

European SDG Voluntary Local Reviews

*A comparative analysis of
local indicators and data*

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Abstract

This report explores the use of local indicators by European Voluntary Local Reviews on the achievement of the Sustainable Development Goals between 2016 and early 2021. This report has been prepared by a European Commission external expert in the framework of the URBAN 2030 project developed by the Joint Research Centre to support local governments in monitoring the achievement of the 2030 Agenda for Sustainable Development and its SDGs at local level — in particular by promoting transformative and inclusive action for their localisation.

Executive Summary

This report contributes to the growing debate on the value, form and technical aspects of the Voluntary Local Reviews (VLRs) that are increasingly used by sub-national governments to assess the process of implementation and achievement of the Sustainable Development Goals (SDGs). The report focuses, in particular, on the VLRs produced by European cities and regions between 2016 and early 2021.

On September 25, 2015, United Nations member states adopted a set of goals to end poverty, protect the planet and ensure prosperity for all as part of a new sustainable development agenda. The Sustainable Development Goals aim, among other things, to fight poverty and hunger everywhere; combat inequalities within and among countries; build peaceful, just and inclusive societies; protect human rights and promote gender equality and the empowerment of women and girls; and ensure the lasting protection of the planet and its natural resources.

The SDGs promote an integrated approach to development built on five pillars: People, Planet, Prosperity, Peace, and Partnerships. The European Commission aims to fully integrate the SDGs into the European policy framework and, as demonstrated by several recent actions, it considers the SDGs as a holistic guide to be incorporated into the Commission's strategic vision and commitment. The SDGs are thus directly linked not only to "A stronger Europe in the World", but also to all European Commission's priorities.

Recent research has demonstrated that the SDGs cannot be achieved without the full integration of different levels of government in the process of implementation, monitoring and evaluation. Not unlike the Millennium Development Goals which were the global development policy framework before them, the SDGs also rely on the potential of local governments to engage with communities, mobilise resources and localise strategies based on place-based potentials and challenges.

Over the last five years, local governments (cities, provinces, and regions) have been producing reviews on both the initiatives they put into practice and the achievements they have made thanks to the implementation of the SDGs. This was made possible by adapting a framework that was originally designed by the United Nations to be more of an intergovernmental effort. These reviews, albeit based on diverse sets of local indicators, proved to be powerful tools to engage with local governments, institutions, and communities for the localisation of the SDGs.

Despite their potential impact on the institutional and statistical capacity of local administrations, appropriate knowledge and technical guidance are required to support the preparation of these voluntary reports. Accordingly, the European Commission's Joint Research Centre (JRC) has published the first edition of the 'European Handbook for SDG Voluntary Local Reviews' in 2020. The Goal of the Handbook was bring support to European cities willing to prepare their VLRs. This was achieved providing a framework to inspire the selection of appropriate indicators, making reviews both comparable across Europe and targeting local situations and challenges.

This report analyses the different sources and types of indicators used by European local governments to measure performance in the implementation and achievement of the SDGs. It provides insights into the different methods and approaches adopted by local governments in different European countries, identifying some good practices (such the cases of Spain, Finland and Germany) and shedding light on a potential common way forward.

This report thus contributes to the ongoing debate among researchers and policy makers on the most effective strategy to capitalise on these front-running experiences and scale up the impact of SDG localisation.

This report aims at understanding how the local approach to SDG indicators and monitoring has changed through time, as well as providing local and regional governments and local government associations with solid, robust and replicable analyses of all the options available for local SDG monitoring and review. It also shows how European VLRs have managed the processes of indicator definition and selection, as well as the sourcing of relevant data for the measurement of their indicators. It reviews the state of the art of the different frameworks of indicators and data in European VLRs in relation to the set proposed in the first Handbook.

Together with this report, the European Commission's Joint Research Centre (JRC) plans to release an analysis of multi-level governance in SDG localisation and a report on regional indicators for the Sustainable Development Goals. Moreover, the JRC has been working since October 2020 with a group of European cities to validate the proposed methodology: Bratislava, Oulu, Porto, Reggio Emilia, Seville, Valencia, Turku and Helsinki. Knowledge and insight from these works will feed the second edition of the European Handbook, which is planned for publication in 2022. This edition of the European Handbook will include an update of the state of the art on local reviews, a consolidated guidance indicator set and policy recommendations on viable strategies for the future.

1 Introduction

1.1 Focus and structure of this study

This report explores the use of indicators and data in the Voluntary Local Reviews (VLRs) of the Sustainable Development Goals (SDGs) published to date by European local governments. It aims, in particular, to study how European VLRs have managed the processes of indicator definition and selection, as well as the sourcing of relevant data for the compilation of their indicators.

This report is part of a series of research contributions on European VLRs, coordinated by the European Commission's Joint Research Centre (JRC) as a follow-up to the publication of the European Handbook on SDG Voluntary Local Reviews (hereinafter, also 'European Handbook'), which the JRC published in 2020 to "provide support to European cities willing to prepare" their VLRs. This report reviews the state of the art of indicator design and use in European VLRs. It also analyses the relation to the indicator set the Handbook developed in order to — among other purposes — "be a guide for the selection of appropriate indicators [...] for local situations and challenges" (Siragusa et al., 2020).

Three basic research questions guided the drafting of this report:

- **rq1.** How do European VLRs' indicators and data relate to the SDGs as an analytical framework and to specific SDGs in particular?
- **rq2.** How do European VLRs define their indicators and what data sources are used to compile them? Are these sources local or are they adapted from different levels of government/analysis?
- **rq3.** How do the European VLRs' indicators relate to the indicators selected by the European Handbook on SDG Voluntary Local Reviews?

In order to comprehensively address these questions, this report is structured as follows. Chapter 2 provides an overview of the current state of the art of local reviewing of SDG localisation, globally and with a specific focus on Europe and the relevance of data and indicators. Chapter 3 analyses the European VLRs more in depth, as well as the emergence of 'clusters' of VLRs around specific national approaches to the 2030 Agenda and the relationship between the VLRs and the SDGs. Chapter 4 explores the definition, selection and identification of the indicators used in the VLRs, focusing on whether these metrics were adapted from different tiers of governance, strategic frameworks and methodologies, or if they were originally designed at the local level. Chapter 5 'completes' this information by studying the data with which these indicators are measured: sourcing, disaggregation, open-access availability, and the impact of data and indicators in communicating and raising awareness on SDG localisation. Chapter 6, finally, studies the relationship between the VLR indicators and data and the indicator set proposed by the European Handbook. Chapter 6 also defines an index of 'indicator proximity' across the different VLRs, an attempt to operationalise the proximity between VLR indicators and those selected in the European Handbook. In the light of the experience and practices of European cities, their reviews, and emerging issues and priorities, the chapter also suggests a few additional research questions and outstanding issues to guide the process of updating, revising or re-framing the Handbook's sets of indicators.

