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An Exploration of Bruges' SDG Performance Using the Flemish SDG Monitor

Preliminary Report

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Abstract

This analysis reviews the performance of Bruges on reaching the Sustainable Development Goals (SDGs) using the 2020 SDG Index for Flemish Cities. Overall, Bruges performs well, especially when compared to other regions and cities with similar characteristics. In particular, it exceeds expectations on *SDG7 Affordable and Clean Energy*, *SDG10 Reduced Inequalities*, *SDG8 Decent Work and Economic Growth* and *SDG17 Partnership for the Goals*. In contrast, Bruges' scores are near the bottom of the distribution on *SDG12 Responsible Consumption and Production* and *SDG1 No Poverty*. Nevertheless, it performs significantly better on the latter goal than expected for a city of its size and population. Vice versa, for *SDG2 Zero Hunger* and *SDG15 Life on Land*, its scores are higher but lie well below the expectations. Our analysis looks at how and why the scores have changed over time. We suggest a few possible paths for improvement for those indexes where Bruges is still lagging. These include additional investment in organic agriculture (*SDG2b*), reducing *non-recycled waste* (*SDG12a*), and increasing *environmental protection* (*SDG15a*).

Keywords:

Sustainable Development Goals, Bruges

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Introduction

This report gives a general overview of the performance of the city of Bruges and the greater region of Bruges on the Sustainable Development Goals (SDGs), relative to other municipalities in Flanders.¹ We used the 2021 Flanders SDG index, which was constructed by a joint project between IDEA consult and the United Nations University Institute on Comparative Regional Integration Studies (UNU-CRIS). The index combines information on close to 100 indicators that cover various aspects of sustainable development into 16 indexes that SDGs except for *SDG14 Life Below Water*. These indexes are then merged into an overall assessment of the performance. The SDG indexes are available from the early 2010s up to 2020, although the availability of the underlying sources can differ significantly from year to year. In particular, the “stad en gemeentemonitor,” which provides close to three-quarters of the indicators, is only available every three years. Its most recent version is 2020, which is why we limit the analysis to this year.

The 16 indexes are computed using a simple average and can be interpreted similarly. The indicators are normalized to compare each municipality to the worst (0) and best scores (100) in Flanders in that year. We find that most of the indexes do not come close to these extreme values, implying that for most of the goals, municipalities compensate for their low scores on some indicators with higher scores elsewhere. This holds particularly for the overall index, where the values in 2020 lie between 47.10 and 66.9. A full description of the indicators and methodology can be found in the UNU-CRIS working paper (Standaert et al. 2021).² The index and indicators themselves can be explored using the online platform at <https://www.sdgmonitor.be>.

The following section discusses the overall performance, after which we discuss the areas where Bruges is doing well. We then examine where it has an average performance and where there is most room for improvement.

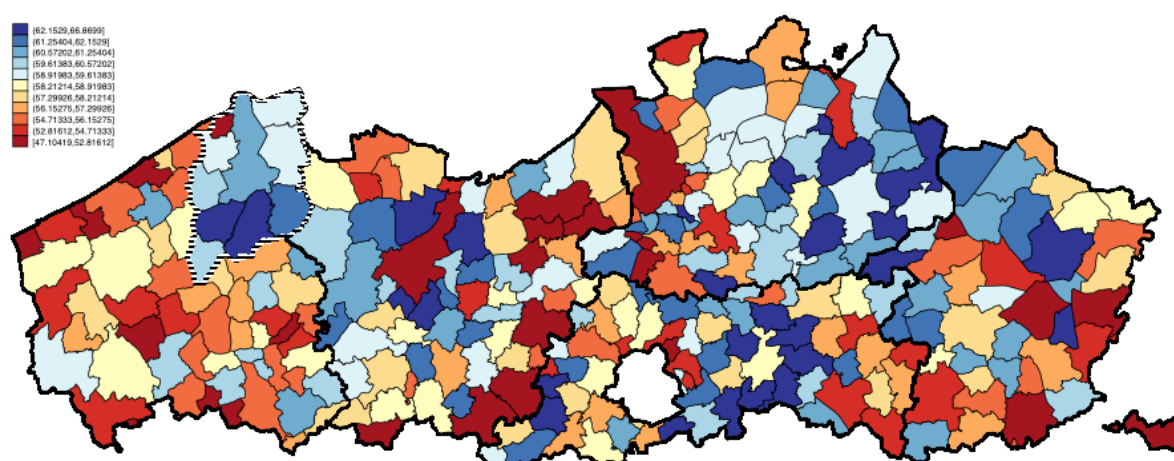
Bruges' Overall Performance

With an overall score of 61, the city of Bruges is within the top quarter of all Flemish municipalities. No other regional hub (“centrumstad”) has a higher score. The greater region of Bruges also scores relatively high, although not quite as high as the Kempen. Compared to the other areas in West-Flanders, Bruges and its greater region are clear outliers. Bruges has the fifth-highest score of West-Flemish cities, and Oostkamp, part of the Bruges region, has the fourth-highest score overall. As shown in Figure 1, the area forms a small blue cluster within a larger province that is mainly coloured yellow or red.

¹ The region of Bruges includes the following municipalities: Beernem, Blankenberge, Brugge, Damme, Jabbeke, Knokke-Heist, Oostkamp, Torhout, Zedelgem and Zuienkerke.

² Due to a methodological change following the report's publication, there are small differences in the values reported here and those in the working paper. Specifically, the new version rescales the indicators using Flanders' minimum (and maximum) values in that year instead of the median value of the lowest 10% scores.

Figure 1. The Overall SDG Scores in 2020







































































NOTES: The scores indicated by colour, with the highest scoring municipalities coloured dark blue and the lowest coloured dark red. The different provinces are indicated by the thick black lines, and the region of Bruges is indicated by the interrupted lines.

Following the example of the SDG Index and Dashboard (Sachs et al. 2021), Figure 2 summarises the 2020 scores of the city and region of Bruges in a dashboard. This table is colour-coded to indicate Bruges' position in the overall distribution. For example, its scores on SDG2 Zero Hunger and SDG6 Clean Water and Sanitation are the highest (82.1) and lowest (33.3) of all its scores. However, Bruges does not come near the Flemish maximum (minimum) because most municipalities have a high (low) score on these goals. As indicated by the coloured circles, SDG8 is in the second quartile, and SDG2 is in the third quartile. Together with the current scores, the coloured arrows indicate the evolution over the past ten years. For this comparison, the way in which the scores have been normalised has been kept constant over time. This means that, e.g., a substantial improvement (green upward arrow) signals an absolute increase in the scores, but not necessarily an improvement relative to the rest of Flanders.









The figure shows that Bruges' overall score is somewhat mixed: for half of the goals, the scores are excellent (first quartile), but a third also have a poor (third quartile) to very poor performance (fourth quartile).³ In particular, Bruges scores highly on *SDG11 Sustainable Cities and Communities*, *SDG13 Climate Action*, and *SDG8 Decent Work and Economic Growth*. However, it compensates with a meagre score on *SDG12 Responsible Consumption and Production* and *SDG1 No Poverty*. Those last two goals have been improving since 2017, most notably *SDG12* which grew by 5.7 points. The most significant change occurred in *SDG16 Peace, Justice and Strong Institutions*, *SDG15 Life on Land*, and *SDG17 Partnership for the goals*, where scores increased by 10.7, 8.7 and 5.4 points. For a more detailed look, we refer to Figure 4, which shows the box plot of all 17 indexes.

³ The quartiles give a sense of the distribution of the scores. After sorting the scores in descending order, the first quartile consists of the first 25% of the sample, i.e., 1st to 75th municipality, the second quartile is the 76th to 150th municipality, the third quartile the 151st to 225th municipality and the fourth quartile the 226th to 300th municipality.

