific publications	0.108	0.527	87	97
R&D expenditures public sector	0.78	0.612	102	107
R&D expenditures business sector	1.05	0.518	75	88
Non-R&D innovation expenditures	±	0.508	±	±
Product/process innovations	±	0.732	±	±
Marketing/ org. innovations	±	0.637	±	±
SMEs innovating in-house	±	0.704	±	±
Innovative SMEs collaborating	±	0.748	±	±
Public-private co-publications	88.0	0.599	105	147
PCT patent applications	2.29	0.217	55	51
Trademark applications	8.38	0.595	128	134
Design applications	1.11	0.236	64	48
Employment MHT manuf./KIS services	16.7	0.558	117	111
Sales new-to-market/firm innovations	±	0.962	±	±
Average score	--	0.602	--	--
Country EIS-RIS correction factor	--	*0.984*	--	--
Regional Innovation Index 2019	--	0.592	--	--
RII 2019 (same year)	--	--	105.6	121.9
RII 2019 (cf. to EU 2011)	--	--	--	127.7
Regional Innovation Index 2011	--	0.530	--	--
RII 2011 (same year)	--	--	98.1	114.2
RII - change between 2011 and 2019	--	13.5	--	--

± Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.
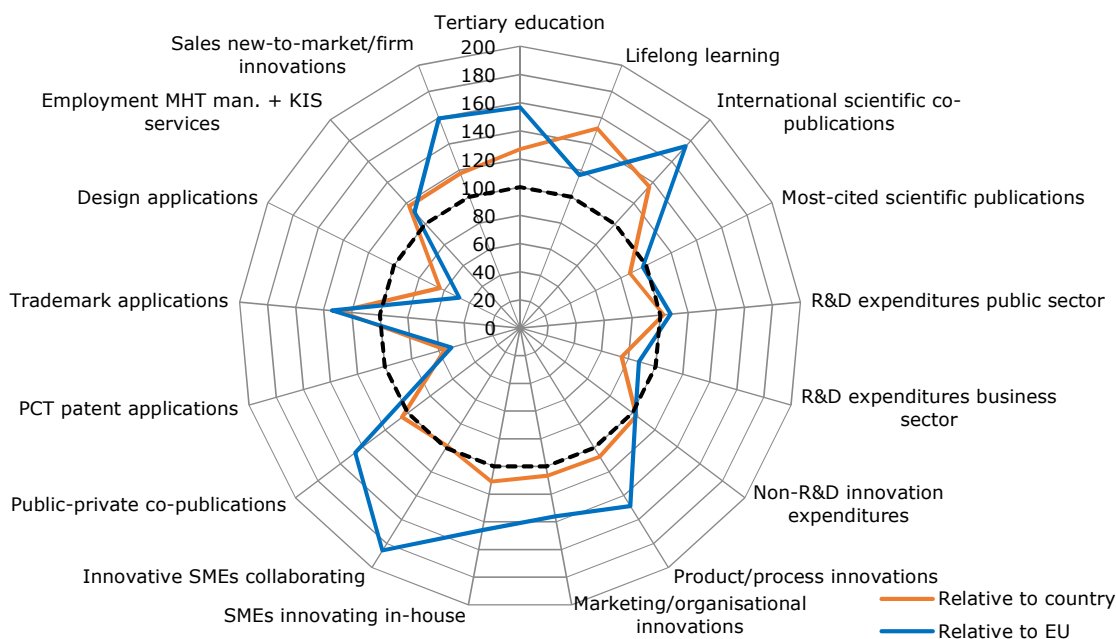
Brussels (BE1) is an **Innovation Leader -**; innovation performance has increased over time (13.5%).
The table on the left shows the normalised scores per indicator and relative results compared to Belgium and the EU. The table also shows the Regional Innovation Index (RII) in 2019 compared to that of Belgium and the EU in 2019, the RII in 2019 compared to that of the EU in 2011, and performance change over time between 2011 and 2019.
The radar graph shows relative strengths compared to Belgium (orange line) and the EU (blue line), showing relative strengths (e.g. Innovative SMEs collaborating) and weaknesses (e.g. Design applications).
The table below shows data highlighting possible structural differences, e.g. Population density (above average) and Employment in Agriculture & Mining (below average).

	BE1	BE	EU28
Share of employment in:			
Agriculture & Mining (A-B)	0.0	1.2	4.6
Manufacturing (C)	4.9	12.7	15.4
Utilities & Construction (D-F)	7.5	8.4	8.2
Services (G-N)	72.6	68.2	64.1
Public administration (O-U)	14.8	9.4	7.0
Average employed persons per enterprise (firm size), 2015-2016	4.4	4.4	5.5
GDP per capita (PPS), 2017	58,700	35,000	30,000
GDP per capita growth (PPS), 2013-2017	0.83	2.19	2.86
Population density, 2017	7422	374	118
Urbanisation, 2018	100.0	88.1	76.0
Population size, 2018 (000s)	1,210	11,400	512,380

Regional Innovation Scoreboard 2019

Vlaams Gewest (BE2)

	Data	Normalised score	Relative to	
			BE	EU
Tertiary education	46.4	0.576	102	125
Lifelong learning	8.7	0.245	103	79
International scientific co-publications	1862	0.769	105	134
Most-cited scientific publications	0.133	0.648	107	120
R&D expenditures public sector	0.80	0.621	104	109
R&D expenditures business sector	1.95	0.724	105	123
Non-R&D innovation expenditures	±	0.499	±	±
Product/process innovations	±	0.680	±	±
Marketing/ org. innovations	±	0.586	±	±
SMEs innovating in-house	±	0.627	±	±
Innovative SMEs collaborating	±	0.823	±	±
Public-private co-publications	90.4	0.607	106	149
PCT patent applications	4.58	0.443	113	104
Trademark applications	6.56	0.463	100	105
Design applications	3.15	0.413	112	84
Employment MHT manuf./KIS services	15.6	0.513	108	102
Sales new-to-market/firm innovations	±	0.787	±	±
Average score	--	0.590	--	--
Country EIS-RIS correction factor	--	*0.984*	--	--
Regional Innovation Index 2019	--	0.580	--	--
RII 2019 (same year)	--	--	103.5	119.4
RII 2019 (cf. to EU 2011)	--	--	--	125.1
Regional Innovation Index 2011	--	0.570	--	--
RII 2011 (same year)	--	--	105.6	122.9
RII - change between 2011 and 2019	--	2.2	--	--

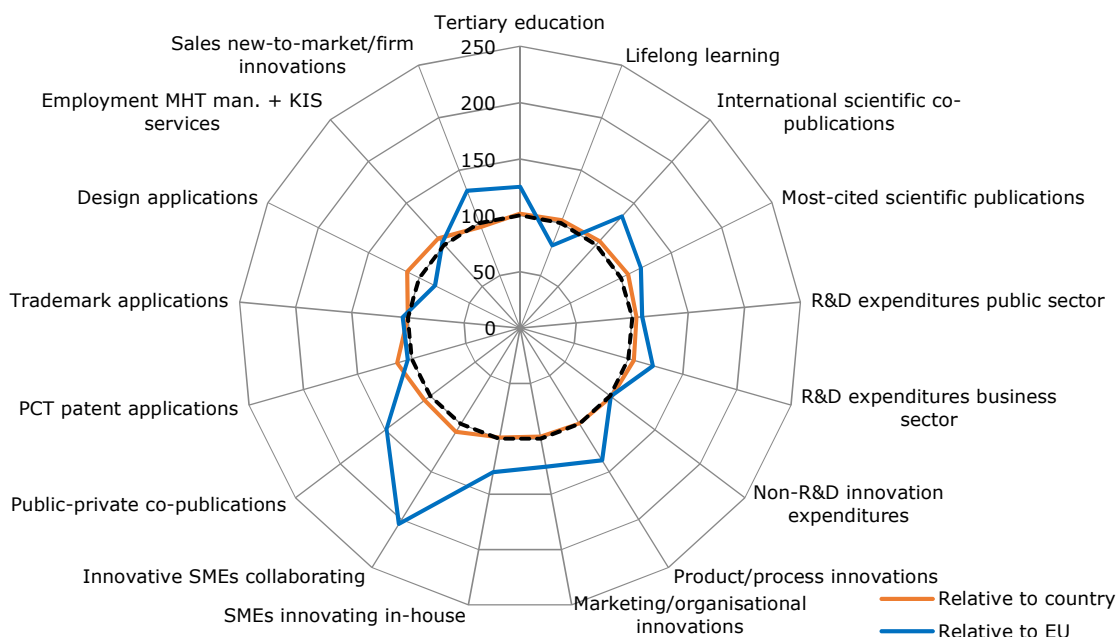± Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.

Vlaams Gewest (BE2) is a **Strong + Innovator**; innovation performance has increased over time (2.2%).

The table on the left shows the normalised scores per indicator and relative results compared to Belgium and the EU. The table also shows the Regional Innovation Index (RII) in 2019 compared to that of Belgium and the EU in 2019, the RII in 2019 compared to that of the EU in 2011, and performance change over time between 2011 and 2019.

The radar graph shows relative strengths compared to Belgium (orange line) and the EU (blue line), showing relative strengths (e.g. Innovative SMEs collaborating) and weaknesses (e.g. Lifelong learning).

The table below shows data highlighting possible structural differences, e.g. Population density (above average) and Employment in Agriculture & Mining (below average).

	BE2	BE	EU28
Share of employment in:			
Agriculture & Mining (A-B)	1.2	1.2	4.6
Manufacturing (C)	14.8	12.7	15.4
Utilities & Construction (D-F)	8.4	8.4	8.2
Services (G-N)	68.2	68.2	64.1
Public administration (O-U)	7.4	9.4	7.0
Average employed persons per enterprise (firm size), 2015-2016	4.4	4.4	5.5
GDP per capita (PPS), 2017	35,900	35,000	30,000
GDP per capita growth (PPS), 2013-2017	2.52	2.19	2.86
Population density, 2017	487	374	118
Urbanisation, 2018	93.0	88.1	76.0
Population size, 2018 (000s)	6,560	11,400	512,380

Regional Innovation Scoreboard 2019

Région lémanique (CH01)

	Data	Norm alised score	Relative to CH	Relative to EU
Tertiary education	53.0	0.695	101	151
Lifelong learning	27.6	0.817	88	262
International scientific co-publications	3146	1.000	106	174
Most-cited scientific publications	0.155	0.754	101	139
R&D expenditures public sector	0.93	0.676	100	118
R&D expenditures business sector	2.39	0.807	100	137
Non-R&D innovation expenditures	±	n/a	±	±
Product/process innovations	±	0.509	±	±
Marketing/ org. innovations	±	0.527	±	±
SMEs innovating in-house	±	0.461	±	±
Innovative SMEs collaborating	±	0.176	±	±
Public-private co-publications	237.1	0.983	98	241
PCT patent applications	8.90	0.747	118	175
Trademark applications	10.46	0.744	98	168
Design applications	2.98	0.401	73	82
Employment MHT manuf./KIS services	16.7	0.558	89	111
Sales new-to-market/firm innovations	±	0.303	±	±
Average score	--	0.635	--	--
Country EIS-RIS correction factor	--	*1.076*	--	--
Regional Innovation Index 2019	--	0.683	--	--
RII 2019 (same year)	--	--	89.7	140.7
RII 2019 (cf. to EU 2011)	--	--	--	147.3
Regional Innovation Index 2011	--	0.685	--	--
RII 2011 (same year)	--	--	91.5	147.7
RII - change between 2011 and 2019	--	-0.4	--	--

± Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.