1.2 Methodology

This study analyses the VLRs published by European cities as of February 28, 2021. Up to this date, and to the best of the editorial team's knowledge, 22 VLRs from 20 different European local governments were available. All available VLRs were analysed in order to assess whether they:

- had any relevant treatment of data and/or indicators;
- featured any kind of statistical annex and/or indicator metadata;
- assessed (semi-)quantitatively the implementation of all the SDGs or only some of them;
- explained the origin or definition process of selected indicators; and the source of the data that was used to compile such indicators; the degree of disaggregation; and the availability of data on open-access or otherwise openly-available datasets, platforms or other aggregators of statistical information.

Information collected via desk research on the VLR documents, secondary sources and literature reviews was also integrated with primary information collected via five interviews with representatives from the local administrations or the consulting teams in charge of the local VLR process (the municipalities of Bonn, Bristol, Mannheim, and Turku, and the province of Jaén).

2 Local SDG monitoring and reporting in Europe

Since the onset of the ‘SDG era’, Europe has been a relevant case-study and a launch pad for the analysis of monitoring and reporting on the implementation of the 2030 Agenda — as it has been a key laboratory for the study of SDG localisation and the emergence of Voluntary Local Reviews (VLRs). Europe has historically been characterised by a strong commitment to sustainable development frameworks and policies, even though with relevant differences from one country to another. The approach that European countries have shown towards the monitoring of SDG implementation has by and large built on the inclusion of municipalities and sub-national governments. This has established a positive and diffused ‘enabling environment’ where VLRs can thrive. The outcome is apparent when studying how SDG local reporting has evolved in the Europe.

2.1 Europe’s institutional frameworks and ‘enabling environment’

Every year since 2017, United Cities and Local Governments (UCLG) has studied the degree of engagement of sub-governments in the process of production of Voluntary National Reviews (VNRs). Municipalities and sub-national governments have been involved in at least 68% of the European VNRs published between 2016 and 2020: sub-national governments had “mid-high” participation in the VNR process in 22 reviews out of 47 (UCLG & Global Taskforce of Local and Regional Governments, 2020, p. 34).¹

The European context, in other words, has provided municipalities with several institutionalised opportunities to familiarise themselves with the SDGs and has been an effective background for the mainstreaming of the SDGs into local policy. Ultimately, it is not surprising that — to date — over one third of all published VLRs and other relevant reviewing documents (22 out of 63, or 34.9%)² has been produced by European cities, provinces and regions. Besides the argument of political culture in the European context being generally more prone to considering sustainable development as a driver of policy innovation and adaptation, there are also further elements worth exploring as to why VLRs have thrived more visibly in Europe than in other world areas.

On the one hand, European cities have traditionally been more open to horizontal cooperation with peers, favouring the establishment of transversal alliances and what the multi-level governance literature has defined as ‘transnational municipal networks’. Large institutional experiments are a testament to the tendency of European municipalities to seek institutional venues and resources to work together on shared solutions to common challenges³ — a trend that the establishment of the common market and the EU’s cohesion policy have only strengthened. Some examples are: the European section of the Global Covenant of Mayors for Climate and Energy (established in 2008 by the European Commission and relying today on a membership of over 10,400 municipalities across the continent), or historically trailblazing actors such as the Council of European Municipalities and Regions (CEMR-CCRE), established in 1951, or Eurocities, created in 1986. European institutions organise global fora and events — such as the European Week of Regions and Cities⁴ and the CITIES Forum⁵ — that have become key drivers of dialogue and innovation on localisation and urban development for all levels of government.

Similarly, the emergence throughout Europe of strong and proactive national and regional associations of local governments has provided municipalities with a knowledge hub in which local governments can share experiences, practices and goals, mutually train and learn, as well as be represented at a scale and with an impact that they would not otherwise be able to attain alone.

European cities have also been vertically active at the global level and invested in the organisation of municipal interest in worldwide venues and with global interlocutors and partners. They have been able to take advantage of the institutional space that several international actors and organisations have created to bring certain agendas — including climate, sustainable development and urban habitat — forward.

¹ The data are the result of the work carried out by UCLG both through the analysis of VNRs submitted to the United Nations High-Level Political Forum since 2016 and the responses to yearly surveys that the organisation circulates to its membership (national local government associations in over 140 countries) prior to each year’s HLPF. For a comprehensive overview of the work of UCLG on VNRs and local participation, see: <https://gold.uclg.org/report/localizing-sdgs-boost-monitoring-reporting>.

² These figures refer to the VLRs available when the editing of this research was concluded, in March 2021.

³ See more generally on these concepts and their relevance to the European context Kern and Bulkeley, ‘Cities, Europeanization and Multi-Level Governance: Governing Climate Change through Transnational Municipal Networks’. On the relevance of these arrangements in climate governance and sustainable development — as well as for a more recent overview — Bansard, Pattberg, and Widerberg, ‘Cities to the Rescue? Assessing the Performance of Transnational Municipal Networks in Global Climate Governance’.

⁴ More information available online: <http://Europa.eu/regions-and-cities/>.

⁵ More information on the latest session of the Forum available online: http://ec.europa.eu/regional_policy/en/conferences/cities_forum_pt/.

The CEMR-CCRE evolved into the European branch of UCLG, a global network of sub-national authorities and national local government associations (LGAs) that vows to represent urban and territorial interest in global policy-making. UCLG and CEMR-CCRE have supported European cities in the definition of local sustainable development planning and strategies; brought local delegations to such fora as Habitat III, the High-Level Political forum for Sustainable Development (HLPF), the World Urban Forum facilitated peer-to-peer training on the 2030 Agenda and the SDGs; shared knowledge and experience for SDG implementation and facilitated the work on early VLRs as well as 'sub-national' reviews coordinated by LGAs.