Figure 2. SDG Dashboard For Bruges And The Region of Bruges (2020 Levels And 4-Year Trends)

	Bruges			Bruges Region		
Overall	60.9			59.7		
SDG1 No Poverty	62.6			72.1		
SDG2 Zero Hunger	33.3			37.3		
SDG3 Good Health and Well-being	59.5			57.7		
SDG4 Quality Education	60.5			67.3		
SDG5 Gender Equality	62.5			57.7		
SDG6 Clean Water and Sanitation	82.1			81.5		
SDG7 Affordable and Clean Energy	45.8			39.6		
SDG8 Decent Work and Economic Growth	56.6			51.7		
SDG9 Industry, Innovation and Infrastructure	54.6			54.6		
SDG10 Reduced Inequalities	71.7			69.8		
SDG11 Sustainable Cities and Communities	59.5			51.3		
SDG12 Responsible Consumption and Production	46.2			47.4		
SDG13 Climate Action	78.5			67.1		
SDG15 Life on Land	55.5			62.4		
SDG16 Peace, Justice and Strong Institutions	65.5			66.0		
SDG17 Partnership for the Goals	80.4			72.0		

NOTES: For Bruges (the Bruges' region) this table list the scores, a comparison of the scores with other Flemish (other reference Regions) and the evolution from 2017 to 2020.

- | | |
|---|--|
|  Good Performance (first quartile) |  Strong improvement |
|  Average performance (second quartile) |  Moderate improvement |
|  Challenges remain (third quartile) |  Stagnated |
|  Significant challenges remain (fourth quartile) |  Deteriorated |

As explained in the working paper (Standaert et al. 2021), a significant portion of the variation in the SDG indexes can be explained by characteristics outside of a municipality's immediate control. To that end, we ran a regression model to gauge the impact of these characteristics. Specifically, we looked at the influence of the population size, the municipality's size, median income, whether it is a regional hub, the size of the youth population (19-) and that of the elderly (80+). This also allows us to assess the extent to which a municipality's score deviated from what is expected. In addition, we also control for region-specific factors – historical or geographical factors that are closely correlated with a municipality's location – by including dummies for the reference regions.⁴ See Standaert et al. (2021) for the complete regression results.

Comparing the predicted scores for Bruges with Bruges' actual performance (Table 1), we note that Bruges exceeds its predicted scores for two out of the three goals. To get a better sense of how large the difference is, the last column of Table 1 compares the difference with the indexes' standard deviation. It reveals three indexes where Bruges does markedly better than expected: SDG7 Affordable and Clean Energy, SDG1 No Poverty and the overall SDG index. In addition, there are six more goals where the extent to which Bruges outperforms its predicted score exceeds half the standard deviation in the SDG index. In contrast, the difference is only minimal for most of the goals where Bruges scores below expectations. There is only one exception: Bruges performs well below expected for SDG2 Zero Hunger. The relatively high performance for SDG1 might come as a surprise, given that Bruges scores in the fourth quartile. Nevertheless, we expected a much lower score for a regional hub with its population size and median income. Only when we stop accounting for all three of these factors, do we see the expected score resemble the actual score.

We end our overall assessment by looking at the evolution in the scores over a ten-year period. To that end, Figure 3 compares the change in Bruges, the Region of Bruges and three reference regions: Flanders, the province of West-Flanders and the regional hubs. We see two distinct patterns. Flanders, West-Flanders and the Bruges' region follow a very similar pattern, with scores that remain relatively stable over time, except for a dip in 2012. Bruges instead follows the regional hubs, which show a considerable and consistent improvement over the ten years. The main difference is that Bruges' score is about five points higher than that of the regional hubs. As a result, while Bruges was initially second to last in this comparison, it had the highest scores from 2017 onwards. Overall, the scores of these five groups converged towards a higher value.

The following section will describe SDGs with the best performances in most detail, followed by those SDGs with average scores and the goals that need the most improvement.

⁴ Reference regions refer to regions at which cooperation at the inter-municipal and supralocal levels takes place in Flanders. There are currently 17 reference regions. <https://lokaalbestuur.vlaanderen.be/nieuws/vlaamse-regering-verdeelt-vlaanderen-in-17-referentieregio%E2%80%99s>.

Table 1. Actual Vs Predicted Scores For Bruges

	Score		Difference	
	Predicted	Actual	Normalized ^(a)	
SDG	56.67	60.94	4.27	1.07
SDG 1	46.60	62.60	16.00	1.13
SDG 2	51.62	33.34	-18.29	-1.32
SDG 3	54.84	59.48	4.65	0.50
SDG 4	48.93	60.50	11.57	0.89
SDG 5	62.77	62.52	-0.25	-0.02
SDG 6	82.77	82.08	-0.69	-0.07
SDG 7	32.09	45.81	13.72	1.25
SDG 8	51.27	56.64	5.37	0.54
SDG 9	56.26	54.59	-1.67	-0.19
SDG 10	64.46	71.75	7.28	0.77
SDG 11	57.19	59.51	2.32	0.20
SDG 12	43.22	46.21	2.99	0.22
SDG 13	77.10	78.54	1.44	0.14
SDG 15	58.13	55.46	-2.67	-0.17
SDG 16	54.90	65.53	10.63	0.68
SDG 17	64.60	80.46	15.86	0.50

NOTES: Comparison of the actual scores of Bruges on the SDG indexes with the predicted scores based on a linear regression model. ^(a)Difference between the expected and predicted scores, divided by the standard deviation of the index in 2020.

Figure 3. Evolution in the SDG Scores for Bruges, the Bruges' Region and Reference Groups

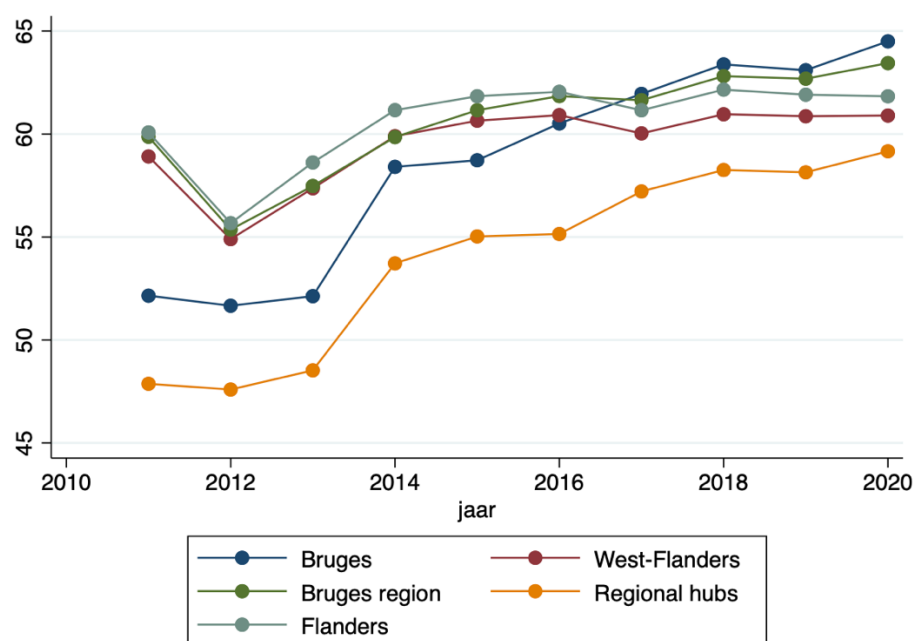
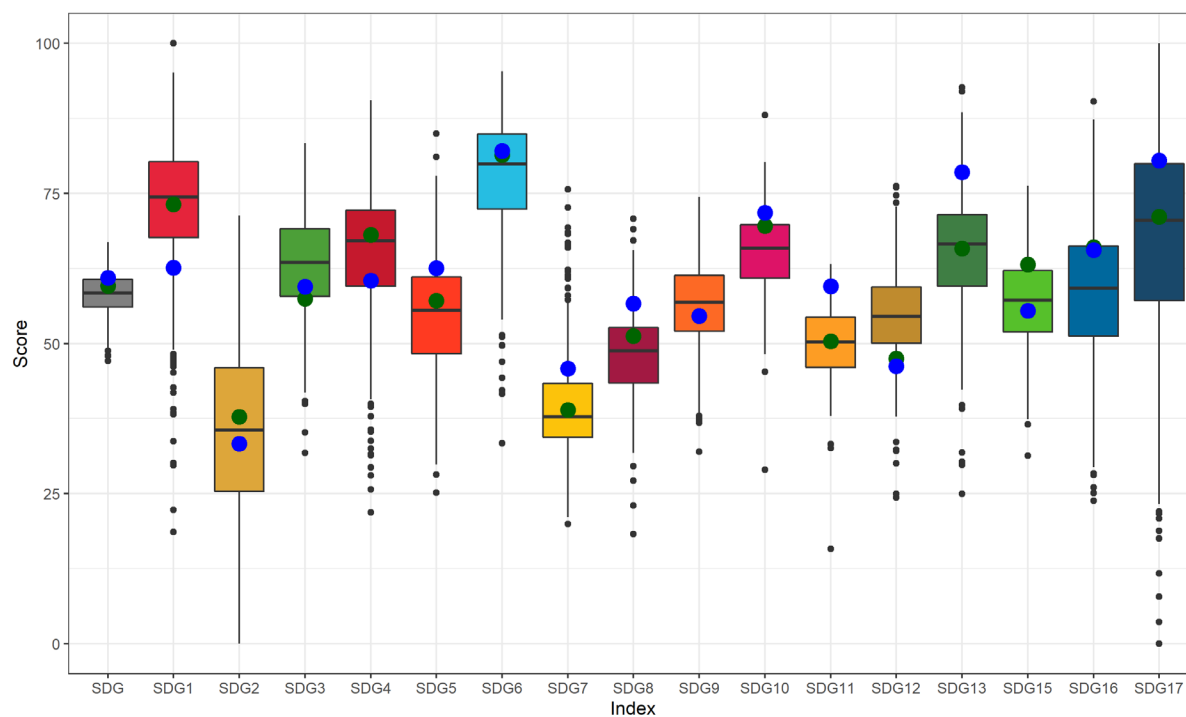