Région lémanique (CH01) is an Innovation Leader +; innovation performance has decreased over time (-0.4%).
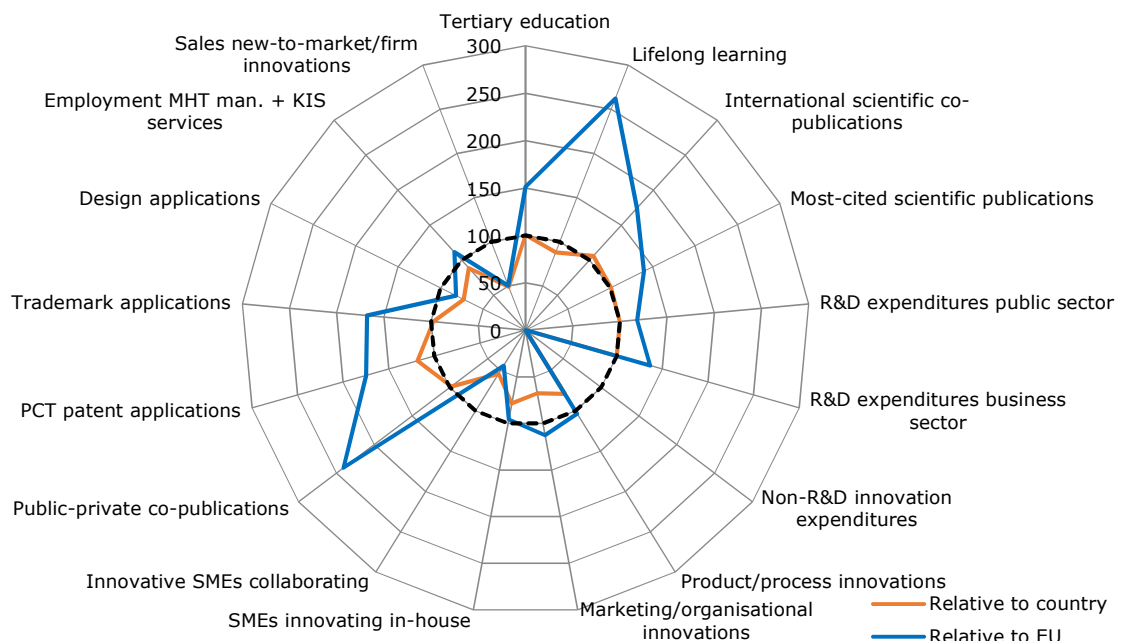
The table on the left shows the normalised scores per indicator and relative results compared to Switzerland and the EU. The table also shows the Regional Innovation Index (RII) in 2019 compared to that of Switzerland and the EU in 2019, the RII in 2019 compared to that of the EU in 2011, and performance change over time between 2011 and 2019.

The radar graph shows relative strengths compared to Switzerland (orange line) and the EU (blue line), showing relative strengths (e.g. Lifelong learning) and weaknesses (e.g. Innovative SMEs collaborating).

The table below shows data highlighting possible structural differences, e.g. Average employed persons per enterprise (above average) and Employment in Agriculture & Mining (below average).

	CH01	CH	EU28
Share of employment in:			
Agriculture & Mining (A-B)	2.4	3.2	4.6
Manufacturing (C)	8.1	12.6	15.4
Utilities & Construction (D-F)	7.3	7.5	8.2
Services (G-N)	74.1	69.4	64.1
Public administration (O-U)	5.3	4.7	7.0
Average employed persons per enterprise (firm size), 2015-2016	8.7	8.7	5.5
GDP per capita (PPS), 2017 *	45,100	46,800	30,000
GDP per capita growth (PPS), 2013-2017 *	2.90	2.30	2.86
Population density, 2017	196	212	118
Urbanisation, 2018	n/a	n/a	76.0
Population size, 2018 (000s)	1,630	8,480	512,380

* Estimates for the region

Regional Innovation Scoreboard 2019

Espace Mittelland (CH02)

	Data	Norm alised score	Relative to CH	Relative to EU
Tertiary education	50.3	0.646	94	141
Lifelong learning	30.8	0.914	99	293
International scientific co-publications	2122	0.821	87	143
Most-cited scientific publications	0.116	0.562	75	104
R&D expenditures public sector	0.93	0.676	100	118
R&D expenditures business sector	2.39	0.807	100	137
Non-R&D innovation expenditures	±	n/a	±	±
Product/process innovations	±	0.589	±	±
Marketing/ org. innovations	±	0.865	±	±
SMEs innovating in-house	±	0.586	±	±
Innovative SMEs collaborating	±	0.276	±	±
Public-private co-publications	83.4	0.583	58	143
PCT patent applications	5.17	0.491	78	115
Trademark applications	5.95	0.419	55	95
Design applications	3.42	0.432	78	88
Employment MHT manuf./KIS services	17.1	0.575	92	115
Sales new-to-market/firm innovations	±	0.494	±	±
Average score	--	0.608	--	--
Country EIS-RIS correction factor	--	*1.076*	--	--
Regional Innovation Index 2019	--	0.655	--	--
RII 2019 (same year)	--	--	86.0	134.8
RII 2019 (cf. to EU 2011)	--	--	--	141.2
Regional Innovation Index 2011	--	0.627	--	--
RII 2011 (same year)	--	--	83.8	135.2
RII - change between 2011 and 2019	--	6.0	--	--

± Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.
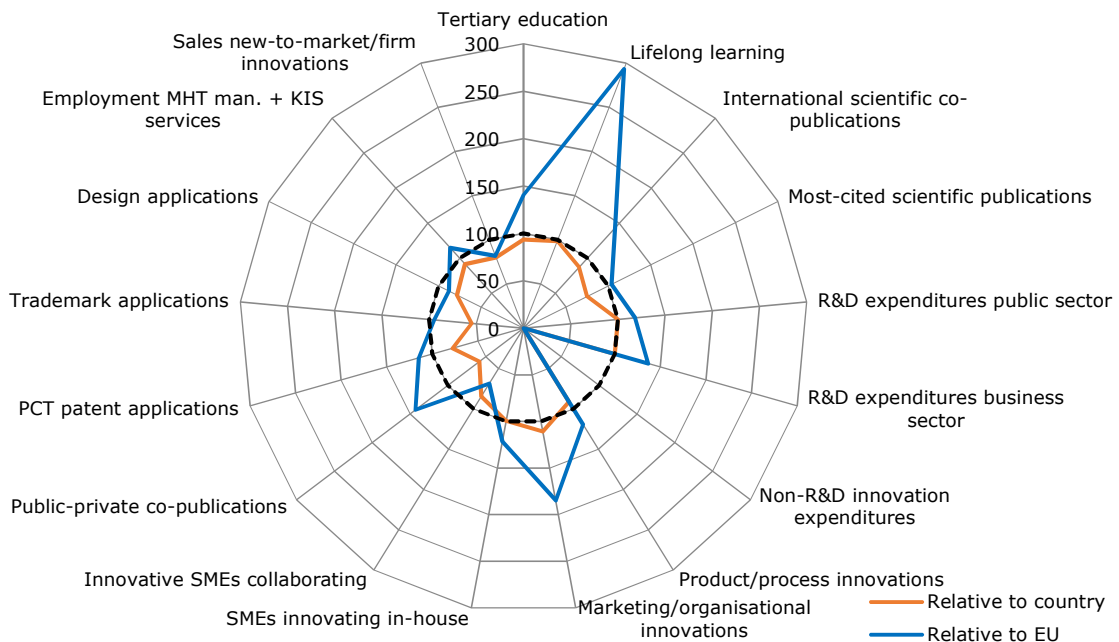
Espace Mittelland (CH02) is an Innovation Leader +; innovation performance has increased over time (6%). The table on the left shows the normalised scores per indicator and relative results compared to Switzerland and the EU. The table also shows the Regional Innovation Index (RII) in 2019 compared to that of Switzerland and the EU in 2019, the RII in 2019 compared to that of the EU in 2011, and performance change over time between 2011 and 2019.

The radar graph shows relative strengths compared to Switzerland (orange line) and the EU (blue line), showing relative strengths (e.g. Lifelong learning) and weaknesses (e.g. Innovative SMEs collaborating).

The table below shows data highlighting possible structural differences, e.g. Average employed persons per enterprise (above average) and GDP per capita growth (below average).

	CH02	CH	EU28
Share of employment in:			
Agriculture & Mining (A-B)	4.2	3.2	4.6
Manufacturing (C)	15.2	12.6	15.4
Utilities & Construction (D-F)	7.9	7.5	8.2
Services (G-N)	64.7	69.4	64.1
Public administration (O-U)	6.1	4.7	7.0
Average employed persons per enterprise (firm size), 2015-2016	8.7	8.7	5.5
GDP per capita (PPS), 2017 *	43,000	46,800	30,000
GDP per capita growth (PPS), 2013-2017 *	2.20	2.30	2.86
Population density, 2017	191	212	118
Urbanisation, 2018	n/a	n/a	76.0
Population size, 2018 (000s)	1,870	8,480	512,380

* Estimates for the region

Regional **Innovation** Scoreboard 2019

Nordwestschweiz (CH03)

	Data	Norm alised score	Relative to CH	Relative to EU
Tertiary education	48.7	0.618	89	134
Lifelong learning	31.9	0.948	102	304
International scientific co-publications	3146	1.000	106	174
Most-cited scientific publications	0.156	0.760	101	141
R&D expenditures public sector	0.93	0.676	100	118
R&D expenditures business sector	2.39	0.807	100	137
Non-R&D innovation expenditures	±	n/a	±	±
Product/process innovations	±	0.525	±	±
Marketing/ org. innovations	±	0.673	±	±
SMEs innovating in-house	±	0.518	±	±
Innovative SMEs collaborating	±	0.146	±	±
Public-private co-publications	245.5	1.000	100	245
PCT patent applications	9.22	0.766	122	179
Trademark applications	9.20	0.654	86	148
Design applications	3.27	0.422	77	86
Employment MHT manuf./KIS services	20.3	0.705	112	141
Sales new-to-market/firm innovations	±	0.584	±	±
Average score	--	0.675	--	--
Country EIS-RIS correction factor	--	*1.076*	--	--
Regional Innovation Index 2019	--	0.727	--	--
RII 2019 (same year)	--	--	95.4	149.6
RII 2019 (cf. to EU 2011)	--	--	--	156.6
Regional Innovation Index 2011	--	0.768	--	--
RII 2011 (same year)	--	--	102.6	165.6
RII - change between 2011 and 2019	--	-9.0	--	--

± Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.

Nordwestschweiz (CH03) is an Innovation Leader +; innovation performance has decreased over time (-9%).
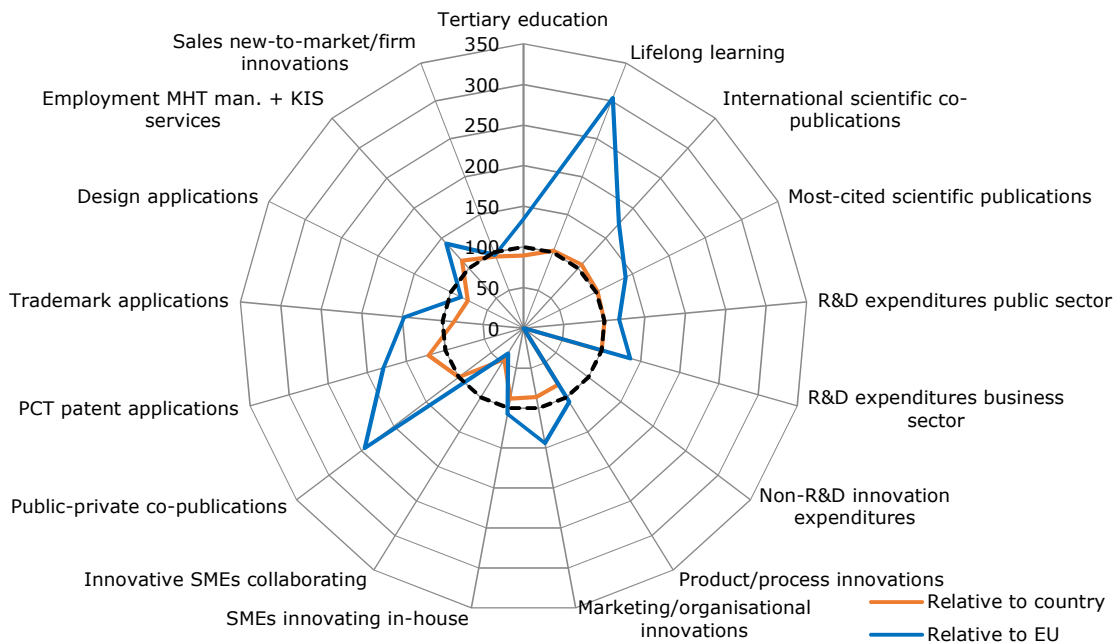
The table on the left shows the normalised scores per indicator and relative results compared to Switzerland and the EU. The table also shows the Regional Innovation Index (RII) in 2019 compared to that of Switzerland and the EU in 2019, the RII in 2019 compared to that of the EU in 2011, and performance change over time between 2011 and 2019.