The OECD set up its ambitious Programme on a Territorial Approach to the SDGs (OECD, 2020) to help sub-national governments include and mainstream the Goals in local policy-making: case-studies include 11 local governments worldwide, while over 600 municipalities and other sub-national authorities are profiled in its data-based SDG implementation measurement tool. C40, ICLEI – Local Governments for Sustainability, Regions4, and several other global networks of local governments have committed explicitly to the achievement of the SDGs and are providing cities and local stakeholders with the resources, the connections and the technical and political opportunities to rise as key players in the global sustainable development arena.

2.2 Early, strategic and regional: the first SDG local reviews in Europe

Against this backdrop, European cities have been able to act as early movers in the fledgling community of local governments willing to contribute to the global effort of measuring and reporting on SDG implementation. The beginning of the VLR ‘movement’ is usually identified with the publication of the three reviews from Toyama, Kitakyushu and Shimokawa in Japan, in collaboration with the Institute for Global Environmental Strategies (IGES), a national government-sponsored research institution, and the presentation of New York City’s VLR at the 2018 HLPF. However, back in 2016, two documents had already been published that complied with at least the core criteria that the international community is using today to ‘define’ VLRs (UCLG & UN-Habitat, 2020, p. 11), even though they did not have a formal ‘VLR’ branding.

In May 2016, the Department of Accountability, Social Responsibility, Participation and Cooperation of the Government of the Valencian Country — one of Spain’s regions, the Autonomous Communities, first-tier sub-national authorities — published a 22-page report on ‘The Region of Valencia and the local implementation of the SDGs’ (Directorate General for Cooperation and Solidarity & UNDP-Art Initiative, 2016). The document is more strategic and planning-oriented than it is a full-fledged review of achievements and performance — even though it shares good practices and relevant implementation examples — but it is the first such paper with a full acknowledgement of the SDGs, a call for more policy alignment and a pioneering involvement of several local stakeholders in the process. It is substantially the beginning of the VLR movement.

Later in July 2016, the Government of North Rhein-Westphalia, one of Germany’s Länder, another first-tier regional authority, published its ‘Sustainability Strategy’ (Ministry for Climate Protection Environment Agriculture Nature and Consumer Protection of the State of North Rhine-Westphalia, 2016): the 49-pager provided a detailed account of the Land’s sustainable development plans and the fit with specific groups of SDGs, and it is the first such document with a dedicated section on adapted SDG indicators⁶ as a methodological guide. These were the initiative that laid the groundwork for the current VLR community as we know it. Their deep rooting in local planning and an evolving relationship with data and indicators remain the trademarks of local reviewing to date.

⁶ Even though it provides no information on indicator design, data sources and availability, or the values of the indicators at the time of publication (Ministry for Climate Protection Environment Agriculture Nature and Consumer Protection of the State of North Rhine-Westphalia, 2016)

2.3 What is inside a VLR? Strategy, policy and data

One of the main challenges for the municipalities and local governments interested in producing their own VLR has been approaching the contents of the review for the first time. Precisely, controversially to the formal process of the Voluntary National Reviews that national governments submit to the UN, local governments have no expected blueprint or template to follow for their VLRs. Several VLRs have followed, as closely as possible, the model that UNDESA prepared for the reviews of national governments in 2015, and that was recently adapted to local and regional governments in its 2020 'Global Guiding Elements' document (UNDESA, 2020). The VLRs of New York, Buenos Aires and Helsinki can be considered to be the most faithful to this template. Other local governments carried out the task of writing their VLR with a much looser approach: for many local authorities the 'original' VNR template proved expectedly hard to follow. The blueprint was modelled on the competences and the actual political leeway and power of national governments. Local governments, in many national contexts, often lacked the political, financial and technical resources to obtain enough knowledge and information to fill the template that was originally recommended by the office of the United Nations Secretary General.

This has resulted in significant diversity across the board. The average VLR is 79 pages long, Stuttgart's review is 220 pages long (State Capital Stuttgart et al., 2019), and Cauayan City's declaration on Sustainable Development is just 7 pages long. A few basic components are present in all VLRs: a gallery or overview of relevant SDG-related activities or initiatives carried out at the local level; an assessment of policy and/or strategic alignment with the SDGs (often all 17 of them, sometimes just the five/six SDGs which were specifically assessed in that year's HLPF).

A similar degree of diversity affects the approach of the VLRs to the use of data and indicators. Globally, with N = 63 of VLRs published up to January 31, 2020, there are 42 documents that include an analysis of (specific) SDG indicators in their structure. In terms of the metadata, only 16 VLRs use a statistical annex which dissects the indicators used in the report in terms of indicator definition, description, origin, source of data, availability of data, and time coverage. Among European VLRs, this figure is seven. Sources of data are the information most commonly provided (see also Section 4 below), even though the acknowledgement of the sources does not always imply a reference to accessible online resources or other opportunities to fully disclose the data used in the VLR.

3 European VLRs and SDG indicators

At the time of writing (February 28, 2021) and since the publication of the Valencian Community's VLR in May 2016, 22 VLRs from 20 European local governments had already been published. 17 of them had been issued by municipalities, four by regional governments, and one by a provincial government (the province of Jaén, in Spain). The information compiled in this report is on the VLRs published to the best of the editorial team's knowledge: the VLR movement has grown so quickly and there are so many diverse channels of institutional communication through which information on local reviewing efforts is being circulated, that it is sometimes hard to keep track of all localisation-related documents being issued, in Europe as elsewhere.⁷

Table 1 below provides a quick overview of the current status of European VLRs. From a global perspective, Europe is the leading continent in terms of VLR publications, with about 35% of all local reviews being issued in the region.