Figure 4. Box Plot Of The SDG Indexes



NOTES: Box plot of the 16 SDG indexes and overall index together with the scores for Bruges (blue dots) and the region of Bruges (green dots).

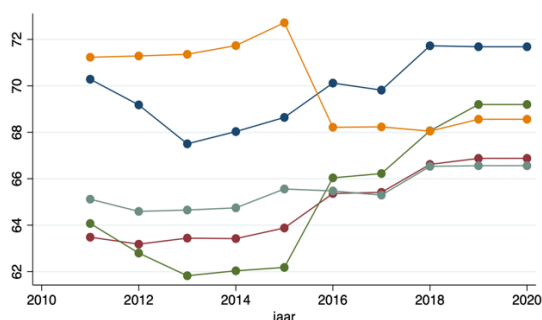
Best performances

This section discusses the goals where Bruges scored in the first quartile. These are listed in decreasing order of the extent to which Bruges' exceeds its expected score (cf. the last column of Table 1). To that end, Figure 5 compares the evolution in the index scores of Bruges and its greater region with three reference groups: the average score in Flanders, West-Flanders and the regional hubs. As is the case for all comparisons over time, the normalization of the scores is kept constant. An increase in the score corresponds to an actual improvement of the underlying indicators and vice versa.

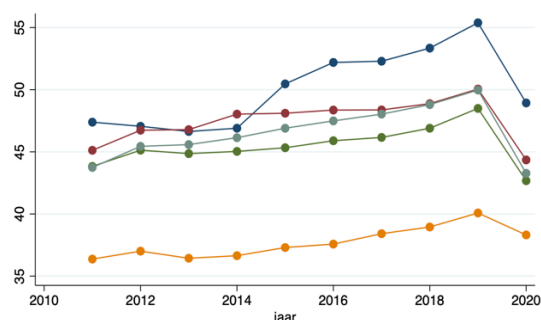
SDG 7 - Affordable and Clean Energy

The most striking feature in SDG7 is the sudden increase in Bruges score in 2016, deviating strongly from the general pattern. This jump seems to be driven by *SDG7b local renewable energy production*, where Bruges' growth starts outpacing all other groups from 2015 onwards. The drop in scores in 2020 is due to the inclusion of *SDG7d charging stations for electric vehicles*, which is only available that year. While higher than that of the average (West-)Flemish municipality, Bruges does seem to lag behind the other regional hubs. Finally, *the energy poverty of households (SDG7a)* seems to deteriorate steadily across all groups, with only a small improvement in the final two years.

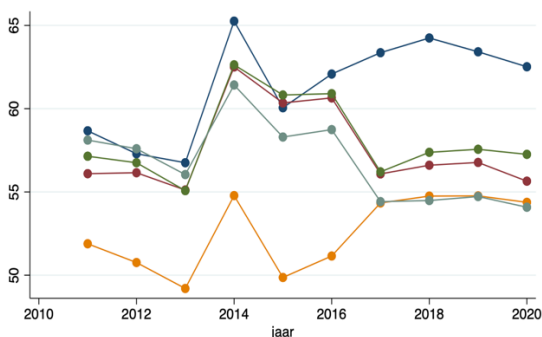
Figure 5. Best Performances



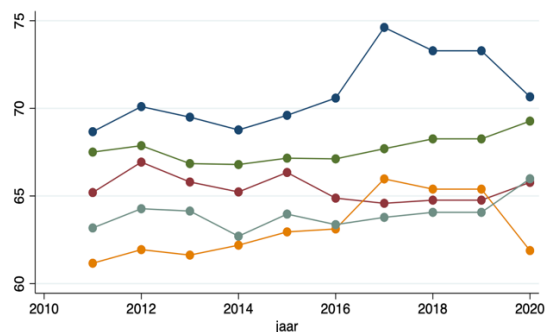
SDG 5 - Gender Equality



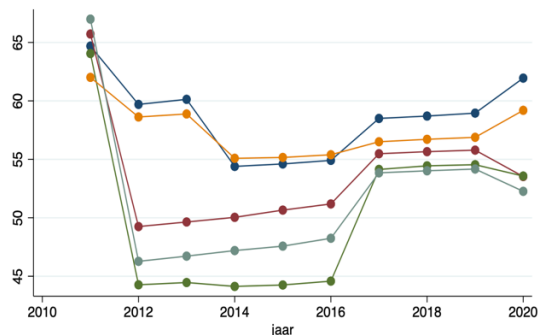
SDG 7 - Affordable and Clean Energy



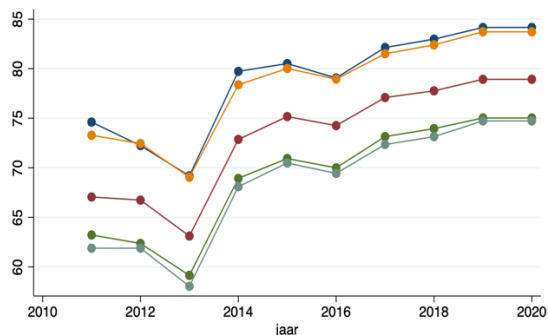
SDG 8 - Decent Work and Economic Growth



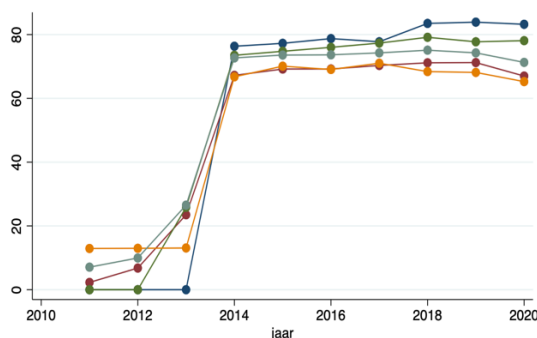
SDG10 - Reduced Inequalities



SDG 11 - Sustainable Cities and Communities



SDG 13 - Climate Action



SDG 17 - Partnership for the Goals



As shown in Table 1, Bruges scores above expectations on *SDG7*, mainly driven by *SDG17b the local production of renewable energy (+28 points)* and *SDG17c decrease in CO2 emissions (+20 points)*. Central hubs with a similar population size are expected to perform almost 18 points worse on CO2 reduction than Bruges and 13 points worse on renewable energy production.