The radar graph shows relative strengths compared to Switzerland (orange line) and the EU (blue line), showing relative strengths (e.g. Lifelong learning) and weaknesses (e.g. Innovative SMEs collaborating).

The table below shows data highlighting possible structural differences, e.g. Population density (above average) and Employment in Agriculture & Mining (below average).

	CH03	CH	EU28
Share of employment in:			
Agriculture & Mining (A-B)	2.1	3.2	4.6
Manufacturing (C)	14.8	12.6	15.4
Utilities & Construction (D-F)	7.7	7.5	8.2
Services (G-N)	69.0	69.4	64.1
Public administration (O-U)	4.0	4.7	7.0
Average employed persons per enterprise (firm size), 2015-2016	8.7	8.7	5.5
GDP per capita (PPS), 2017 *	49,000	46,800	30,000
GDP per capita growth (PPS), 2013-2017 *	2.41	2.30	2.86
Population density, 2017	593	212	118
Urbanisation, 2018	n/a	n/a	76.0
Population size, 2018 (000s)	1,150	8,480	512,380

* Estimates for the region

Regional Innovation Scoreboard 2019

Zürich (CH04)

	Data	Norm alised score	Relative to CH	Relative to EU
Tertiary education	64.6	0.903	131	196
Lifelong learning	33.6	1.000	108	321
International scientific co-publications	3146	1.000	106	174
Most-cited scientific publications	0.173	0.842	112	156
R&D expenditures public sector	0.93	0.676	100	118
R&D expenditures business sector	2.39	0.807	100	137
Non-R&D innovation expenditures	±	n/a	±	±
Product/process innovations	±	0.700	±	±
Marketing/ org. innovations	±	0.840	±	±
SMEs innovating in-house	±	0.636	±	±
Innovative SMEs collaborating	±	0.361	±	±
Public-private co-publications	239.8	0.988	99	242
PCT patent applications	7.15	0.635	101	149
Trademark applications	7.42	0.526	69	119
Design applications	1.44	0.272	49	55
Employment MHT manuf./KIS services	21.6	0.759	121	151
Sales new-to-market/firm innovations	±	0.615	±	±
Average score	--	0.722	--	--
Country EIS-RIS correction factor	--	*1.076*	--	--
Regional Innovation Index 2019	--	0.778	--	--
RII 2019 (same year)	--	--	102.1	160.1
RII 2019 (cf. to EU 2011)	--	--	--	167.6
Regional Innovation Index 2011	--	0.808	--	--
RII 2011 (same year)	--	--	107.9	174.1
RII - change between 2011 and 2019	--	-6.5	--	--

± Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.

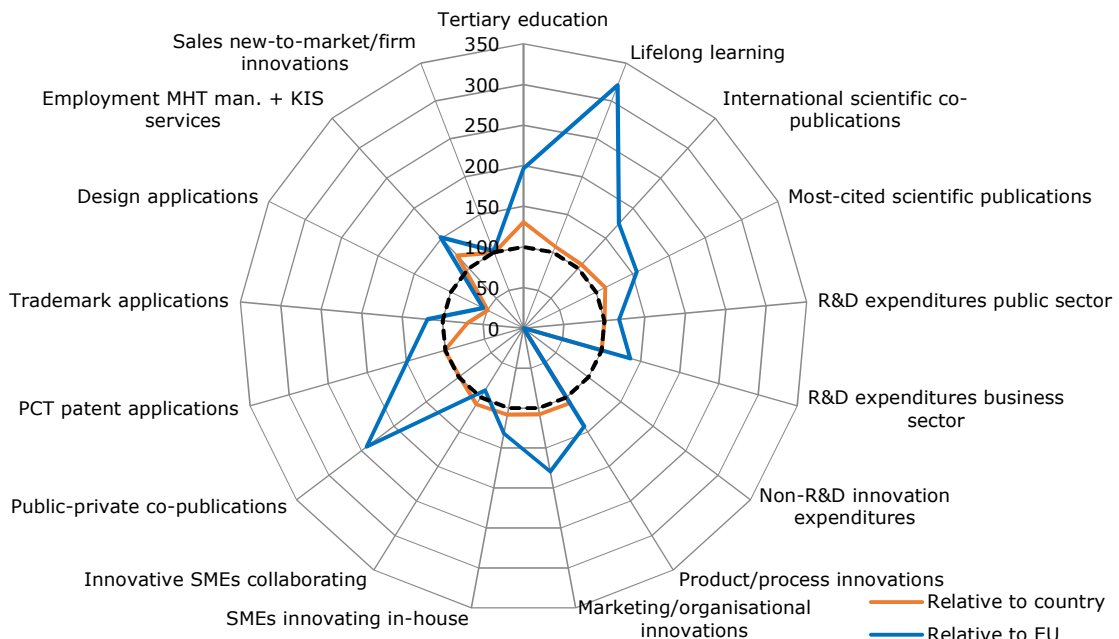Zürich (CH04) is an Innovation Leader +; innovation performance has decreased over time (-6.5%).
The table on the left shows the normalised scores per indicator and relative results compared to Switzerland and the EU. The table also shows the Regional Innovation Index (RII) in 2019 compared to that of Switzerland and the EU in 2019, the RII in 2019 compared to that of the EU in 2011, and performance change over time between 2011 and 2019.
The radar graph shows relative strengths compared to Switzerland (orange line) and the EU (blue line), showing relative strengths (e.g. Lifelong learning) and weaknesses (e.g. Design applications).
The table below shows data highlighting possible structural differences, e.g. Population density (above average) and Employment in Agriculture & Mining (below average).

	CH04	CH	EU28
Share of employment in:			
Agriculture & Mining (A-B)	1.7	3.2	4.6
Manufacturing (C)	8.8	12.6	15.4
Utilities & Construction (D-F)	5.7	7.5	8.2
Services (G-N)	77.6	69.4	64.1
Public administration (O-U)	3.7	4.7	7.0
Average employed persons per enterprise (firm size), 2015-2016	8.7	8.7	5.5
GDP per capita (PPS), 2017 *	55,500	46,800	30,000
GDP per capita growth (PPS), 2013-2017 *	1.70	2.30	2.86
Population density, 2017	905	212	118
Urbanisation, 2018	n/a	n/a	76.0
Population size, 2018 (000s)	1,500	8,480	512,380

* Estimates for the region

Regional Innovation Scoreboard 2019

Ostschweiz (CH05)

	Data	Norm alised score	Relative to CH	Relative to EU
Tertiary education	41.0	0.479	69	104
Lifelong learning	30.2	0.896	97	287
International scientific co-publications	700	0.472	50	82
Most-cited scientific publications	0.137	0.664	89	123
R&D expenditures public sector	0.93	0.676	100	118
R&D expenditures business sector	2.39	0.807	100	137
Non-R&D innovation expenditures	±	n/a	±	±
Product/process innovations	±	0.776	±	±
Marketing/ org. innovations	±	0.843	±	±
SMEs innovating in-house	±	0.633	±	±
Innovative SMEs collaborating	±	0.501	±	±
Public-private co-publications	44.5	0.426	43	104
PCT patent applications	6.13	0.564	89	132
Trademark applications	8.72	0.619	81	140
Design applications	17.35	1.000	182	204
Employment MHT manuf./KIS services	17.2	0.579	92	115
Sales new-to-market/firm innovations	±	0.913	±	±
Average score	--	0.678	--	--
Country EIS-RIS correction factor	--	*1.076*	--	--
Regional Innovation Index 2019	--	0.730	--	--
RII 2019 (same year)	--	--	95.8	150.2
RII 2019 (cf. to EU 2011)	--	--	--	157.3
Regional Innovation Index 2011	--	0.664	--	--
RII 2011 (same year)	--	--	88.7	143.1
RII - change between 2011 and 2019	--	14.1	--	--

± Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.

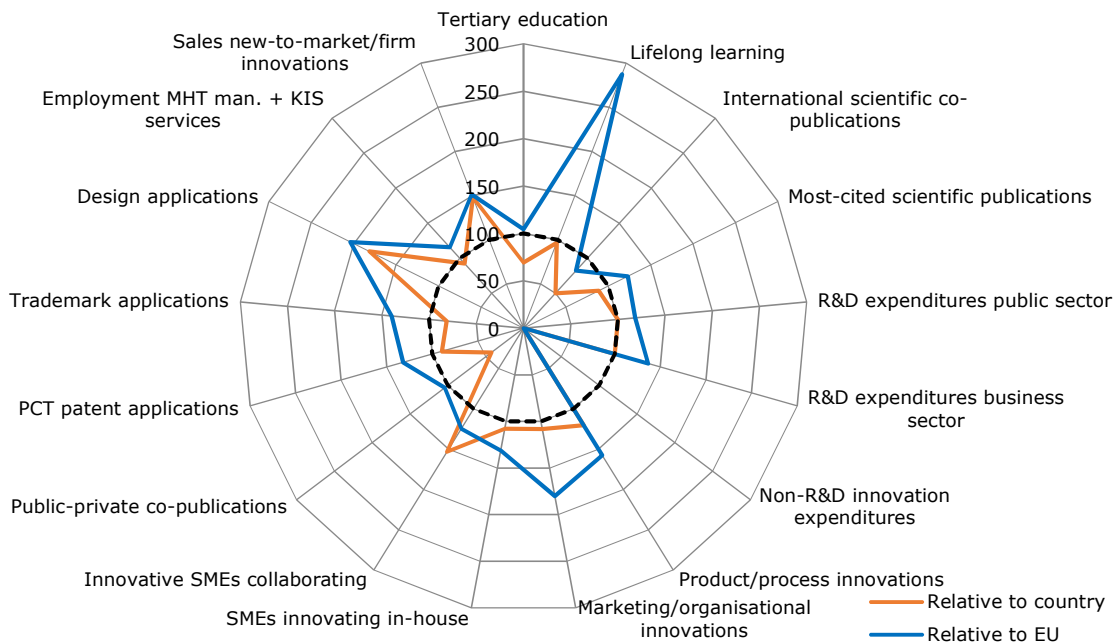Ostschweiz (CH05) is an Innovation Leader +; innovation performance has increased over time (14.1%).

The table on the left shows the normalised scores per indicator and relative results compared to Switzerland and the EU. The table also shows the Regional Innovation Index (RII) in 2019 compared to that of Switzerland and the EU in 2019, the RII in 2019 compared to that of the EU in 2011, and performance change over time between 2011 and 2019.

The radar graph shows relative strengths compared to Switzerland (orange line) and the EU (blue line), showing relative strengths (e.g. Lifelong learning) and weaknesses (e.g. International scientific co-publications).

The table below shows data highlighting possible structural differences, e.g. Employment in Manufacturing (above average) and Employment in Public administration (below average).

	CH05	CH	EU28
Share of employment in:			
Agriculture & Mining (A-B)	4.5	3.2	4.6
Manufacturing (C)	16.8	12.6	15.4
Utilities & Construction (D-F)	8.4	7.5	8.2
Services (G-N)	62.7	69.4	64.1
Public administration (O-U)	3.8	4.7	7.0
Average employed persons per enterprise (firm size), 2015-2016	8.7	8.7	5.5
GDP per capita (PPS), 2017 *	41,500	46,800	30,000
GDP per capita growth (PPS), 2013-2017 *	2.25	2.30	2.86
Population density, 2017	103	212	118
Urbanisation, 2018	n/a	n/a	76.0
Population size, 2018 (000s)	1,170	8,480	512,380

* Estimates for the region

Regional Innovation Scoreboard 2019

Zentralschweiz (CH06)

	Data	Norm alised score	Relative to CH	Relative to EU
Tertiary education	53.3	0.700	101	152
Lifelong learning	33.4	0.993	107	318
International scientific co-publications	569	0.425	45	74
Most-cited scientific publications	0.116	0.565	75	105
R&D expenditures public sector	0.93	0.676	100	118
R&D expenditures business sector	2.39	0.807	100	137
Non-R&D innovation expenditures	±	n/a	±	±
Product/process innovations	±	0.607	±	±
Marketing/ org. innovations	±	0.729	±	±
SMEs innovating in-house	±	0.511	±	±
Innovative SMEs collaborating	±	0.386	±	±
Public-private co-publications	166.0	0.822	82	201
PCT patent applications	6.01	0.555	88	130
Trademark applications	14.02	1.000	131	226
Design applications	7.34	0.643	117	131
Employment MHT manuf./KIS services	19.0	0.652	104	130
Sales new-to-market/firm innovations	±	0.474	±	±
Average score	--	0.659	--	--
Country EIS-RIS correction factor	--	*1.076*	--	--
Regional Innovation Index 2019	--	0.710	--	--
RII 2019 (same year)	--	--	93.2	146.1
RII 2019 (cf. to EU 2011)	--	--	--	152.9
Regional Innovation Index 2011	--	0.726	--	--
RII 2011 (same year)	--	--	96.9	156.5
RII - change between 2011 and 2019	--	-3.5	--	--

± Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.