Table 1 Basic information on European VLRs published to date (22 documents from 20 local governments)

Source: own elaboration from published VLRs

Local Government	Country	Type	Population	Year
Barcelona	Spain	City	1,620,343	2019
				2020
Basque Country	Spain	Regional	2,189,534	2018
Besançon	France	City	115,934	2018
				2019
Bonn	Germany	City	329,673	2020
Bristol	United Kingdom	City	463,400	2019
Canterbury	United Kingdom	City	55,240	2019
Espoo	Finland	City	291,439	2020
Ghent	Belgium	City	260,341	2020
Gothenburg	Sweden	City	579,281	2019
Helsinki	Finland	City	650,058	2019
Jaén	Spain	Provincial	638,099	2020
Liverpool	United Kingdom	City	864,122	2020
Málaga	Spain	City	571,026	2018
Mannheim	Germany	City	309,370	2019
Niort	France	City	58,707	2020
NR-Westphalia	Germany	Regional	17,912,134	2016
Stuttgart	Germany	City	635,911	2020
Turku	Finland	City	193,089	2020
Valencian Country	Spain	Regional	5,003,769	2016
Wallonia	Belgium	Regional	3,633,795	2017

⁷ Local governments whose VLR or localisation-related document is not included in this list and wish to share information on their review or implementation work can contact directly the Knowledge Centre for Territorial Policies at the following address: JRC-KCTP@ec.europa.eu

3.1 European VLRs: figures and basic trends

In total, local governments from only seven European countries have ultimately undertaken a local review: Spain (6 VLRs), Germany (4), France, Finland and the United Kingdom (3), Belgium (2) and Sweden (1). While — when plotted on a map (see Figure 1) — the distribution of the VLRs seemingly draws a ‘VLR line’ from Spain through Finland across most of North-Western Europe, it is hard to make a compelling argument on any relationship between these locations and the growth of the VLR movement. A few other variables, in this regard, may help verify the emergence of a few more trends.

In terms of what kinds of local government in Europe are approaching VLRs more frequently, to date reviews have been prepared mostly by municipal governments, which issued almost three-fourths of all reviews. On one end of the municipality size continuum, only one city with one million inhabitants or more — Barcelona — has published a VLR. On the other end, two cities of just above 50,000 inhabitants (Niort, in France, and Canterbury, in the United Kingdom) have issued reviews. Rather than revealing a tendency — there is scarce evidence for an argument that mid-sized cities are more prone or better positioned than others to take part in SDG localisation and reviewing — these data elicit a few questions about why VLR ‘entrepreneurship’ in Europe is still somehow limited to the group of cities with more than 100,000 and fewer than one million inhabitants. Smaller towns have been historically underrepresented among VLR cities, often because the challenge of producing a report compliant with the requirements that municipalities expect from this kind of review can appear overwhelming to smaller administrations.⁸ The weak participation of metropolitan cities — often considered the urban settlement best placed and endowed to approach an endeavour such as a VLR — is more surprising and clearly an opposing trend if compared to VLRs worldwide, where 13 different cities with one million inhabitants or more have already issued 17 VLRs, with 6 reviews published by ‘global cities’ of over 5 million inhabitants (Moscow, São Paulo, Mexico City, New York City and Rio de Janeiro).

⁸ In Volume 1 of their ‘Guidelines for VLRs’, however, UCLG and UN-Habitat did not find a valid correlation between population size and the amount of information eventually provided in the VLRs. For a short analysis of this variable, see (UCLG & UN-Habitat, 2020).

Figure 1 Current map of European VLRs



Source: own elaboration.

(1) VLR list updated up to March 1, 2021.

The map can also be read in light of other intervening variables, such as the relationship and/or the leadership of the national government, the national association of local governments or any other relevant stakeholder in the reviewing process. A virtuous relationship across different tiers of governance can be a positive catalyst of engagement in the VLR process, creating what is commonly referred to as an ‘enabling environment’ that promotes horizontal collaboration among cities, provinces or regions and drives participation in local reviewing as part of a broader national commitment to the 2030 Agenda. In the case of European VLR cities, this hypothesis leads to mixed results.

3.1.1 The Spanish cluster

There was no structured or formal cooperation between Spanish local and regional governments — which together form the largest ‘bloc’ of European VLRs — and the national government for the production of the local reviews. The Spanish Federation of Municipalities and Provinces (*Federación Española de Municipalidades y Provincias*, FEMP), the national LGA, has a long history of collaboration with the central government to provide the information it requires from the local level for the national reviews, and has assisted the United Nations’ Sustainable Development Solutions Network (UN-SDSN) and the Spanish *Red Española para el Desarrollo Sostenible* (REDS) consortium in the realisation of two reports on SDG localisation in Spain (REDS - Red Española para el Desarrollo Sostenible, 2018, 2020) — which have been frequently used by Spanish municipalities approaching SDG implementation and alignment. Both reports, for example, have been a relevant part of the

indicator-based work that the Málaga municipality has carried out for its own VLR (Fundación CIEDES & City of Málaga, 2018).

3.1.2 The Finnish cluster

A **connection between the national government's strategy and an empowerment of local governments to make their own VLRs**, for the reviewing outcomes to be mutually complementary, **is much clearer in the case of Finland**. The municipalities of Turku and Espoo were published at the same time of Finland's 2020 VNR: the national review, moreover, collects information and data on the advancements of SDG implementation at the local level and, at the same time, showcases the three current examples of VLRs (Helsinki, Turku and Espoo) as highlighted case-studies. This trio of front-runners has also been in close contact with three more municipalities that will present their VLRs through 2021: Tampere, Oulu and Vantaa. These cities — Finland's six largest municipalities — begun formal discussions for the institutionalisation of this dialogue in late January 2021, involving a representative from the Office of Finland's Prime Minister as well as the Association of Finnish Local and Regional Authorities (*Kuntaliitto*),⁹ traditionally supportive of the interests of smaller towns and dispersed rural communities. The concerted, multi-level development of Finnish VLRs is being explored as a 'live laboratory' in Volume 2 of the Guidelines for VLRs that UN-Habitat and UCLG are developing jointly and are expected to be published in the first half of 2021 (UN-Habitat & UCLG, 2021).

3.1.3 The German cluster

In the case of the four German local governments that have produced a VLR since 2016, there was no direct connection to the overall national strategy led by the German government — which presented a national review to the HLPF in 2016 and plans to publish a second one in 2021. While local governments were engaged at various stages in the drafting of the 2016 VNR, quite early in the SDG era, there is no explicit establishment of a multi-level or cross-tier reporting strategy or an institutional venue in support of local reviews. The system of local government organisation in the German context has been supportive of local reviewing and, more generally, of local efforts for implementation, albeit mostly through awareness-raising and SDG-related advocacy. As it is addressed more in detail below in Section 3.1, in the case of the German group of VLR cities it was a non-profit organisation, the Bertelsmann Foundation (*Bertelsmann Stiftung*), that acted — in close collaboration with a wide range of institutional partners from the national, sub-national and local levels — as a catalyst and knowledge hub. It was around this intelligence-driven core that several German municipalities, proactively seeking to take part in the global implementation effort, gathered.