SDG 10 - Reduced Inequalities

Over the past decade, Bruges has consistently outperformed all reference groups on *SDG 10*. Its scores in 2017 were exceptionally high, enough to place Bruges in the top 10 of all municipalities. This is primarily due to its very high score on the *attitudes toward diversity (SDG10a)* and the *employment rate gap (SDG10c)*. Except for *SDG10a1 percentage of the population that dislikes people of different cultures*, all indicators decline from 2017 onwards, explaining the drop in the score.

SDG 8 - Decent Work and Economic Growth

The patterns in *SDG8* are very similar for all groups. In most cases, we see an improvement over time, but *SDG8d the long-term unemployment rate* and *SDG8f vacant retail floor space* both get worse as time goes on. Bruges behaves like the average Flemish city for

almost all indicators rather than a regional hub. The latter tend to have the lowest score for most indicators, except for *SDG8e gross value added per employee* and *SDG8g vulnerable people employed in the social economy*. This last indicator is also the only indicator where Bruges scores markedly better than the average city in (West-)Flanders, which drives the overall excellent performance on *SDG8*. It also explains the big jump in Bruges' overall performance in 2017, as this is the first year for which *SDG8g* is available. The variation *SDG8* is caused by the sudden jump in *SDG8b the net growth rate of startups* in 2014 and 2016.

Bruges scores slightly higher than expected on *SDG8* (+6 points, Table 1), which is mainly driven by a higher employment rate (*SDG8a*), lower unemployment figures for women, youth, and the elderly (*SDG8c*) and less vacant retail floor space (*SDG8f*)

SDG 17 - Partnership for the Goals

As shown in Figure 5, the scores for *SDG17* spiked in 2014 for all of the groups considered. In contrast to other spikes, this is not caused by the sudden addition of an indicator. Instead, this spike is caused by an increase in *SDG17a municipal spending on development assistance*. Before the transformation, this indicator was zero for 225 municipalities in 2011 and 158 municipalities in 2013. This suddenly changed in 2014, when only 18 municipalities spent nothing. Bruges, in particular, went from zero expenditures in 2013 to outperform all other groups in 2014. All in all, this is likely caused by an accounting change rather than a policy change.

The subsequent small jump in Bruges score in 2018 is caused by a rapid improvement in *SDG17b municipal debts per inhabitant*. Bruges went from second to lowest to outperforming all other reference groups. This variable is also why Bruges is scoring 16 points more than expected on *SDG17* (Table 1). Central hubs with its population size are expected to have a much higher debt per inhabitant than Bruges (-15 points).

SDG 11 - Sustainable Cities and Communities

SDG11 contains quite a few indicators (18 indicators combined into seven sub-indexes), and as such, its evolution is the result of several different patterns. Overall, Bruges is found to follow other regional hubs. On the other hand, the region of Bruges more closely resembles the rest of Flanders.

It is important to note is that the initial decrease from 2011 to 2012 is not caused by an actual drop in performance but by the addition of an indicator that was previously unavailable: *SDG11e the availability of social housing*. This indicator is much higher for the central hubs than for the other municipalities, so we see the overall indicator remain relatively stable for this group.

Both Bruges and the regional hubs saw a drop in 2014 due to different reasons. In 2014, the indicator *SDG11d unsafe traffic conditions for children and cyclists* was added, for which Bruges has the lowest score of all groups, including other regional hubs. However, Bruges compensates with its score on the *SDG11c satisfaction of housing*, which started to increase in 2014. This indicator is mainly responsible for the growing divergence between Bruges and the other regional hubs.

Overall, two indicators are responsible for Bruges' stellar performance on this *SDG*: *SDG11c sustainable transportation* and *SDG11g satisfaction with cultural activities*. For both *SDG11c* sustainable transportation and *SDG11f neighbourhood nuisance and safety*, the score of Bruges and the regional hubs remains the same over time, but that of

the other groups declines. In contrast, *SDG11b CO2 emissions public transportation and streetlights* and *SDG11d Unsafe traffic conditions for children and cyclists* improve over time, but Bruges score remains the lowest of the five groups.

SDG 13 - Climate Action

SDG13 contains only three variables, two of which display a similar pattern. Except for a temporary dip in 2013, *SDG13a CO2 emissions of households* and *SDG13c energy consumption per household* improve year-to-year. The *CO2 emissions of private and commercial transportation (SDG13b)*, on the other hand, remain unchanged. The reason for Bruges' outlying score is immediately evident: Bruges has either the highest or second-highest score. Overall, Bruges' evolution is similar to that of other regional hubs, scoring consistently high. The same cannot be said of the larger region of Bruges, which follows the average pattern for Flanders.

SDG 5 - Gender Equality

While Figure 5 suggests that Bruges and the other regional hub follows a different pattern for *SDG5* than the rest of Flanders, this is somewhat misleading. This pattern results from three rather different dynamics in the underlying indicators.

First, Bruges consistently outperforms all other groups in *the gender gap in employment (SDG5a)*, and this variable is mainly responsible for Bruges' high performance on *SDG5* overall. While the difference between Bruges and the region of Bruges does decrease over time, it grows between Bruges and the other regional hubs.

Second, *the incidence of domestic abuse (SDG5b)* causes the sudden downward shift in the score of the regional hubs. This variable is only available from 2015 onwards and much lower for the regional hubs than other municipalities and deteriorates even further. Bruges, however, forms the exception with initial high scores and that keep improving.

Finally, we see the opposite patterns for *the gender gap in part-time employment (SDG5c)*. Not only do the scores for this indicator steadily deteriorate over time, but this is also the one indicator where the regional hubs outperform the other categories by as much as 10 points. Bruges' performance does not follow that of other central hubs but more closely resembles the rest of Flanders.

Average Performance

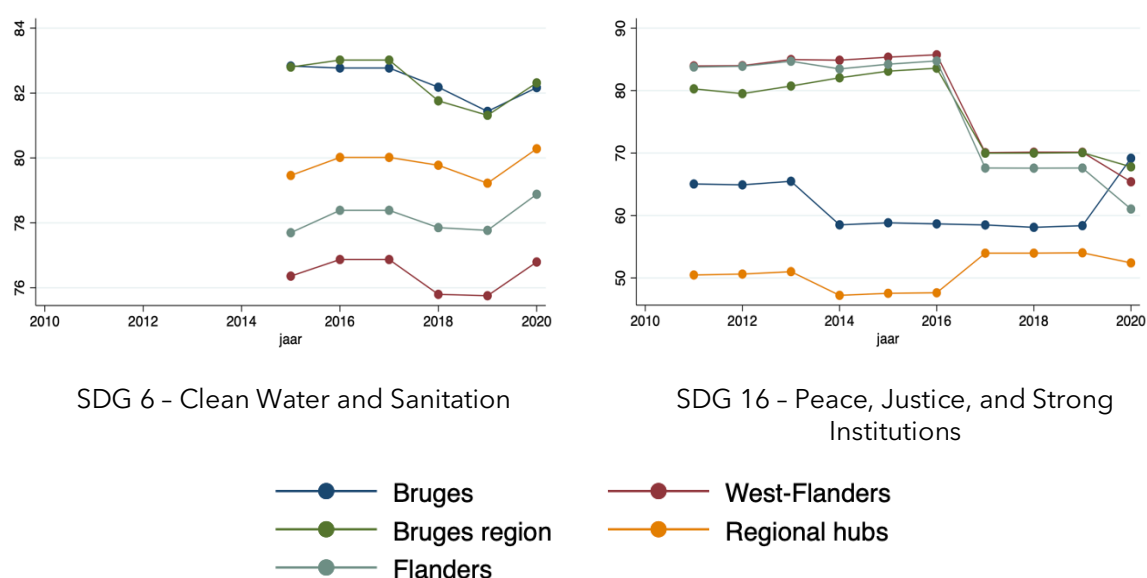
SDG 16 - Peace Justice and Strong Institutions