Zentralschweiz (CH06) is an Innovation Leader +; innovation performance has decreased over time (-3.5%).
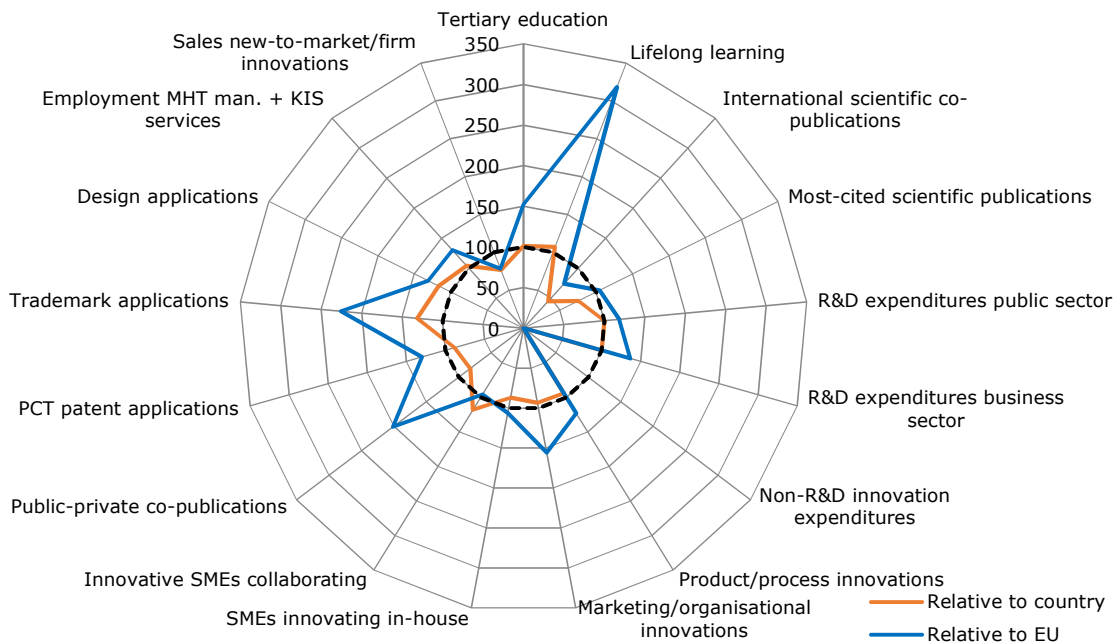
The table on the left shows the normalised scores per indicator and relative results compared to Switzerland and the EU. The table also shows the Regional Innovation Index (RII) in 2019 compared to that of Switzerland and the EU in 2019, the RII in 2019 compared to that of the EU in 2011, and performance change over time between 2011 and 2019.

The radar graph shows relative strengths compared to Switzerland (orange line) and the EU (blue line), showing relative strengths (e.g. Lifelong learning) and weaknesses (e.g. International scientific co-publications).

The table below shows data highlighting possible structural differences, e.g. Employment in Agriculture & Mining (above average) and Employment in Public administration (below average).

	CH06	CH	EU28
Share of employment in:			
Agriculture & Mining (A-B)	4.9	3.2	4.6
Manufacturing (C)	14.6	12.6	15.4
Utilities & Construction (D-F)	8.6	7.5	8.2
Services (G-N)	66.1	69.4	64.1
Public administration (O-U)	3.8	4.7	7.0
Average employed persons per enterprise (firm size), 2015-2016	8.7	8.7	5.5
GDP per capita (PPS), 2017 *	46,200	46,800	30,000
GDP per capita growth (PPS), 2013-2017 *	2.51	2.30	2.86
Population density, 2017	189	212	118
Urbanisation, 2018	n/a	n/a	76.0
Population size, 2018 (000s)	810	8,480	512,380

* Estimates for the region

Regional Innovation Scoreboard 2019

Ticino (CH07)

	Data	Norm alised score	Relative to CH	Relative to EU
Tertiary education	54.6	0.724	105	157
Lifelong learning	26.2	0.775	84	249
International scientific co-publications	1549	0.702	74	122
Most-cited scientific publications	0.099	0.479	64	89
R&D expenditures public sector	0.93	0.676	100	118
R&D expenditures business sector	2.39	0.807	100	137
Non-R&D innovation expenditures	±	n/a	±	±
Product/process innovations	±	0.880	±	±
Marketing/ org. innovations	±	0.971	±	±
SMEs innovating in-house	±	0.975	±	±
Innovative SMEs collaborating	±	0.403	±	±
Public-private co-publications	77.8	0.563	56	138
PCT patent applications	5.94	0.550	87	129
Trademark applications	14.02	1.000	131	226
Design applications	4.95	0.524	95	107
Employment MHT manuf./KIS services	15.9	0.526	84	105
Sales new-to-market/firm innovations	±	0.768	±	±
Average score	--	0.708	--	--
Country EIS-RIS correction factor	--	*1.076*	--	--
Regional Innovation Index 2019	--	0.762	--	--
RII 2019 (same year)	--	--	100.0	156.8
RII 2019 (cf. to EU 2011)	--	--	--	164.2
Regional Innovation Index 2011	--	0.680	--	--
RII 2011 (same year)	--	--	90.9	146.7
RII - change between 2011 and 2019	--	17.5	--	--

± Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.

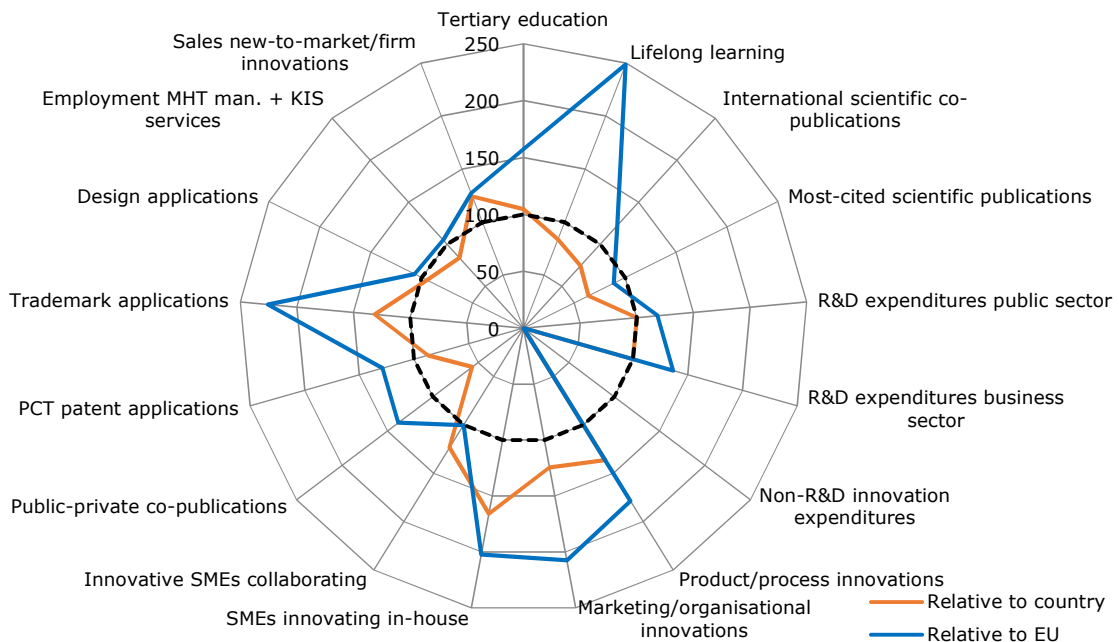Ticino (CH07) is an Innovation Leader +; innovation performance has increased over time (17.5%).
The table on the left shows the normalised scores per indicator and relative results compared to Switzerland and the EU. The table also shows the Regional Innovation Index (RII) in 2019 compared to that of Switzerland and the EU in 2019, the RII in 2019 compared to that of the EU in 2011, and performance change over time between 2011 and 2019.
The radar graph shows relative strengths compared to Switzerland (orange line) and the EU (blue line), showing relative strengths (e.g. Lifelong learning) and weaknesses (e.g. Most-cited scientific publications).
The table below shows data highlighting possible structural differences, e.g. GDP per capita (above average) and Employment in Manufacturing (below average).

	CH07	CH	EU28
Share of employment in:			
Agriculture & Mining (A-B)	2.1	3.2	4.6
Manufacturing (C)	7.7	12.6	15.4
Utilities & Construction (D-F)	8.4	7.5	8.2
Services (G-N)	72.6	69.4	64.1
Public administration (O-U)	5.9	4.7	7.0
Average employed persons per enterprise (firm size), 2015-2016	8.7	8.7	5.5
GDP per capita (PPS), 2017 *	50,600	46,800	30,000
GDP per capita growth (PPS), 2013-2017 *	2.58	2.30	2.86
Population density, 2017	130	212	118
Urbanisation, 2018	n/a	n/a	76.0
Population size, 2018 (000s)	350	8,480	512,380

* Estimates for the region

Regional Innovation Scoreboard 2019

Stockholm (SE11)

	Data	Norm alised score	Relative to SE	Relative to EU
Tertiary education	61.9	0.855	129	186
Lifelong learning	31.6	0.939	104	301
International scientific co-publications	3146	1.000	118	174
Most-cited scientific publications	0.128	0.621	108	115
R&D expenditures public sector	0.96	0.687	98	120
R&D expenditures business sector	2.82	0.881	112	149
Non-R&D innovation expenditures	±	0.456	±	±
Product/process innovations	±	0.591	±	±
Marketing/ org. innovations	±	0.534	±	±
SMEs innovating in-house	±	0.594	±	±
Innovative SMEs collaborating	±	0.563	±	±
Public-private co-publications	172.3	0.838	115	205
PCT patent applications	11.88	0.914	115	214
Trademark applications	13.38	0.954	142	215
Design applications	4.23	0.482	98	98
Employment MHT manuf./KIS services	25.9	0.934	141	186
Sales new-to-market/firm innovations	±	0.469	±	±
Average score	--	0.724	--	--
Country EIS-RIS correction factor	--	*1.032*	--	--
Regional Innovation Index 2019	--	0.747	--	--
RII 2019 (same year)	--	--	113.3	153.8
RII 2019 (cf. to EU 2011)	--	--	--	161.1
Regional Innovation Index 2011	--	0.747	--	--
RII 2011 (same year)	--	--	112.2	160.9
RII - change between 2011 and 2019	--	0.1	--	--

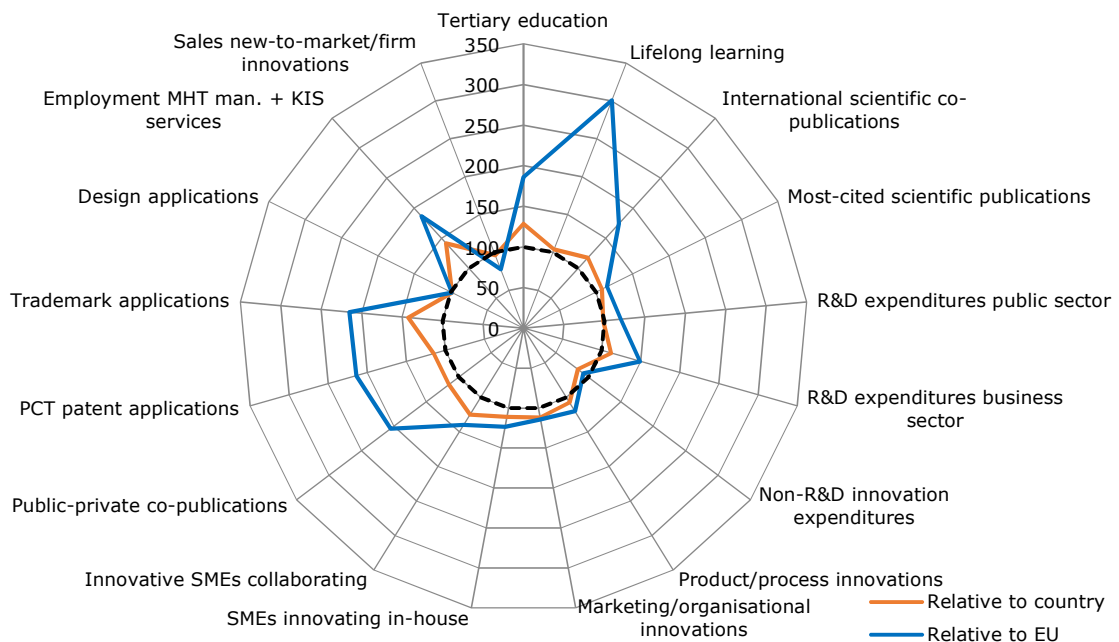± Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.