3.1.4 Clusters of VLRs and the role of institutional context: a few takeaways

Given all the above, a mixed 'cluster' argument for the current diffusion and location of VLRs in Europe can be made. Certain hot-spots in Europe — the convergence of a specific administrative culture of local governments coming together under the aegis of national strategies (as in Finland); the horizontal circulation of ideas and methods within the community of local governments (as in Spain); or the unique input and *de facto* leadership of an SDG-oriented actor able to serve as catalyst (as the coalition of the Bertelsmann Foundation and a network of local governments' associations did in Germany) — are creating unprecedented opportunities for SDG mainstreaming and enhanced awareness on the importance of comparable and reliable data, methodological rigour, and the need to communicate progress in SDG localisation via clear measurement and achievements. These are the preconditions that make indicators essential for a new generation of VLRs to emerge in Europe — considering that local governments of only seven out of European countries have so far issued a VLR — and the main argument in support of this report's research questions on how far European VLRs have come in the way they manage data and indicators.

⁹ More information on the association's website: <https://www.localfinland.fi/>.

3.2 Distribution, use and type of indicators in European VLRs

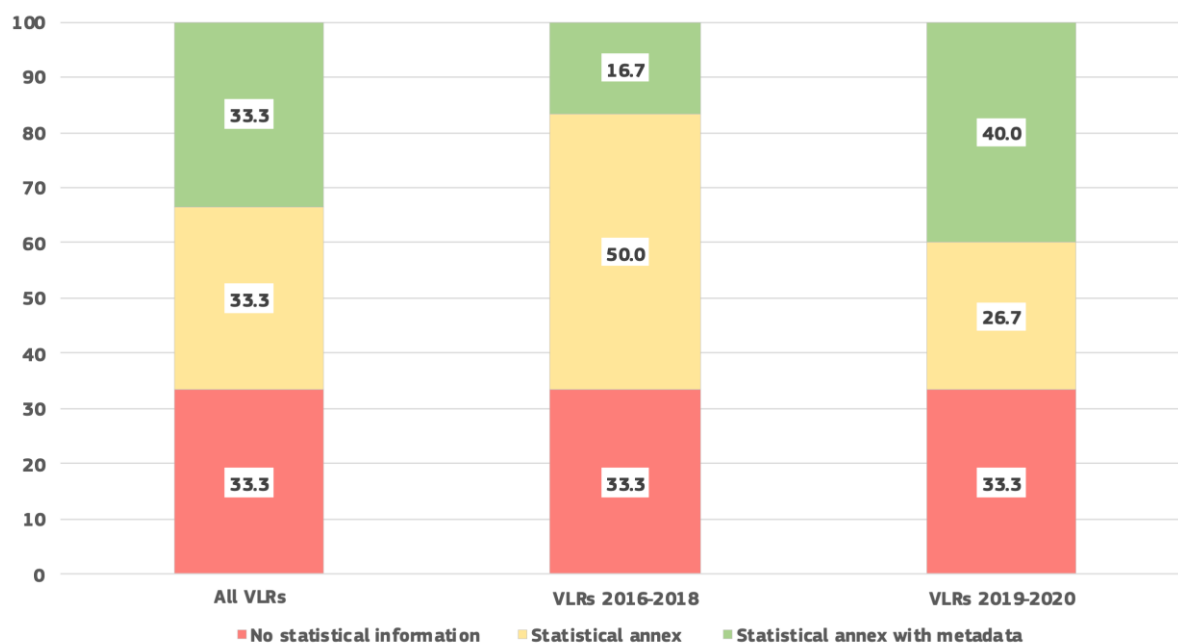
At the time of publication of this report, 16 European VLRs out of 22 (72.7%) included or used at least some kind of indicator in their review. The presence and relevance of indicators across European VLRs appear to vary according to several variables.

It was expected that earlier reviews — some of which were not even embedded in a formal SDG monitoring framework and did not follow specific guidelines or requirements — may lack the quantitative approach or awareness of later reviews, which were in turn developed in a context of much more institutionalised collaboration and a more diffused understanding of the relevance of data and measurement in order to monitor localisation. Data confirm that a certain degree of sophistication in the approach to indicator usage exists if the information is broken into time splits (see Figure 2). Among VLRs published in 2019 or 2020, about one third includes no statistical details on data use. In the same time frame, however, the proportion of VLRs that has a statistical annex and also include metadata and/or information on indicator design and data sources soars to 40% (6 VLRs out of the 15 documents published in this frame), up from just 17% in the previous time split.

In terms of the distribution of indicators across the SDG spectrum, the pattern is quite balanced. There is no SDG that monopolises the attention of the VLRs' statistical analyses, and only SDG 14 on life below water has been met with a certain reticence at the local level — mostly because SDG 14 has by design been conceived as an instrument for innovation of ocean and sea-related policies, typically at the national level and from a number of dimensions (pollution, underwater life and natural health, fisheries and more generally the socio-economic implications of healthier and cleaner large bodies of water), addressing issues and/or competences that are hardly available to any local and regional governments, let alone those that are landlocked or have marginal access to waterways or any water expanses.

More generally, this report approached this issue with a simple hypothesis: most VLRs would focus statistically on: a) SDG 11 as the archetypical goal for urban policy and development; and b) SDGs that relate overtly to fields and areas whose competencies are conventionally devolved to sub-national levels of government.

Figure 2 Degree of statistical information provided in European VLRs (total and at different time splits).