SDG16 is somewhat of an edge case, as Bruges scores just below the first quartile. Nevertheless, Bruges did score relatively poorly for most of the period considered (Figure 6). This jump in 2020 is primarily due to a sudden improvement in *SDG16d mistrust in the municipal services* and *SDG16g satisfaction with citizen participation*, where Bruges abruptly outperforms the other groups. This is helped by a stable score on *SDG16f satisfaction with information sharing by the government*, which decreases for the other groups. As is the case for all groups considered, *SDG16b the incidence of crime* slowly improves over time. While Bruges scores quite low compared to the average (West-) Flemish municipality, it scores markedly better than the other regional hubs. Interestingly,

Bruges and its region do not perform at similar levels; the region of Bruges behaves more like the rest of (West-)Flanders.

As shown in (Table 1), Bruges scores better than expected for *SDG16*. Most of the indicators are contributing to this.⁵ Still, by far the most significant source for this higher-than-expected score is *SDG16a*, the perception of unsafety, where Bruges scores 24 points higher than expected. For a regional hub with its population size, we would expect the inhabitants of Bruges to feel a lot more unsafe than they are. *SDG16g* satisfaction with citizen participation is also much higher than anticipated (+19 points), although this is as-of-yet unexplained.

Figure 6. Average Performance



SDG 6 - Clean Water and Sanitation

While Bruges' overall score on *SDG6* is high (82.1), this is the case for most municipalities. While Figure 6 seems to suggest a substantial difference between the groups, this is because the y-axis only displays a 10-point difference between the groups. In short, the scores are all very similar. Bruges has a very high score on the *fraction of houses connected to the sewer system (SDG6a)* and *those whose wastewater gets treated (SDG6b)*. However, like most regional hubs, its score on *SDG6c soil sealing* is substandard.

Challenges Remain

SDG 9 - Industry, Innovation, and Infrastructure

Figure 7 shows that the pattern followed by Bruges closely resembles that of the regional hubs. Conversely, Bruges and its region had a contrasting pattern. They started with mediocre scores in the 2010s, which started improving and now lie much closer to the

⁵ All variables except *SDG16c* *mistrust in the police* and *SDG16e* have higher than expected values.

Flemish average. A closer look at the underlying indicators reveals a much more complex story. While almost all indicators remain stable over time, they each have a different ranking for the five groups considered. Only *SDG9c lack of access to high-speed internet* shows a consistent increase for all groups.

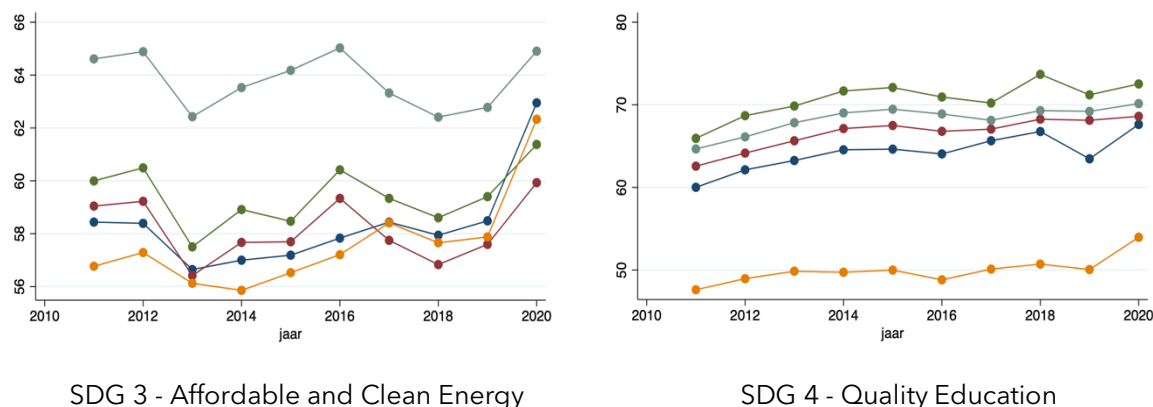
The first indicator, *SDG9a CO2 emissions in the tertiary sector*, reveals a meagre score for the regional hubs and an even lower one for Bruges, with a more than 30-point difference with the average Flemish municipality. This difference did decrease in 2014, which explains that first jump in the overall score for *SDG9*. The *CO2 emissions of industry (SDG9b)* are also stable but have a completely different ranking. Here Bruges and the region of Bruges outperform the rest of Flanders, particularly the rest of West-Flanders, although the difference in the scores is much smaller than for *SDG9a*. The average scores for *SDG9d employment in sectors with potential for economic renewal* are for almost all municipalities in Flanders. A small group of municipalities have very high scores: only 21 have a greater than 50. While Bruges' scores at the median for this indicator, it still lies well below the average for Flanders and especially below other regional hubs. Finally, *SDG9e employment in medium and high-tech sectors* is where Bruges and the other regional hubs score well above the Flemish medium. While the score remains stable, the addition of this variable in 2016 explains the sudden convergence of the overall index.

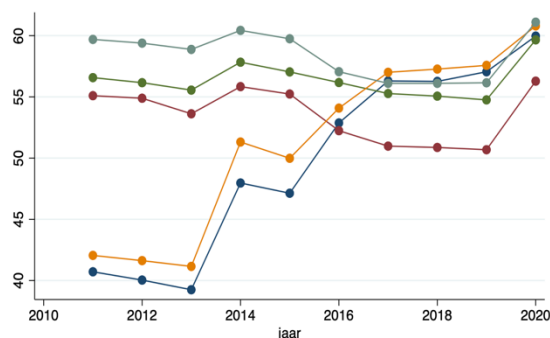
Indicator	Score	Indicator	Score	Indicator	Score
SDG9a	43.5 ●	SDG9c	42.9 ●	SDG9e	76.8 ●
SDG9b	94.8 ●	SDG9d	14.9 ●		

Path to improvement?

Efforts to reduce the *CO2 emissions in the tertiary sector (SDG9a)* have a lot of potential for improving the score on *SDG9*, given that Bruges scores are placed in the fourth quartile. However, we should note that Bruges already has the lowest emission of all central hubs. Alternatively, Bruges has a meagre score for *employment sectors with high potential for economic renewal (SDG9d)*, an indicator of where other regional hubs manage to perform better.

Figure 7. Remaining Challenges





SDG 9 - Industry, Innovation and Infrastructure



SDG 3 - Good Health and Well-being

As shown in Figure 7, the scores for Bruges and its greater region closely resemble that of the regional hubs and the West-Flanders. They are lag behind until the late 2010s but make a considerable jump in the final year. Nevertheless, they remain well below the Flemish average. Bruges scores slightly better than expected (Table 1), given that it is a regional hub and the size of its elderly population.

While most indicators show a steady improvement over time, the *prevalence of chronic diseases (SDG3b)* and *diabetes (SDG3h)* gradually deteriorate. The sudden drop in the overall scores in 2013 is caused by a decrease in the *screening for cervical cancer (SDG3c1)*, which fortunately recovers relatively quickly.

The final jump in the scores in 2020 is due to a jump in *SDG9f the participation in sports*.

Path to improvement?