Stockholm (SE11) is an **Innovation Leader +**; innovation performance has increased over time (0.1%).

The table on the left shows the normalised scores per indicator and relative results compared to Sweden and the EU. The table also shows the Regional Innovation Index (RII) in 2019 compared to that of Sweden and the EU in 2019, the RII in 2019 compared to that of the EU in 2011, and performance change over time between 2011 and 2019.

The radar graph shows relative strengths compared to Sweden (orange line) and the EU (blue line), showing relative strengths (e.g. Lifelong learning) and weaknesses (e.g. Sales new-to-market/firm innovations).

The table below shows data highlighting possible structural differences, e.g. Population density (above average) and Employment in Agriculture & Mining (below average).

	SE11	SE	EU28
Share of employment in:			
Agriculture & Mining (A-B)	0.3	2.1	4.6
Manufacturing (C)	4.3	10.3	15.4
Utilities & Construction (D-F)	6.1	7.7	8.2
Services (G-N)	81.6	72.7	64.1
Public administration (O-U)	7.1	6.7	7.0
Average employed persons per enterprise (firm size), 2015-2016	4.2	4.2	5.5
GDP per capita (PPS), 2017	49,700	36,300	30,000
GDP per capita growth (PPS), 2013-2017	1.51	1.95	2.86
Population density, 2017	351	25	118
Urbanisation, 2018	36.2	60.9	76.0
Population size, 2018 (000s)	2,310	10,120	512,380

Sydsverige (SE22)

	Data	Norm alised score	Relative to SE	Relative to EU
Tertiary education	52.6	0.688	104	150
Lifelong learning	31.6	0.939	104	301
International scientific co-publications	2395	0.872	103	152
Most-cited scientific publications	0.121	0.587	102	108
R&D expenditures public sector	1.22	0.786	112	138
R&D expenditures business sector	2.04	0.742	94	126
Non-R&D innovation expenditures	±	0.470	±	±
Product/process innovations	±	0.534	±	±
Marketing/ org. innovations	±	0.473	±	±
SMEs innovating in-house	±	0.507	±	±
Innovative SMEs collaborating	±	0.409	±	±
Public-private co-publications	79.8	0.570	78	140
PCT patent applications	13.59	1.000	126	234
Trademark applications	11.61	0.826	123	187
Design applications	5.50	0.553	112	113
Employment MHT manuf./KIS services	17.8	0.603	91	120
Sales new-to-market/firm innovations	±	0.407	±	±
Average score	--	0.645	--	--
Country EIS-RIS correction factor	--	*1.032*	--	--
Regional Innovation Index 2019	--	0.665	--	--
RII 2019 (same year)	--	--	100.9	137.0
RII 2019 (cf. to EU 2011)	--	--	--	143.4
Regional Innovation Index 2011	--	0.722	--	--
RII 2011 (same year)	--	--	108.6	155.7
RII - change between 2011 and 2019	--	-12.3	--	--

± Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.
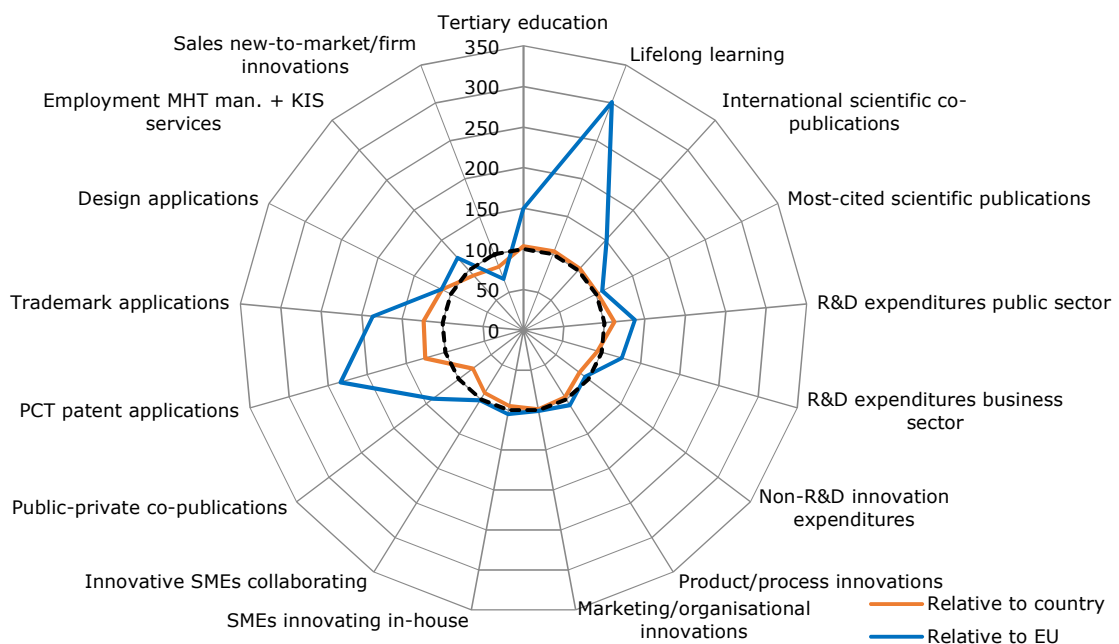
Sydsverige (SE22) is an **Innovation Leader +**; innovation performance has decreased over time (-12.3%).

The table on the left shows the normalised scores per indicator and relative results compared to Sweden and the EU. The table also shows the Regional Innovation Index (RII) in 2019 compared to that of Sweden and the EU in 2019, the RII in 2019 compared to that of the EU in 2011, and performance change over time between 2011 and 2019.

The radar graph shows relative strengths compared to Sweden (orange line) and the EU (blue line), showing relative strengths (e.g. Lifelong learning) and weaknesses (e.g. Sales new-to-market/firm innovations).

The table below shows data highlighting possible structural differences, e.g. Employment in Services (above average) and Employment in Manufacturing (below average).

	SE22	SE	EU28
Share of employment in:			
Agriculture & Mining (A-B)	2.2	2.1	4.6
Manufacturing (C)	9.6	10.3	15.4
Utilities & Construction (D-F)	7.5	7.7	8.2
Services (G-N)	73.4	72.7	64.1
Public administration (O-U)	6.6	6.7	7.0
Average employed persons per enterprise (firm size), 2015-2016	4.2	4.2	5.5
GDP per capita (PPS), 2017	31,300	36,300	30,000
GDP per capita growth (PPS), 2013-2017	2.37	1.95	2.86
Population density, 2017	108	25	118
Urbanisation, 2018	55.6	60.9	76.0
Population size, 2018 (000s)	1,500	10,120	512,380

Regional Innovation Scoreboard 2019

Hovedstaden (DK01)

	Data	Normalised score	Relative to DK	Relative to EU
Tertiary education	62.3	0.862	139	188
Lifelong learning	30.6	0.908	115	291
International scientific co-publications	3146	1.000	112	174
Most-cited scientific publications	0.137	0.667	105	123
R&D expenditures public sector	1.47	0.869	119	152
R&D expenditures business sector	3.49	0.985	133	167
Non-R&D innovation expenditures	±	0.314	±	±
Product/process innovations	±	0.516	±	±
Marketing/ org. innovations	±	0.590	±	±
SMEs innovating in-house	±	0.695	±	±
Innovative SMEs collaborating	±	0.470	±	±
Public-private co-publications	245.5	1.000	123	245
PCT patent applications	8.57	0.726	118	170
Trademark applications	12.26	0.874	121	197
Design applications	9.70	0.742	114	151
Employment MHT manuf./KIS services	18.5	0.632	131	126
Sales new-to-market/firm innovations	±	0.471	±	±
Average score	--	0.725	--	--
Country EIS-RIS correction factor	--	*1.012*	--	--
Regional Innovation Index 2019	--	0.733	--	--
RII 2019 (same year)	--	--	116.6	151.0
RII 2019 (cf. to EU 2011)	--	--	--	158.1
Regional Innovation Index 2011	--	0.762	--	--
RII 2011 (same year)	--	--	116.8	164.3
RII - change between 2011 and 2019	--	-6.2	--	--

± Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.
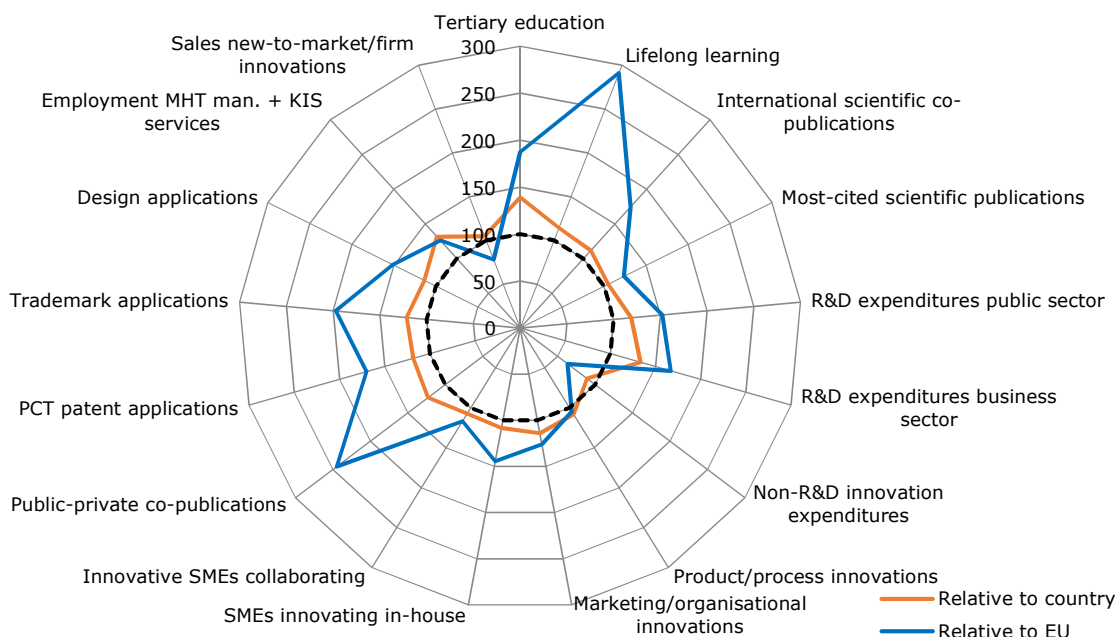
Hovedstaden (DK01) is an **Innovation Leader +**; innovation performance has decreased over time (-6.2%).

The table on the left shows the normalised scores per indicator and relative results compared to Denmark and the EU. The table also shows the Regional Innovation Index (RII) in 2019 compared to that of Denmark and the EU in 2019, the RII in 2019 compared to that of the EU in 2011, and performance change over time between 2011 and 2019.

The radar graph shows relative strengths compared to Denmark (orange line) and the EU (blue line), showing relative strengths (e.g. Lifelong learning) and weaknesses (e.g. Non-R&D innovation expenditures).

The table below shows data highlighting possible structural differences, e.g. Population density (above average) and Employment in Agriculture & Mining (below average).