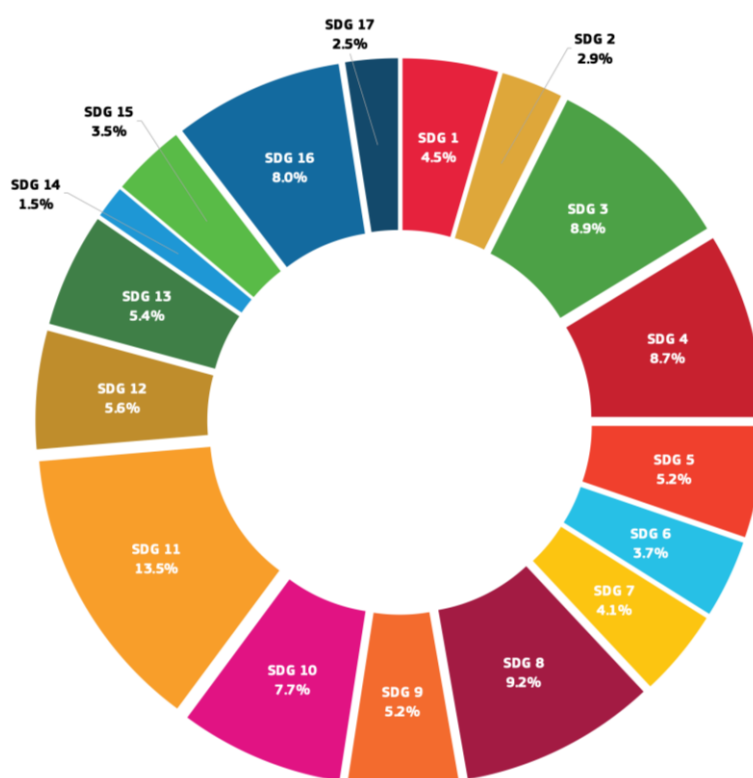
Source: own elaboration

SDG 11 is in fact the most relevant Goal when it comes to indicator distribution, with 216 indicators dedicated to sustainable cities and communities, almost 1.5 times the second most common Goal, SDG 8 (146, or 92% of total indicators).

The second hypothesis is more nuanced, given the diversity of competences and activities in which local governments are empowered or mandated to act in different contexts:¹⁰ municipalities and regions are generally granted responsibilities and powers in local planning, housing, roads and transport, the provision of social services and certain services of education and healthcare, water management and, under certain conditions, energy supply as well as public order and policing.

Indicator distribution in European VLRs is generally coherent with this pattern: **SDG 8** (economic growth, diversification, but also welfare, training and work safety) **is the second most-measured Goal, followed by SDG 3 on education, SDG 4 on health and wellbeing, and SDG 16 on justice and peace, a Goal which includes public safety, crime prevention, but also indexes of corruption and transparency at all levels of government.** Data on ecosystem preservation (SDG 15), the construction of development-oriented alliances (SDG 17) or the fight against hunger and the achievement of food security, improved nutrition and the promotion of sustainable agriculture (SDG 2) are, not surprisingly, the least favourable to urban local authorities — still an overwhelming majority of VLR-drafting local governments, in Europe as well as globally — and the harder to quantify, collect and manage. Even when local competences are not fully aligned with the targets and indicators of certain SDGs, data-based analysis, indicator definition and/or measurement can be relatively stronger in areas or sectors in which sub-national governments — and municipalities in the first place — have access to the most systematised and encompassing data: residents' registers, lists of social security or health insurance users, enrolment lists in (public) education institutions.

Figure 3 Distribution of indicators across all SDGs in European VLRs



Source: own elaboration.

Figure 3 re-plots the SDG wheel according to the frequency of indicators per each SDG in European VLRs. The distribution is rather homogeneous with just a few relevant exceptions: SDG 11 is especially relevant in the VLRs' statistical analysis with 214 indicators (13.6%), followed at a distance, somewhat surprisingly, by SDG 8 on decent work (146 indicators, 9.3%).

¹⁰ A 2007 research of the Council of Europe attempted a small-N comparison of the main competences devolved to the local levels in European countries: European Committee on Local and Regional Democracy, 'Local Authority Competences in Europe', ed. Gérard Marcou (Council of Europe, 2007). More recently, CEMR-CCRE has created a taxonomy of sub-national tiers of government in all European countries, listing the core competences of each. The study, CEMR-CCRE, 'Local and Regional Governments in Europe. Structures and Competences', ed. Irene Martínez Marias, Nathalie Noupadja, and Pierre Vander Auwera (Brussels: CCRE-CEMR, 2016), is available online at this link: <https://is.gd/FF1KmK>.

4 Indicator design and definition in European VLRs

The origin of the indicators that are being used in European VLRs is one of the most complex items to be tracked in a data-based analysis of currently available documents. On the one hand, as seen also above, only one-third of European VLRs includes fully-developed statistical annexes with a presentation of indicators' structure and/or metadata. In other words, at least for 67% of the VLRs currently published in Europe it is not possible to know from the documents alone how the indicators were defined, designed or structured — whether they are adapted from the 'official' list of the IEAG-SDGs indicators of the United Nations or any other institutional sources at any level, be it the EU's Eurostat set of indicators, national indicators, or even local indicators already developed for any other use (e.g., Jaén, Málaga, Mannheim or Turku). Most importantly, most VLRs do not clarify whether the indicators have been developed *on purpose* for the VLR, or whether the institution(s) in charge of the review has specifically improved (pre-existing) work on strategic planning, data management, measurement and indicators in order to provide adequate information for a VLR.

Table 2 European VLRs with explicit mention of indicator definition.

Source: own elaboration.

Local Government	Country	Type	Year	Total No. indicators used	Origin of indicator			
					UN	EU	National, other, or N/A	Original
Barcelona	Spain	City	2019	205	0	0	184	21
Barcelona¹	Spain	City	2020	227	36	10	0	175
Bonn	Germany	City	2020	46	0	0	12	34
Bristol	United Kingdom	City	2019	147	0	0	108	39
Jaén²	Spain	Province	2019	110	0	0	0	110
Málaga	Spain	City	2018	120	0	0	50	70
Mannheim	Germany	City	2019	107	0	0	54	53
Stuttgart³	Germany	City	2020	77	0	0	50	17
Turku⁴	Finland	City	2020	44	0	0	0	44

(1) indicators in the 2020 Barcelona VLR document are not methodologically developed, neither origin of indicators or sources of data are listed.

(2) the recount of data sources in Section 4 below lists 140 indicators for the VLR of the Province of Jaén since it includes sub-indicators broken down by disaggregation variables (e.g., gender or age);

(3) 10 indicators are used for more than one SDG, hence the difference of totals between total indicators and indicator design breakdown;

(4) the VLR highlights 44 indicators adapted from the city's sustainable development strategy, but at least a total of 135 metrics are mentioned in the VLR's contents.