Bruges scores lie in the fourth quartile for four of the indicators in *SDG3*. *SDG3c road safety* has been showing a steady improvement over the years, and Bruges has already managed to close the gap with the other regional hubs. Increased efforts to *screen for cervical (SDG3e1)* and *breast cancer (SDG3e2)* could also yield significant gains.

Indicator	Score	Indicator	Score	Indicator	Score
SDG3a	79.2 ●	SDG3c	44.6 ●	SDG3e3	71.1 ●
SDG3a1	94.7 ●	SDG3d	67.6 ●	SDG3f	62.1 ●
SDG3a2	66.7 ●	SDG3e	54.2 ●	SDG3g	61.5 ●
SDG3a3	76.3 ●	SDG3e1	27.5 ●	SDG3h	66.7 ●
SDG3b	40.0 ●	SDG3e2	63.9 ●		










SDG 4 – Quality Education

The scores for *SDG4* are very stable over time (Figure 7). While Bruges does worse than the average (West-) Flemish municipality and its greater region, it performs much better than the other regional hubs. This difference explains the better-than-expected performance of Bruges, as there is a strong negative correlation between the quality of education and regional hubs with a large population.

The stability in the overall scores is reflected in the individual indicators of *SDG4*. While Bruges consistently scores above the other regional hubs, it has a markedly higher score on *SDG4b* the “*onderwijs kansarmoede index*”, which tracks the number of underprivileged children. The slight dip in the Bruges score in 2014 can be attributed to a temporary drop in *SDG4e1*, the *fraction of toddlers with a minimum attendance in kindergarten*. Over the last five years, the *fraction of people dropping out of secondary education (SDG4a)* has slowly deteriorated, but this seems to be the case for most municipalities.

Path to improvement?

SDG4d is where Bruges scores near the bottom of the distribution, and its scores on *SDG4a*, *SDG4b* and *SDG4c* also lie below the median. Nevertheless, Bruges is outperforming the other central hubs for all four indicators by a significant amount in some cases.

Indicator	Score	Indicator	Score	Indicator	Score
SDG4a	55.7 	SDG4d	52.2 	SDG4e	78.6 
SDG4b	77.8 	SDG4d1	53.8 	SDG4e1	79.9 
SDG4c	38.1 	SDG4d2	50.6 	SDG4e2	77.4 

Significant Challenges Remain

The final group of SDGs are the ones where there is most room for improvement, either because Bruges scores in the last quartile (*SDG1* and *SDG15*) or because we expected Bruges to perform much better (*SDG2* and *SDG15*)

SDG 1 – No Poverty

Even though Bruges has a score of 62 on *SDG1*, this still places it in firmly lowest quartile as most municipalities have a high score. We find that the central hubs with larger populations score very poorly on this goal. However, within that category, Bruges has the highest score.

Overall, the scores for *SDG1* have been decreasing this past decade, driven by a deterioration in the *number of children living in (subjective) poverty (kansarmoede*

index, *SDG1d*). Most groups also show a decrease in *SDG1a the housing affordability*, but Bruges is the exception.

Path to improvement?

Not only is Bruges score on *SDG1d* in the last quartile, but it has also decreased at a more rapid rate than the other groups. Its scores on *SDG1b people receiving financial support* is also relatively low but stable and much higher than it is for other central hubs. Further efforts to improve the *affordability of housing (SDG1a)* would help.

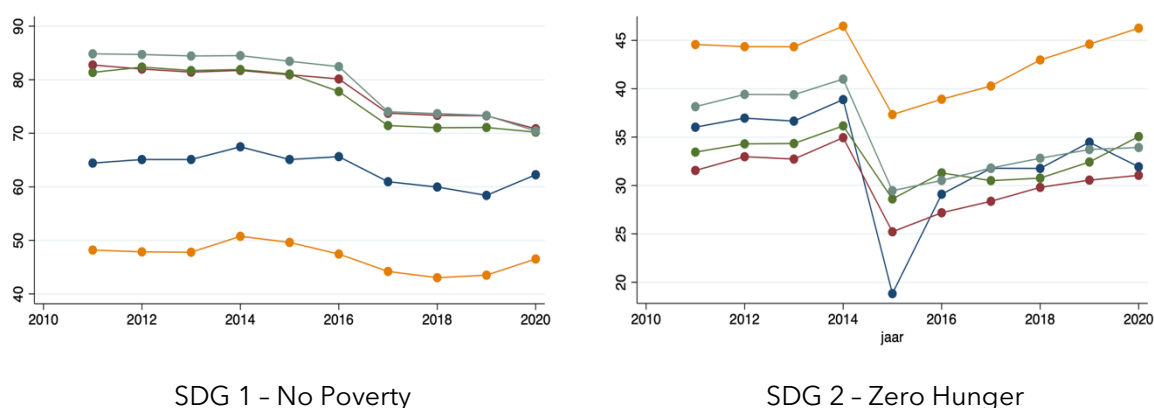
Indicator	Score		Indicator	Score		Indicator	Score	
SDG1a	56.5	●	SDG1c	60.0	●	SDG1d	60.3	●
SDG1b	73.5	●						

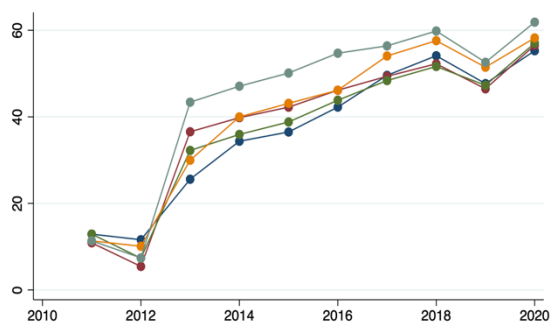
SDG 2 - Zero Hunger

While Bruges scores somewhere in the third quartile on *SDG2*, its score is significantly lower (-18 points) than what we would have expected based on its characteristics (Table 1). We see a slow improvement in *SDG2* over time that is interrupted by a considerable drop in the score in 2015. This drop is not caused by a change in the performance but by the addition of *SDG2b land devoted to organic agriculture*. Both indicators included in *SDG2* slowly improve for all groups considered. Bruges does manage to improve its performance on *SDG2a CO2 emissions in agriculture*, particularly in 2017. However, it compensates by a worsening on *SDG2b*.

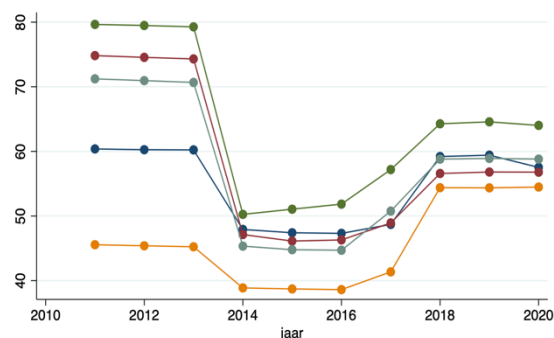
Even though the indicators are significantly negatively correlated (-0.2), the central hubs tend to score higher on agricultural CO2 emissions and organic agriculture. Bruges' lower-than-expected score can be explained by the fact that it goes against this pattern.

Figure 8. Significant Challenges Remain





SDG 12 - Responsible Consumption and Production





SDG 15 - Life on Land



Path to improvement?

Further efforts to promote organic agriculture are likely to yield the highest return, particularly as Bruges' evolution on this indicator is going against the overall pattern in (West-) Flanders, the region of Bruges and the regional hubs.

Indicator	Score	Indicator	Score
SDG2a	42.1 	SDG2b	24.6 

SDG 12 - Responsible Consumption and Production

On *SDG12*, Bruges slightly lags behind the other categories, but overall, the scores are close and follow similar patterns. In contrast to what Figure 8 suggests, almost all indicators are steadily improving. The sudden jumps in the index are caused by differences in when each indicator is available. The last dip, in particular, is caused by the addition of *SDG12c employment in the circular economy*, which is only available in 2019.