	DK01	DK	EU28
Share of employment in:			
Agriculture & Mining (A-B)	0.5	2.6	4.6
Manufacturing (C)	7.3	11.7	15.4
Utilities & Construction (D-F)	5.1	7.0	8.2
Services (G-N)	80.1	72.9	64.1
Public administration (O-U)	6.5	5.3	7.0
Average employed persons per enterprise (firm size), 2015-2016	8.0	8.0	5.5
GDP per capita (PPS), 2017	49,800	38,400	30,000
GDP per capita growth (PPS), 2013-2017	3.68	2.86	2.86
Population density, 2017	745	137	118
Urbanisation, 2018	92.2	61.8	76.0
Population size, 2018 (000s)	1,820	5,780	512,380

Regional Innovation Scoreboard 2019

Helsinki-Uusimaa (FI1B)

	Data	Norm alised score	Relative to FI	Relative to EU
Tertiary education	52.5	0.686	126	149
Lifelong learning	30.4	0.902	111	289
International scientific co-publications	2850	0.952	123	166
Most-cited scientific publications	0.111	0.541	105	100
R&D expenditures public sector	1.11	0.745	112	131
R&D expenditures business sector	2.34	0.799	115	135
Non-R&D innovation expenditures	±	0.476	±	±
Product/process innovations	±	0.794	±	±
Marketing/ org. innovations	±	0.578	±	±
SMEs innovating in-house	±	0.772	±	±
Innovative SMEs collaborating	±	0.805	±	±
Public-private co-publications	145.8	0.771	131	189
PCT patent applications	11.19	0.877	123	205
Trademark applications	13.97	0.996	155	225
Design applications	5.43	0.549	114	112
Employment MHT manuf./KIS services	22.8	0.808	143	161
Sales new-to-market/firm innovations	±	0.628	±	±
Average score	--	0.746	--	--
Country EIS-RIS correction factor	--	*1.017*	--	--
Regional Innovation Index 2019	--	0.758	--	--
RII 2019 (same year)	--	--	116.4	156.0
RII 2019 (cf. to EU 2011)	--	--	--	163.4
Regional Innovation Index 2011	--	0.699	--	--
RII 2011 (same year)	--	--	114.4	150.6
RII - change between 2011 and 2019	--	12.8	--	--

± Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.
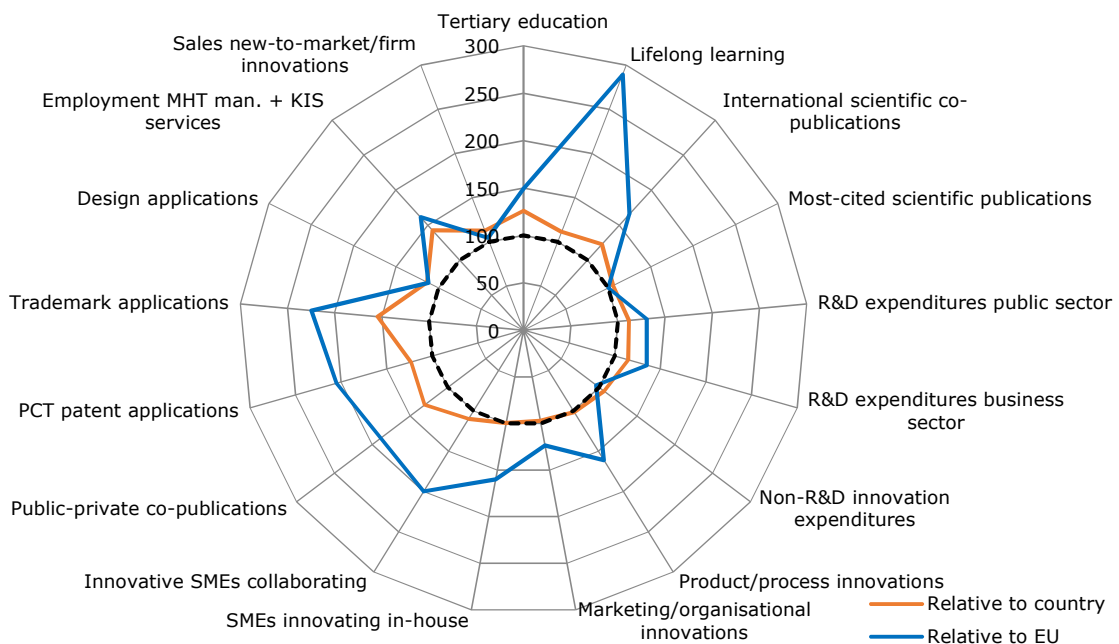
Helsinki-Uusimaa (FI1B) is an Innovation Leader +; innovation performance has increased over time (12.8%).

The table on the left shows the normalised scores per indicator and relative results compared to Finland and the EU. The table also shows the Regional Innovation Index (RII) in 2019 compared to that of Finland and the EU in 2019, the RII in 2019 compared to that of the EU in 2011, and performance change over time between 2011 and 2019.

The radar graph shows relative strengths compared to Finland (orange line) and the EU (blue line), showing relative strengths (e.g. Lifelong learning) and weaknesses (e.g. Non-R&D innovation expenditures).

The table below shows data highlighting possible structural differences, e.g. Population density (above average) and Employment in Agriculture & Mining (below average).

	FI1B	FI	EU28
Share of employment in:			
Agriculture & Mining (A-B)	0.8	4.2	4.6
Manufacturing (C)	8.9	13.4	15.4
Utilities & Construction (D-F)	7.6	8.4	8.2
Services (G-N)	77.2	69.2	64.1
Public administration (O-U)	5.0	4.5	7.0
Average employed persons per enterprise (firm size), 2015-2016	7.1	4.9	5.5
GDP per capita (PPS), 2017	42,400	32,700	30,000
GDP per capita growth (PPS), 2013-2017	1.47	1.92	2.86
Population density, 2017	181	18	118
Urbanisation, 2018	89.2	71.3	76.0
Population size, 2018 (000s)	1,660	5,510	512,380

Regional Innovation Scoreboard 2019

Utrecht (NL31)

	Data	Normalised score	Relative to NL	Relative to EU
Tertiary education	60.1	0.822	136	179
Lifelong learning	21.8	0.642	115	206
International scientific co-publications	3146	1.000	125	174
Most-cited scientific publications	0.153	0.744	105	138
R&D expenditures public sector	1.37	0.838	131	147
R&D expenditures business sector	0.55	0.363	66	62
Non-R&D innovation expenditures	±	0.409	±	±
Product/process innovations	±	0.595	±	±
Marketing/ org. innovations	±	0.410	±	±
SMEs innovating in-house	±	0.437	±	±
Innovative SMEs collaborating	±	0.523	±	±
Public-private co-publications	219.8	0.946	149	232
PCT patent applications	3.92	0.386	65	90
Trademark applications	7.30	0.517	98	117
Design applications	4.33	0.488	100	100
Employment MHT manuf./KIS services	17.9	0.607	121	121
Sales new-to-market/firm innovations	±	0.671	±	±
Average score	--	0.631	--	--
Country EIS-RIS correction factor	--	*1.038*	--	--
Regional Innovation Index 2019	--	0.655	--	--
RII 2019 (same year)	--	--	108.7	134.8
RII 2019 (cf. to EU 2011)	--	--	--	141.2
Regional Innovation Index 2011	--	0.589	--	--
RII 2011 (same year)	--	--	106.8	126.9
RII - change between 2011 and 2019	--	14.3	--	--

± Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.
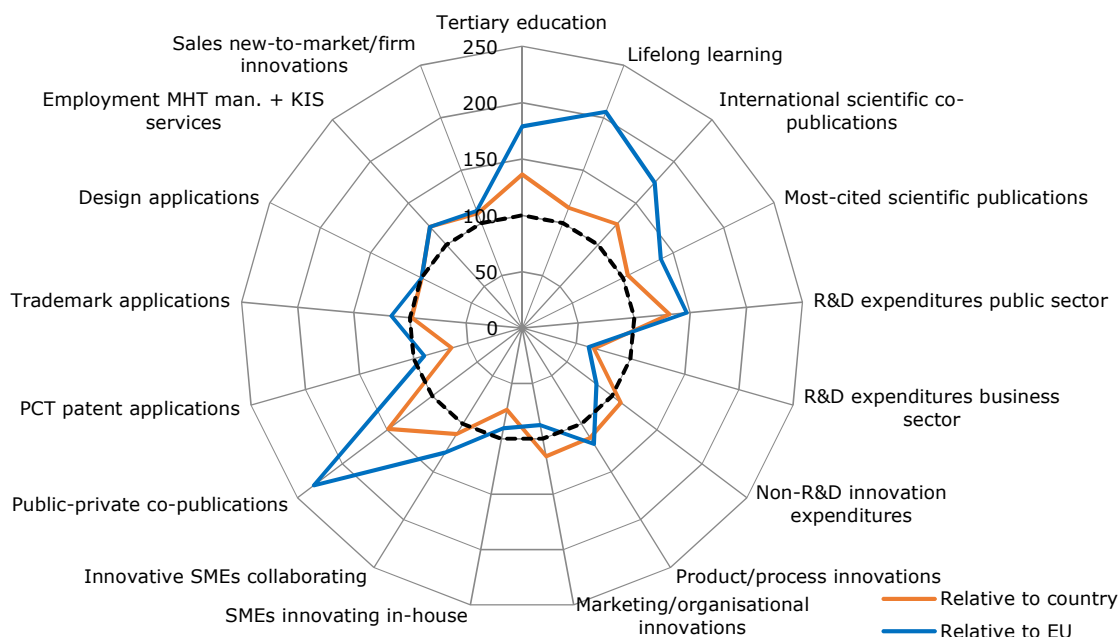
Utrecht (NL31) is an Innovation Leader +; innovation performance has increased over time (14.3%).
The table on the left shows the normalised scores per indicator and relative results compared to the Netherlands and the EU. The table also shows the Regional Innovation Index (RII) in 2019 compared to that of the Netherlands and the EU in 2019, the RII in 2019 compared to that of the EU in 2011, and performance change over time between 2011 and 2019.
The radar graph shows relative strengths compared to the Netherlands (orange line) and the EU (blue line), showing relative strengths (e.g. Public-private co-publications) and weaknesses (e.g. R&D expenditures business sector).
The table below shows data highlighting possible structural differences, e.g. Population density (above average) and Employment in Agriculture & Mining (below average).

	NL31	NL	EU28
Share of employment in:			
Agriculture & Mining (A-B)	0.9	2.2	4.6
Manufacturing (C)	5.5	9.4	15.4
Utilities & Construction (D-F)	4.5	5.5	8.2
Services (G-N)	73.5	68.5	64.1
Public administration (O-U)	5.9	5.8	7.0
Average employed persons per enterprise (firm size), 2015-2016	5.1	5.1	5.5
GDP per capita (PPS), 2017	46,600	38,400	30,000
GDP per capita growth (PPS), 2013-2017	0.43	0.79	2.86
Population density, 2017	918	501	118
Urbanisation, 2018	99.0	90.4	76.0
Population size, 2018 (000s)	1,300	17,180	512,380

Noord-Brabant (NL41)

	Data	Normalised score	Relative to NL	Relative to EU
Tertiary education	45.5	0.560	93	122
Lifelong learning	17.9	0.524	94	168
International scientific co-publications	832	0.514	64	90
Most-cited scientific publications	0.132	0.642	90	119
R&D expenditures public sector	0.42	0.428	67	75
R&D expenditures business sector	2.71	0.862	157	146
Non-R&D innovation expenditures	±	0.365	±	±
Product/process innovations	±	0.509	±	±
Marketing/ org. innovations	±	0.343	±	±
SMEs innovating in-house	±	0.437	±	±
Innovative SMEs collaborating	±	0.472	±	±
Public-private co-publications	149.4	0.780	123	191
PCT patent applications	13.59	1.000	169	234
Trademark applications	8.92	0.633	120	143
Design applications	9.05	0.716	146	146
Employment MHT manuf./KIS services	16.3	0.542	108	108
Sales new-to-market/firm innovations	±	0.603	±	±
Average score	--	0.604	--	--
Country EIS-RIS correction factor	--	*1.038*	--	--
Regional Innovation Index 2019	--	0.627	--	--
RII 2019 (same year)	--	--	104.0	129.1
RII 2019 (cf. to EU 2011)	--	--	--	135.2
Regional Innovation Index 2011	--	0.597	--	--
RII 2011 (same year)	--	--	108.3	128.7
RII - change between 2011 and 2019	--	6.4	--	--

± Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.
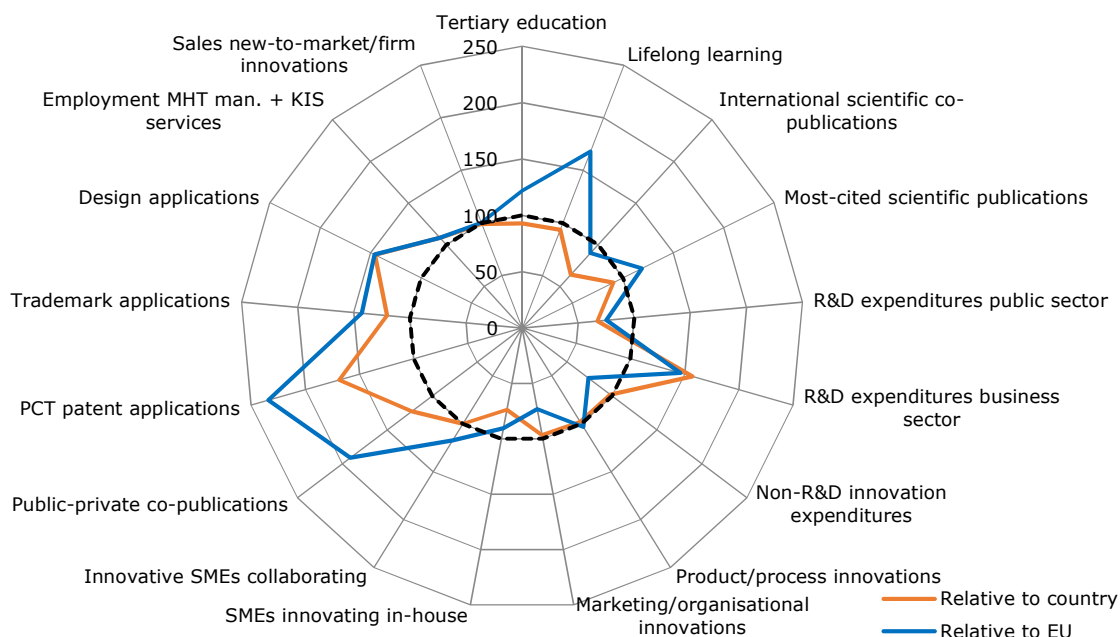
Noord-Brabant (NL41) is an Innovation Leader +; innovation performance has increased over time (6.4%).
The table on the left shows the normalised scores per indicator and relative results compared to the Netherlands and the EU. The table also shows the Regional Innovation Index (RII) in 2019 compared to that of the Netherlands and the EU in 2019, the RII in 2019 compared to that of the EU in 2011, and performance change over time between 2011 and 2019.
The radar graph shows relative strengths compared to the Netherlands (orange line) and the EU (blue line), showing relative strengths (e.g. PCT patent applications) and weaknesses (e.g. Marketing/organisational innovations).
The table below shows data highlighting possible structural differences, e.g. Population density (above average) and Employment in Public administration

	NL41	NL	EU28
Share of employment in:			
Agriculture & Mining (A-B)	2.4	2.2	4.6
Manufacturing (C)	13.3	9.4	15.4
Utilities & Construction (D-F)	6.2	5.5	8.2
Services (G-N)	65.6	68.5	64.1
Public administration (O-U)	4.6	5.8	7.0
Average employed persons per enterprise (firm size), 2015-2016	5.1	5.1	5.5
GDP per capita (PPS), 2017	38,800	38,400	30,000
GDP per capita growth (PPS), 2013-2017	1.31	0.79	2.86
Population density, 2017	508	501	118
Urbanisation, 2018	91.7	90.4	76.0
Population size, 2018 (000s)	2,530	17,180	512,380

Regional Innovation Scoreboard 2019

Stuttgart (DE11)

	Data	Normalised score	Relative to DE	Relative to EU
Tertiary education	39.2	0.447	126	97
Lifelong learning	9.4	0.266	113	85
International scientific co-publications	476	0.389	65	68
Most-cited scientific publications	0.118	0.575	104	106
R&D expenditures public sector	0.47	0.458	68	80
R&D expenditures business sector	3.59	1.000	136	169
Non-R&D innovation expenditures	±	0.599	±	±
Product/process innovations	±	0.640	±	±
Marketing/ org. innovations	±	0.618	±	±
SMEs innovating in-house	±	0.653	±	±
Innovative SMEs collaborating	±	0.230	±	±
Public-private co-publications	56.6	0.480	95	118
PCT patent applications	11.75	0.907	149	212
Trademark applications	7.00	0.495	98	112
Design applications	12.92	0.860	138	176
Employment MHT manuf./KIS services	27.5	1.000	163	199
Sales new-to-market/firm innovations	±	0.565	±	±
Average score	--	0.599	--	--
Country EIS-RIS correction factor	--	*1.050*	--	--
Regional Innovation Index 2019	--	0.629	--	--
RII 2019 (same year)	--	--	111.1	129.5
RII 2019 (cf. to EU 2011)	--	--	--	135.6
Regional Innovation Index 2011	--	0.664	--	--
RII 2011 (same year)	--	--	112.0	143.1
RII - change between 2011 and 2019	--	-7.5	--	--

± Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.
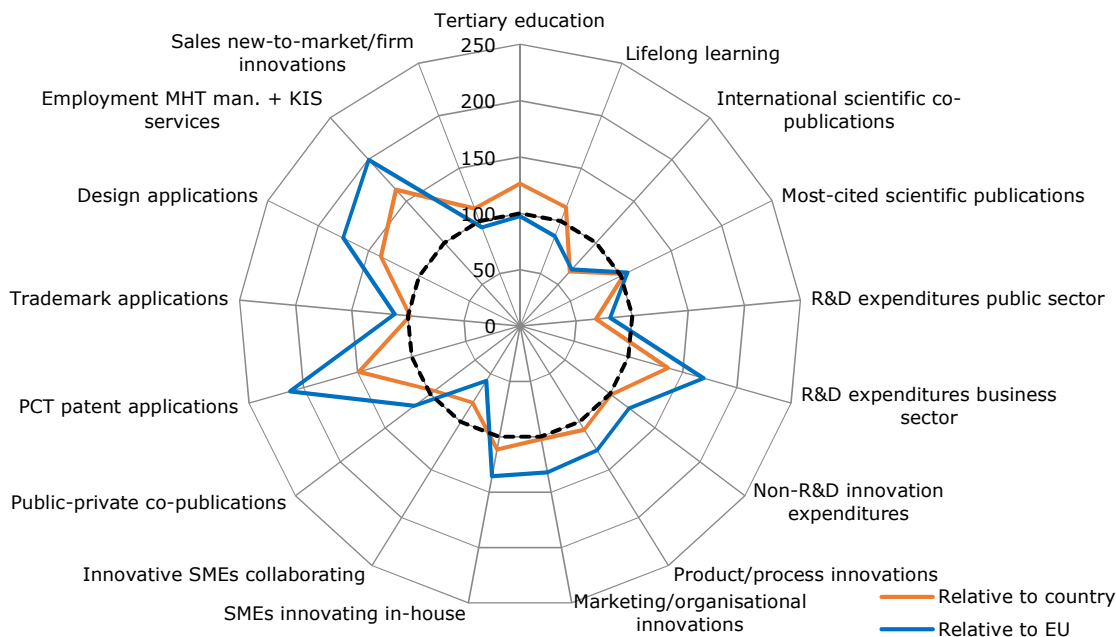
Stuttgart (DE11) is an **Innovation Leader +**; innovation performance has decreased over time (-7.5%).
The table on the left shows the normalised scores per indicator and relative results compared to Germany and the EU. The table also shows the Regional Innovation Index (RII) in 2019 compared to that of Germany and the EU in 2019, the RII in 2019 compared to that of the EU in 2011, and performance change over time between 2011 and 2019.
The radar graph shows relative strengths compared to Germany (orange line) and the EU (blue line), showing relative strengths (e.g. PCT patent applications) and weaknesses (e.g. Innovative SMEs collaborating).
The table below shows data highlighting possible structural differences, e.g. Population density (above average) and Employment in Agriculture & Mining (below average).

	DE11	DE	EU28
Share of employment in:			
Agriculture & Mining (A-B)	1.0	1.5	4.6
Manufacturing (C)	29.1	19.3	15.4
Utilities & Construction (D-F)	7.1	8.2	8.2
Services (G-N)	57.3	64.1	64.1
Public administration (O-U)	5.5	7.0	7.0
Average employed persons per enterprise (firm size), 2015-2016	10.1	10.1	5.5
GDP per capita (PPS), 2017	47,800	37,100	30,000
GDP per capita growth (PPS), 2013-2017	2.92	2.82	2.86
Population density, 2017	390	234	118
Urbanisation, 2018	87.7	79.3	76.0
Population size, 2018 (000s)	4,130	82,790	512,380

Regional Innovation Scoreboard 2019

Karlsruhe (DE12)

	Data	Normalised score	Relative to DE	Relative to EU
Tertiary education	39.3	0.449	127	98
Lifelong learning	9.6	0.272	115	87
International scientific co-publications	2440	0.881	148	154
Most-cited scientific publications	0.128	0.624	112	115
R&D expenditures public sector	1.59	0.907	134	159
R&D expenditures business sector	2.92	0.897	122	152
Non-R&D innovation expenditures	±	0.641	±	±
Product/process innovations	±	0.672	±	±
Marketing/ org. innovations	±	0.671	±	±
SMEs innovating in-house	±	0.657	±	±
Innovative SMEs collaborating	±	0.326	±	±
Public-private co-publications	94.4	0.620	123	152
PCT patent applications	9.17	0.763	125	179
Trademark applications	7.77	0.551	109	124
Design applications	4.45	0.496	80	101
Employment MHT manuf./KIS services	22.7	0.804	131	160
Sales new-to-market/firm innovations	±	0.531	±	±
Average score	--	0.633	--	--
Country EIS-RIS correction factor	--	*1.050*	--	--
Regional Innovation Index 2019	--	0.665	--	--
RII 2019 (same year)	--	--	117.4	136.9
RII 2019 (cf. to EU 2011)	--	--	--	143.3
Regional Innovation Index 2011	--	0.706	--	--
RII 2011 (same year)	--	--	119.1	152.3
RII - change between 2011 and 2019	--	-8.9	--	--

± Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.
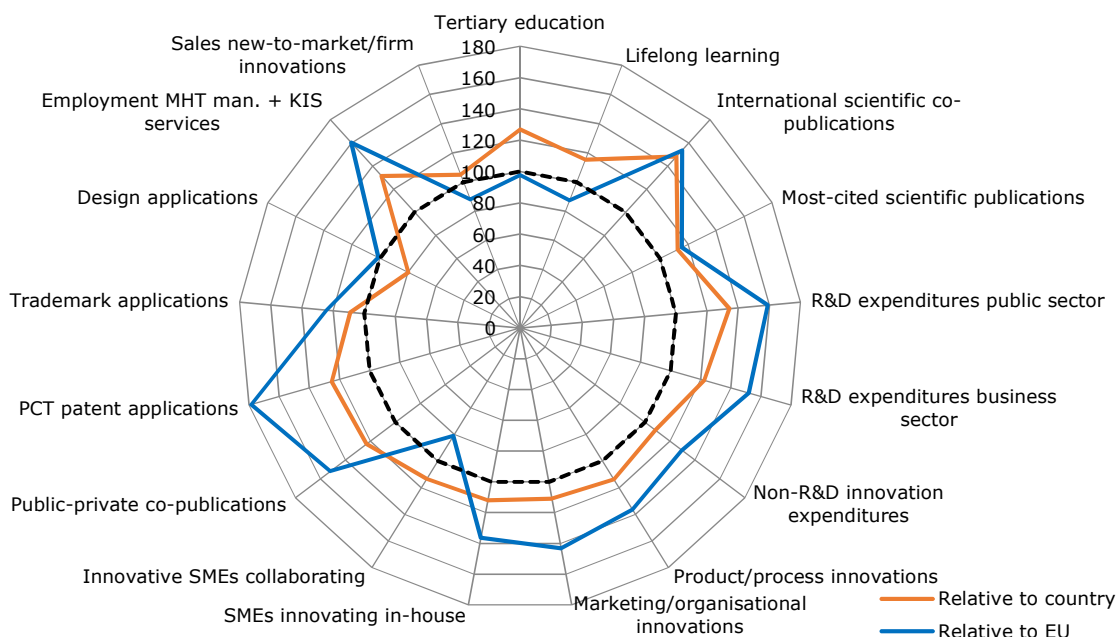
Karlsruhe (DE12) is an **Innovation Leader +**; innovation performance has decreased over time (-8.9%).
The table on the left shows the normalised scores per indicator and relative results compared to Germany and the EU. The table also shows the Regional Innovation Index (RII) in 2019 compared to that of Germany and the EU in 2019, the RII in 2019 compared to that of the EU in 2011, and performance change over time between 2011 and 2019.
The radar graph shows relative strengths compared to Germany (orange line) and the EU (blue line), showing relative strengths (e.g. PCT patent applications) and weaknesses (e.g. Innovative SMEs collaborating).
The table below shows data highlighting possible structural differences, e.g. Population density (above average) and Employment in Agriculture & Mining (below average).