A necessary premise on this point is that indicator design — more generally in global SDG reporting, but also specifically in VLRs — has been crucial for the analysis of SDG implementation for at least two key reasons. On the one hand, indicator design in local reviews can be a very telling litmus test of the actual capacity of the SDG framework to engender and maintain those 'enabling environments' for implementation to be truly holistic, multi-level and all encompassing: the IEAG-SDGs indicators have proven to be a challenging task even for national governments when compiling their VNRs, and have been all the more complex for local governments to approach, decipher and use at their own level. It is not surprising that many VLRs from all over the world have edited and revisited the 'official' indicator set to make it more consistent with the specific socio-economic, demographic and territorial realities of their communities. On the other hand, indicator design in VLRs can also be telling of the degree of alignment between a city or region's local policy environment and the SDG framework: the ability of a local government to use local indicators developed for local strategic planning can provide evidence on how pervasive the impact of the 2030 Agenda has been on the way a municipality makes its policies or measures its performance.

The current number of VLRs with an overt explanation of indicator design and/or clear sourcing of the origin of the indicators it uses is too low (N = 9) to fully allow for a comparative analysis across the spectrum of European VLRs (see Table 2). In general terms, **indicator design and selection has not been given the same kind of attention as other variables in the production of the VLRs or the definition of metadata and statistical annexes.** There are little examples across the whole spectrum of VLRs — European and not — of local governments that are able to either construct and define SDG-compatible indicators by themselves for the purposes of a local review or trace in detail the origins of a specific metric. In many cases, official metrics already used and collected by the national statistics offices (which, in turn, often turn to global or supranational datasets such as the UN's or Eurostat's) have been the most common source of indicators for the VLRs. Considering how many of these indicators are already aligned with specific and easily available sources of data, this methodological choice is especially efficient for and accessible to most local governments. Only three VLRs out of nine, however, feature more nationally-defined indicators than local or original metrics — which remain a crucial resource for reviewing and monitoring SDG localisation.

Ultimately, in European VLRs, about 52% of all used indicators are local or originally designed by the institutions in charge of the VLR. A slightly lower share (42.3%) of indicators were adapted or identified at the national level or from existing national datasets, with a specific impact of the resources made available by NSOs. Only one document, Barcelona's 2020 methodological guide, acknowledges indicators adapted from or identified at the supranational level: 10 Eurostat indicators and 36 metrics extracted from the United Nations IAEG-SDGs indicator system. More insights on how indicator design and identification has worked for European VLRs, however, can be drawn from specific case studies.

4.1 The role of ‘third-party’ knowledge brokers and VLR indicators

When faced with the challenge of organizing a reliable set of urban metrics, combing through available data to check whether performance benchmarking and measurement are actually viable, and establishing a system of data collection which is both durable in time and disaggregated to several variables, many local governments — however willing to engage with these aspects of the reviewing process — eventually leant towards taking advantage of existing intelligence and data repositories that had already been developed by third parties. Several international organisations, non-profits, foundations, think tanks and other ‘knowledge brokers’ have been researching sustainability policy and data for years.¹¹

There are a few examples worth exploring in detail because of the impact that they have had on two key dimensions: a) the **establishment of monitoring templates or models** that have set a sort of standard also among VLRs; and b) the role that these actors have played in **incentivizing the participation of local governments** in the review process by (at least partially) lifting the burden of data management and collection, which could have otherwise deterred them from joining the movement.

The work of two organisations, in particular, has had a significant impact on the way sustainable development policies are monitored and assessed at the local level — thus with a not negligible effect on the way such policies are updated, implemented and replicated in various contexts.

The Bertelsmann Foundation (*Bertelsmann Stiftung*) is a foundation under German private law which since the late 1970s has been pursuing an agenda of policy reform through entrepreneurial social responsibility.¹²

The United Nations Sustainable Development Solutions Network (UN-SDSN) is an initiative established in 2012 under the auspices of the UN Secretary General, which works as a hub of technological and social knowledge for the provision of practical solutions and cross-boundary alliances for the implementation of sustainable development policies.¹³

Because of the work that these two institutions have carried out in the past few years, and especially within the 2030 Agenda framework, their initiatives have managed to address both dimensions mentioned above: they have set a sort of standard for SDG monitoring that has enabled a number of local governments to participate in the global process, especially by creating a holistic toolkit through which local governments are provided with method, indicators and data in order to assess their policies and thus make informed decisions on their viability and impact. The ‘general’ monitoring system that both institutions have established together — the SDG Index — builds on 75 indicators designed as a proxy for the official IAEG-SDGs sets and a tool for national statistical offices. It has been downscaled to various local contexts, applying the index’s methodology and tools to specific of territories and communities: Africa (Sustainable Development Goals Center for Africa & SDSN, 2020); Europe (SDSN & IEEP, 2020); the United States (Lynch et al., 2019; Sachs et al., 2018); Spain (REDS - Red Española para el Desarrollo Sostenible, 2018, 2020); Italy (Cavalli & Farnia, 2018); Northern Europe;¹⁴ Arab countries (Dahan et al., 2019); and Latin America (CODS, 2020).

Due to its attention to the specificities of the local policy context, the joint UN-SDSN and Bertelsmann’s framework has also been quite popular with VLRs too. Their monitoring index is mentioned in the VLRs of Chimbote (Peru); Kitakyushu (Japan), and in both of Taipei City’s VLRs (Taiwan). Their work, however, has been especially relevant for European local reviews, and most importantly in the case of Germany and Spain.

4.1.1 The Bertelsmann Foundation and the German monitoring ‘ecosystem’

In the European context, the German ‘ecosystem’ for local sustainable development has been notable for a number of reasons. The national government issued its first Voluntary National Review in 2016 and is now working on a second review to be presented at the 2021 HLPF. As mentioned above in Chapter 2, the German ‘cluster’ of VLR local governments is one of the most numerous in Europe and worldwide, and much of this progress has had to do with the evolving enabling environment that the institutional mechanisms at national and subnational levels are providing to cities. Building on a significant tradition of local sustainability planning and strategizing, the 2030 Agenda and the SDGs represented a natural extension of this work, to the extent that “hardly any municipality that is concerned with the issue of sustainability does so without focusing on the SDGs and exploring their relevance and impact on the local level” (Assmann et al., 2018). The mobilisation to

¹¹ The JRC’s ‘European Handbook’ explores the most frequently used monitoring systems applied to the SDG framework (Siragusa et al., 2020).