With a score of 15, it seems that Bruges scores poorly on *SDG12c*. However, this indicator has a handful of municipalities with very high scores that push down the scores of the others. Bruges' score puts it somewhere just above the median.

Path to improvement?

There are two indicators in *SDG12* where Bruges scores particularly low: *non-recycled waste (SDG12a)* and housing sustainability (*SDG12d*). The latter has been improving for all groups, but this has started to slow down for the central hubs. Similarly, Bruges has made considerable strides to decrease the amount of non-recycled waste. Over the past ten years, it managed to close the gap with the region of Bruges. Nevertheless, it remains below the level of other hubs, which themselves are well below the average of Flanders.

Indicator	Score		Indicator	Score		Indicator	Score	
SDG12a	45.9	●	SDG12c	15.6	●	SDG12d	55.8	●
SDG12b	65.8	●						

SDG 15 – Life on Land

Finally, *SDG15* is the other index where Bruges is scoring below expectations, although the difference is much smaller than what it was for *SDG2* (Table 1).

The most notable feature of the pattern displayed in Figure 8, the sudden drop in 2014, is caused by the addition of *SDG15a municipal spending on environmental protection*, where most municipalities have a low score. The subsequent sudden increase in the *SDG15* index results from the addition of a variable: *SDG15b speed with which the soil is sealed*, for which only 2018 is available. Only two indicators are increasing: *SDG15d satisfaction with green infrastructure* and, to a lesser extent, *SDG15a*. In contrast, *SDG15c undeveloped land* steadily deteriorates for all groups considered.

Path to improvement?

Given the very low score, increasing the *spending on environmental protection* (*SDG15a*) would be a straightforward way to improve *SDG15*. Bruges has a considerable gap with both the region of Bruges and other regional hubs. Needless to say, this spending should be targeted appropriately. For example, it could be targeted in such a way to compensate for the drop in *satisfaction with green infrastructure* (*SDG15d*). Finally, further efforts could be undertaken to stop the decrease in *undeveloped land* (*SDG15c*).

Indicator	Score		Indicator	Score		Indicator	Score	
SDG15a	18.8	●	SDG15c	55.9	●	SDG15d	55.6	●
SDG15b	91.6	●						

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A Full Dutch Description of the Indicators and their Source

SDG indicators		Source
SDG1	No Poverty	
1a	Aandeel van de inwoners waarvan de totale uitgave voor wonen minstens 30% bedraagt van het gezinsinkomen.	Stad-Gemeentemonitor
1b	Personen met een equivalent leefloon t.a.v. totale bevolking	Stad-Gemeentemonitor
1c	Aandeel van de inwoners dat het afgelopen jaar problemen heeft gehad om één of meerdere rekeningen (op tijd) te betalen	Stad-Gemeentemonitor
1d	Kansarmoede-index van Kind en Gezin	Stad-Gemeentemonitor
SDG2	Zero Hunger	
2a	Hoeveelheid CO ₂ -emissie van de landbouw (in logs) per inwoner in de gemeente (in logs)	Provincie in cijfers
2b	Totale oppervlakte landbouw onder bio-controle ($\log(1+x)$) ten opzichte van de totale landbouwareaal (\log).	Depart. Landbouw en Visserij
SDG3	Good Health and Wellbeing	
3a	\sum Tevredenheid voorzieningen	
3a1	Aandeel van de inwoners dat tevreden is over de gezondheidsvoorzieningen.	Stad-Gemeentemonitor
3a2	Aandeel van de inwoners dat vindt dat er in de gemeente voldoende geschikte plekken voor opgroeiende jeugd zijn.	Stad-Gemeentemonitor
3a3	Aandeel van de inwoners dat tevreden is over de ouderenvoorzieningen.	Stad-Gemeentemonitor
3b	Aandeel rechthebbenden met minstens één statuut chronische aandoening.	InterMutualistisch Agentschap
3c	Aantal verkeersslachtoffers per 1000 inwoners	Provincie in cijfers
3d	Aantal sterfgevallen per 1000 inwoners	Statbel
3e	\sum Aandeel inwoners dat zich preventief laat onderzoeken op kanker	

3e1	Totale dekkingsgraad baarmoederhalskankerscreening (% vrouwen 25-64)	Provincie in cijfers
3e2	Totale dekkingsgraad borstkankerscreening (% vrouwen 50-69)	Provincie in cijfers
3e3	Totale dekkingsgraad darmkankerscreening (% 51-74-jarigen)	Provincie in cijfers
3f	Aandeel van de inwoners dat minstens wekelijks actief aan sport doet	Stad-Gemeentemonitor
3g	Aandeel rechthebbenden die met 2+ contacten met de tandarts in 2 van de 3 jaren	Stad-Gemeentemonitor
3h	Aandeel rechthebbenden met afleveringen antidiabetica of met naar diabetes verwijzende nomenclatuur	Stad-Gemeentemonitor

SDG4 Quality Education

4a	Aandeel jongeren tussen 18 en 25 jaar zonder secundair diploma of kwalificatie	Stad-Gemeentemonitor
4b	Onderwijs kansarmoede-index	Stad-Gemeentemonitor
4c	Fractie laaggeschoolde niet-werkende op totaal aantalwerkzoekenden	Stad-Gemeentemonitor
4d	\sum Gemiddelde schoolse vertraging (naar woonplaats) lager en middelbaar	
4d1	Fractie leerlingen met minstens 1 jaar vertraging in lager onderwijs (naar woonplaats)	Stad-Gemeentemonitor
4d2	Fractie leerlingen met minstens 1 jaar vertraging in secundair onderwijs (naar woonplaats)	Stad-Gemeentemonitor
4e	\sum Kwaliteit en aanwezigheid van kleuteronderwijs	
4e1	Fractie leerlingen in kleuteronderwijs met minimumaanwezigheid	Stad-Gemeentemonitor
4e2	Aandeel van de inwoners dat tevreden is over de opvang van baby's en peuters.	Stad-Gemeentemonitor

SDG5 Gender Equality

5a	Werkzaamheidsgraad van vrouwen (20-64 jaar) gedeeld door de werkzaamheidsgraad van mannen (20-64 jaar)	Stad-Gemeentemonitor
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5b	Aantal feiten van intrafamiliaal geweld per 10000 inwoners	Stad- Gemeentemonitor
5c	Absolute waarde van verschil in mannelijke en vrouwelijke deeltijdse tewerkstelling	Stad- Gemeentemonitor
<hr/>		
SDG6	Clean Water and Sanitation	
6a	Fractie inwoners die zijn aangesloten op een riolering en lozen op een rioolwaterzuiveringsinstallatie	Stad- Gemeentemonitor
6b	Fractie inwoners die zijn aangesloten op een riolering	Stad- Gemeentemonitor
6c	Bodemafdekking: fractie oppervlakte met artificiële, (semi-)ondoorlaatbare materialen	Stad- Gemeentemonitor
<hr/>		
SDG7	Affordable and Clean Energy	
7a	\sum Energie-armoede huishoudens	
7a1	Aantal afsluitingen elektriciteit ten opzichte van aantal toegangspunten	VREG ^(a)
7a2	Aantal afsluitingen aardgas ten opzichte van aantal toegangspunten	VREG ^(a)
7a3	Aantal budgetmeters elektriciteit ten opzichte van aantal toegangspunten	Stad- Gemeentemonitor
7a4	Aantal budgetmeters aardgas ten opzichte van aantal toegangspunten	Stad- Gemeentemonitor
7b	Lokale productie groene elektriciteit t.o.v. totale elektriciteitsverbruik (max = 100%)	Provincie in cijfers
7c	Afname in CO ₂ -uitstoot door energie uit hernieuwbare bronnen (log) per inwoner (log)	Provincie in cijfers
7d	Aantal publieke laadpalen voor elektrische voertuigen per inwoner	Stad- Gemeentemonitor
<hr/>		
SDG8	Decent Work and Economic Growth	
8a	Werkzaamheidsgraad 20-64 jaar (%)	Stad- Gemeentemonitor
8b	Nettogroeiratio van ondernemingen: (oprichtingen - stopzetting) / actieve ondernemingen	Stad- Gemeentemonitor