	DE12	DE	EU28
Share of employment in:			
Agriculture & Mining (A-B)	0.5	1.5	4.6
Manufacturing (C)	24.5	19.3	15.4
Utilities & Construction (D-F)	7.0	8.2	8.2
Services (G-N)	61.9	64.1	64.1
Public administration (O-U)	6.1	7.0	7.0
Average employed persons per enterprise (firm size), 2015-2016	10.1	10.1	5.5
GDP per capita (PPS), 2017	40,800	37,100	30,000
GDP per capita growth (PPS), 2013-2017	2.34	2.82	2.86
Population density, 2017	406	234	118
Urbanisation, 2018	86.0	79.3	76.0
Population size, 2018 (000s)	2,800	82,790	512,380

Regional Innovation Scoreboard 2019

Tübingen (DE14)

	Data	Norm alised score	Relative to DE	Relative to EU
Tertiary education	37.7	0.420	119	91
Lifelong learning	9.5	0.269	114	86
International scientific co-publications	1816	0.760	128	133
Most-cited scientific publications	0.110	0.536	97	99
R&D expenditures public sector	0.96	0.688	102	120
R&D expenditures business sector	3.57	0.997	136	169
Non-R&D innovation expenditures	±	0.699	±	±
Product/process innovations	±	0.704	±	±
Marketing/ org. innovations	±	0.640	±	±
SMEs innovating in-house	±	0.726	±	±
Innovative SMEs collaborating	±	0.197	±	±
Public-private co-publications	71.9	0.541	107	133
PCT patent applications	8.99	0.752	123	176
Trademark applications	7.47	0.529	105	119
Design applications	5.26	0.540	87	110
Employment MHT manuf./KIS services	23.4	0.832	136	166
Sales new-to-market/firm innovations	±	0.614	±	±
Average score	--	0.614	--	--
Country EIS-RIS correction factor	--	*1.050*	--	--
Regional Innovation Index 2019	--	0.645	--	--
RII 2019 (same year)	--	--	114.0	132.9
RII 2019 (cf. to EU 2011)	--	--	--	139.1
Regional Innovation Index 2011	--	0.688	--	--
RII 2011 (same year)	--	--	116.0	148.3
RII - change between 2011 and 2019	--	-9.2	--	--

± Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.
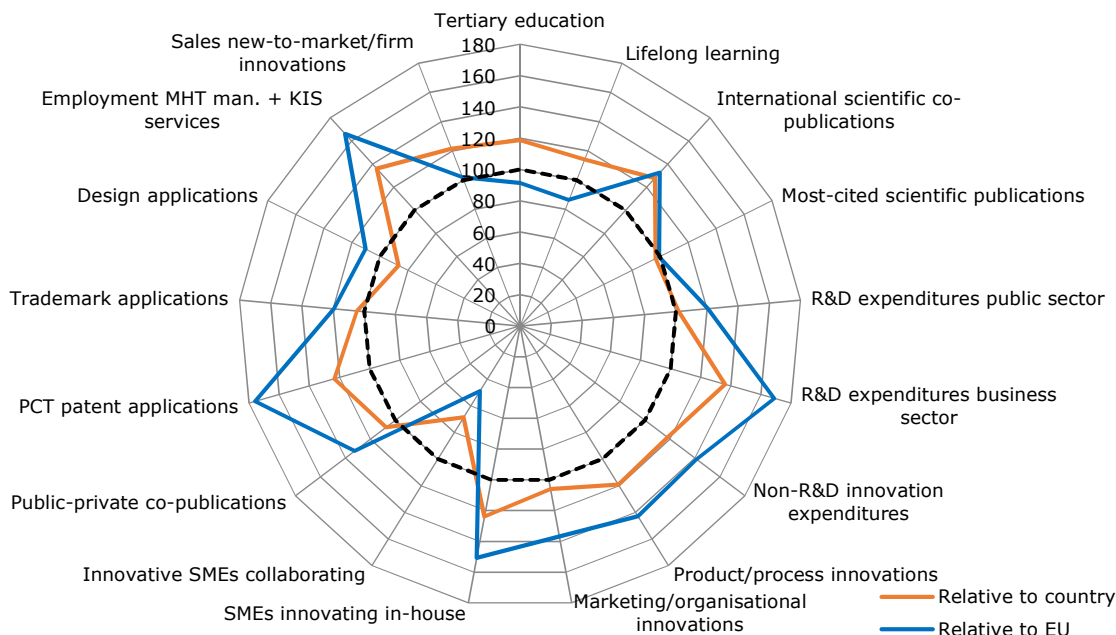
Tübingen (DE14) is an **Innovation Leader +**; innovation performance has decreased over time (-9.2%).
The table on the left shows the normalised scores per indicator and relative results compared to Germany and the EU. The table also shows the Regional Innovation Index (RII) in 2019 compared to that of Germany and the EU in 2019, the RII in 2019 compared to that of the EU in 2011, and performance change over time between 2011 and 2019.
The radar graph shows relative strengths compared to Germany (orange line) and the EU (blue line), showing relative strengths (e.g. PCT patent applications) and weaknesses (e.g. Innovative SMEs collaborating).
The table below shows data highlighting possible structural differences, e.g. Employment in Manufacturing (above average) and Employment in Public administration (below average).

	DE14	DE	EU28
Share of employment in:			
Agriculture & Mining (A-B)	1.8	1.5	4.6
Manufacturing (C)	29.8	19.3	15.4
Utilities & Construction (D-F)	7.6	8.2	8.2
Services (G-N)	55.0	64.1	64.1
Public administration (O-U)	5.8	7.0	7.0
Average employed persons per enterprise (firm size), 2015-2016	10.1	10.1	5.5
GDP per capita (PPS), 2017	40,400	37,100	30,000
GDP per capita growth (PPS), 2013-2017	3.00	2.82	2.86
Population density, 2017	212	234	118
Urbanisation, 2018	69.7	79.3	76.0
Population size, 2018 (000s)	1,850	82,790	512,380

Regional Innovation Scoreboard 2019

Oberbayern (DE21)

	Data	Norm alised score	Relative to DE	Relative to EU
Tertiary education	48.3	0.610	173	133
Lifelong learning	8.5	0.239	101	77
International scientific co-publications	1973	0.792	133	138
Most-cited scientific publications	0.135	0.657	118	121
R&D expenditures public sector	1.06	0.726	108	127
R&D expenditures business sector	3.31	0.959	131	162
Non-R&D innovation expenditures	±	0.455	±	±
Product/process innovations	±	0.561	±	±
Marketing/ org. innovations	±	0.622	±	±
SMEs innovating in-house	±	0.572	±	±
Innovative SMEs collaborating	±	0.258	±	±
Public-private co-publications	153.5	0.791	157	194
PCT patent applications	10.17	0.821	135	192
Trademark applications	10.83	0.771	152	174
Design applications	10.45	0.771	124	157
Employment MHT manuf./KIS services	25.1	0.902	147	180
Sales new-to-market/firm innovations	±	0.535	±	±
Average score	--	0.649	--	--
Country EIS-RIS correction factor	--	*1.050*	--	--
Regional Innovation Index 2019	--	0.682	--	--
RII 2019 (same year)	--	--	120.4	140.4
RII 2019 (cf. to EU 2011)	--	--	--	147.1
Regional Innovation Index 2011	--	0.713	--	--
RII 2011 (same year)	--	--	120.2	153.6
RII - change between 2011 and 2019	--	-6.5	--	--

± Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.
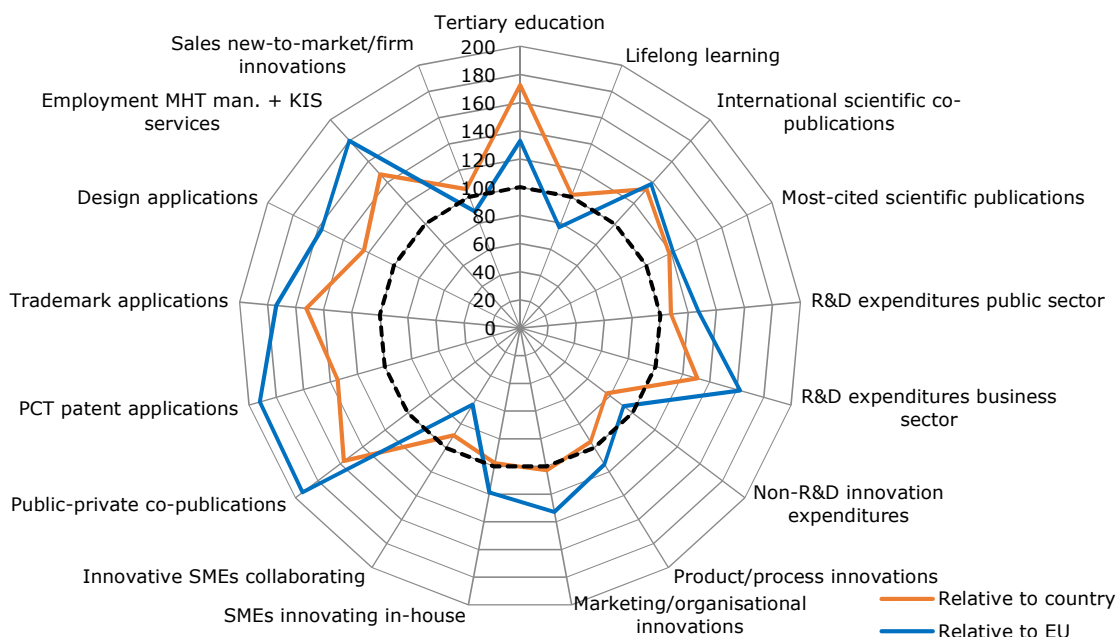
Oberbayern (DE21) is an **Innovation Leader +**; innovation performance has decreased over time (-6.5%).

The table on the left shows the normalised scores per indicator and relative results compared to Germany and the EU. The table also shows the Regional Innovation Index (RII) in 2019 compared to that of Germany and the EU in 2019, the RII in 2019 compared to that of the EU in 2011, and performance change over time between 2011 and 2019.

The radar graph shows relative strengths compared to Germany (orange line) and the EU (blue line), showing relative strengths (e.g. Public-private co-publications) and weaknesses (e.g. Innovative SMEs collaborating).

The table below shows data highlighting possible structural differences, e.g. Population density (above average) and Employment in Utilities & Construction (below average).

	DE21	DE	EU28
Share of employment in:			
Agriculture & Mining (A-B)	1.6	1.5	4.6
Manufacturing (C)	19.0	19.3	15.4
Utilities & Construction (D-F)	6.7	8.2	8.2
Services (G-N)	66.5	64.1	64.1
Public administration (O-U)	6.1	7.0	7.0
Average employed persons per enterprise (firm size), 2015-2016	10.1	10.1	5.5
GDP per capita (PPS), 2017	53,000	37,100	30,000
GDP per capita growth (PPS), 2013-2017	2.72	2.82	2.86
Population density, 2017	270	234	118
Urbanisation, 2018	79.1	79.3	76.0
Population size, 2018 (000s)	4,650	82,790	512,380