8c	Σ Werkloosheidsgraad vrouwen, jongeren, ouderen	
8c1	Aandeel niet-werkende vrouwen van 18-64 jaar (t.o.v. vrouwen 18-64 jaar)	Provincie in cijfers
8c2	Aandeel niet-werkendewerkzoekenden van 18-24 jaar (t.o.v. inwoners 18-24 jaar)	Provincie in cijfers
8c3	Aandeel niet-werkendewerkzoekenden van 55-64 jaar (t.o.v. inwoners 55-64 jaar)	Provincie in cijfers
8d	Aandeel niet-werkende werkzoekenden meer dan 2 jaar werkloos	Provincie in cijfers
8e	Bruto toegevoegde waarde per werkende (€)	Stad- Gemeentemonitor
8f	Totale leegstand ten opzichte van de totale winkelvloeroppervlakte (WVO)	Provincie in cijfers
8g	Doelgroepwerknemers min. 1 kwartaal tewerkgesteld in de sociale economie ($\log(1+x)$) per inwoners 18-64 jaar (\log)	Stad- Gemeentemonitor

SDG9	Industry, Innovation and Infrastructure
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9a	CO ₂ -emissie van tertiaire sector in ton (samengeteld) per inwoner	Stad- Gemeentemonitor
9b	CO ₂ -emissie van industrie sector in ton (samengeteld) per Inwoner	Stad- Gemeentemonitor
9c	Aandeel van de inwoners dat in dewoning niet beschikt over internet	Stad- Gemeentemonitor
9d	Tewerkstelling in sectoren met economisch vernieuwingspotentieel t.o.v. totale tewerkstelling	Stad- Gemeentemonitor
9e	Medium-hoogtechnologische tewerkstelling t.o.v. totale tewerkstelling	Provincie in cijfers

SDG10	Reduced Inequality
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10a	Σ Houding tegenover diversiteit	
10a1	Fractie inwoners dat aangeeft andere culturen niet sympathiek te vinden	Stad- Gemeentemonitor
10a2	Fractie inwoners dat vindt dat er te veel mensen van andere culturen zijn	Stad- Gemeentemonitor

10b	Inkomensongelijkheid: interkwartiele coëfficiënt	Provincie in cijfers
10c	Herkomstkloof in de werkzaamheid: Tewerkstellingen Belgen vs. niet-EU burgers	Stad-Gemeentemonitor

SDG11 Sustainable Cities and Communities

11a	Aandeel van de inwoners dat tevreden is over de woning.	Stad-Gemeentemonitor
11b	\sum CO ₂ emissie openbaar vervoer en verlichting	
11b1	CO ₂ emissie openbaar vervoer in ton per inwoner	Provincie in cijfers
11b2	CO ₂ emissie openbaar verlichting in ton per inwoner	Provincie in cijfers
11c	Fractie die duurzaam verplaatst tussen woonplaats en werk, school of opleiding in de gemeente/buurt	Stad-Gemeentemonitor
11d	\sum Verkeer is onveilig voor fietsers of kinderen	
11d1	Fractie die aangeeft dat het onveilig is voor de kinderen om zich te verplaatsen in de gemeente/buurt	Stad-Gemeentemonitor
11d2	Fractie die aangeeft dat het onveilig is om te fietsen in de gemeente/buurt	Stad-Gemeentemonitor
11e	Aandeel sociale woningen tav totale huishoudens	Stad-Gemeentemonitor
11f	\sum Buurthinder en vanadalisme	
11f1	Fractie inwoners dat nooit/zelden wordt lastiggevalen worden op straat	Stad-Gemeentemonitor
11f2	Fractie inwoners dat nooit/zelden last heeft van burenlawaai	Stad-Gemeentemonitor
11f3	Fractie inwoners dat nooit/zelden last heeft van ander lawaai	Stad-Gemeentemonitor
11f4	Fractie inwoners dat nooit/zelden last heeft van zwerfvuil	Stad-Gemeentemonitor
11f5	Fractie inwoners dat nooit/zelden last heeft van dieren	Stad-Gemeentemonitor
11f6	Fractie inwoners dat nooit/zelden last heeft van hondenpoep	Stad-Gemeentemonitor
11f7	Fractie inwoners dat nooit/zelden last heeft van vandalisme	Stad-Gemeentemonitor
11f8	Fractie inwoners dat nooit/zelden last heeft van drugsdealing	Stad-Gemeentemonitor

11f9	Fractie inwoners dat nooit/zelden last heeft van onaangepaste snelheid	Stad-Gemeentemonitor
11f10	Fractie inwoners dat nooit/zelden last heeft van sluipverkeer	Stad-Gemeentemonitor
11g	Aandeel van de inwoners dat tevreden is over de culturele voorzieningen.	Stad-Gemeentemonitor
SDG12 Responsible Consumption and Production		
12a	Totale hoeveelheid restafval, uitgedrukt in kilogram per inwoner	Stad-Gemeentemonitor
12b	Fractie personenwagens met ecoscore boven 70 (uitgez. bedrijfswagens)	Stad-Gemeentemonitor
12c	Totale aantal circulaire jobs gedeeld door totaal aantal jobs per gemeente	Jobsmonitor circulaire economy
12d	Aandeel van de inwoners dat woont in een woning met energiezuinige en energierecupererende elementen.	Stad-Gemeentemonitor
SDG13 Climate Action		
13a	CO ₂ -emissie door huishoudens in ton per huishouden	Stad-Gemeentemonitor
13b	CO ₂ -emissie door particulier en commercieel vervoer per inwoner	Provincie in cijfers
13c	Energieverbruik van huishoudens [MWh] gedeeld door het aantal huishoudens	Stad-Gemeentemonitor
SDG15 Life on Land		
15a	Gemeentelijk budget natuur- en milieubehoud, per inwoner.	Stad-Gemeentemonitor
15b	Betonsnelheid per jaar (per inwoner)	Betonrapport
15c	Onbebouwde oppervlakte op totaal gekadastreerde oppervlakte	Statbel
15d	Aandeel van de inwoners dat vindt dat er voldoende aanbod aan groen is in de buurt.	Stad-Gemeentemonitor

SDG16 Peace, Justice and Strong Institutions		
16a	Aandeel van de inwoners dat zich onveilig voelt in de gemeente/stad.	Stad-Gemeentemonitor
16b	Misdrijven (per 1000 inwoners)	Stad-Gemeentemonitor
16c	Aandeel van de inwoners dat weinig vertrouwen heeft in de politie	Stad-Gemeentemonitor
16d	Aandeel van de inwoners dat weinig vertrouwen heeft in de lokale overheid.	Stad-Gemeentemonitor
16e	Tevredenheid over loketvoorziening	Stad-Gemeentemonitor
16f	\sum Tevredenheid over verspreiden van informatie	
16f1	Voldoende info krijgen over de geplande activiteiten	Stad-Gemeentemonitor
16f2	Voldoende info krijgen over gemaakte beslissingen	Stad-Gemeentemonitor
16f3	Voldoende info krijgen over nieuwe ingrepen.	Stad-Gemeentemonitor
16g	Tevredenheid over consultatie van inwoners	Stad-Gemeentemonitor
SDG17 Partnership for the Goals		
17a	Uitgaven ontwikkelingssamenwerking gemeente en OCMW ($\log(1+x)$) per inwoner (log)	Statistieken Vlaanderen
17b	Financiële schulden van leningen, leasings of soortgelijke overeenkomsten per inwoner	Stad-Gemeentemonitor

VREG: Vlaamse Regulator van de Elektriciteits- en Gasmarkt



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