¹² For more information: <https://www.bertelsmann-stiftung.de/en/about-us/what-we-represent/our-mission>.

¹³ See also: <https://www.unsdsn.org/about-us>.

¹⁴ More information available at: <https://www.unsdsn-ne.org/our-actions/initiatives/sdg-impact-to-ol/>.

lend further capacity to municipalities of all kind, size and resources — especially in the field of data collection, management and measurement — led to a cross-institutional alliance to provide the constituency of German municipalities with common tools and a shared platform to review their performance on the way towards the localisation of the SDGs and the fulfilment of their own sustainability plans.

This alliance, coordinated by the Bertelsmann Foundation, includes a wide range of institutional actors and builds extensively on the support of German local government associations (LGAs) and networks: the Federal Institute for Building, Urban and Spatial Research (*Bundesinstitut für Bau-, Stadt- und Raumforschung*, BBSR); the Council of German Districts (*Deutscher Landkreistag*);¹⁵ the German Council of Cities (*Deutscher Städtetag*, DST, the LGA representing larger cities in particular); the German Union of Cities and Municipalities (*Deutscher Städte- und Gemeindebund*, DStGB, the LGA representing mostly intermediary cities and smaller towns); the German Institute of Urbanism; and Engagement Global, a public agency for local development policy, funded by the Federal Minister for Economic Cooperation and Development.

Through this cross-level partnership, the Bertelsmann Foundation established the German SDG-Portal,¹⁶ the municipal demographic data repository ‘Guide for Municipalities’,¹⁷ and the ‘SDG Indicators for Municipalities’ handbook (Assmann et al., 2018). This initiative, embedded in this enabling ecosystem, has pioneered the role of ‘intelligence brokers’ in providing guidance and tools for data selection, collection and management in the review of SDG localisation, as well as in constructing a community of local governments that share the same toolkit and a vision on how to use knowledge and local data to improve efficiency and policy performance. Considering that the Federal Government is included via some of its implementation-driven agencies, and a large institutional sponsorship is provided by LGAs and local government networks, it is hard to define this process as fully top-down. It is rather the creation of an intelligence-based middle ground that has been brokering methodologies, data and tools to any governance level interested in these outputs.

4.1.2 Relevant German cities’ case-studies for indicator design: Mannheim, Stuttgart, Bonn

Mannheim’s local review adopts the set of Bertelsmann’s 54 core indicators to go alongside 53 other indicators that were originally designed at the municipal level to measure compliance with the city’s strategic sustainable development plan, Mission Statement Mannheim 2030 (see also Section 4.3 below on the role that pre-existing strategic documents and their technical legacy can play in the development of VLRs).¹⁸ The VLR, however, provides updated data for 10 of the core Bertelsmann indicators and complements its sources with original local data from the city for at least five more indicators.

The case of Stuttgart is even more paradigmatic, considering that the actual VLR was produced by the municipal government in direct collaboration with the German Institute for Urban Studies and the Bertelsmann Foundation as a pilot case study of a review fully integrated with — and, to a certain extent, derived from — the *SDG-Indikatoren* framework. This is, to date, the sole example of such a preeminent role of the Bertelsmann Foundation, one in which not only is it providing the basic statistical toolkit upon which the measurement of SDG localisation progress is performed, but it is matter-of-factly managing the review process itself. The aim is two-fold: on the one hand, the *SDG-Indikatoren* cities are provided with an up-to-date performance baseline upon which they can plan ahead and strategize for the future iterations of their local sustainability policies; on the other hand, pilot cities are to establish the *SDG-Indikatoren* framework as a holistic package that provides any municipality in Germany with a replicable whole supply-chain for SDG implementation — from awareness, through mobilisation strategizing, and implementation, to monitoring and review.

Conversely, if compared to the other members of this German VLR ‘epistemic community’, the role of the Bertelsmann Stiftung’s framework is somewhat less relevant in the case of Bonn, with just 11 indicators designed according to the *SDG-Indikatoren* guidelines. The larger part of its indicator design bouquet, as mentioned in more detail in Section 4.3.3 below, relies on the adaptation of the indicators first developed for its more comprehensive municipal sustainability strategies, whose metrics — even though the framework

¹⁵ German ‘districts’ (*Landkreise* in most German states) are NUTS-3 sub-regional administrative divisions in Germany’s institutional system, comparable to provinces and other NUTS-3 denominations in most European systems or, to a lesser extent, to counties in the British or American systems. Most large German cities are not part of districts, whose administrative mandate ultimately covers non-metropolitan and often rural or semi-rural territories and communities.

¹⁶ The portal can be accessed online through this link: <https://sdg-portal.de/de/>.

¹⁷ This resource, Wegweiser Kommune, is accessible online at this link: <https://www.wegweiser-kommune.de/>.

¹⁸ More information on this framework is available online at this link: <https://www.mannheim.de/en/shaping-the-city/strategic-controlling-office/mission-statement-mannheim-2030>.

significantly predates the SDG-era — were by and large compatible with the analytical approach defined by the IAEG-SDGs indicator set.

4.1.3 The UN-SDSN ‘ecosystem’ and its impact in Spain: the case of Málaga

UN-SDSN works on the standardisation of a review methodology and a common ‘localised’ indicator set were particularly impactful in the case of Spain. As mentioned above in Section 3.1.1, the Spanish branch of UN-SDSN, the Spanish Network for Sustainable Development (*Red Española para el Desarrollo Sostenible*, REDS) in collaboration with — among others — the Spanish LGA, FEMP, has published so far two reports on SDG localisation in the country.

The study applies the UN-SDSN indicator set and the methodology of the SDG Index to about 100 Spanish cities. The 2020 report adopts 106 indicators from the SDG Index toolkit because of their viability in the Spanish urban context in accordance with the availability of sufficient disaggregated, localised sources of data. According to the report’s methodology, at least 89 indicators (84%) had fully localised sources (+29% if compared to the 2018 edition of the report). Between the two issues, the indicator set changed significantly, as “up to 47% of indicators (49 in total) are new or have been improved in terms of relevance or detail” — a choice that bodes well in terms of indicator accuracy but raises concerns in terms of comparability through time (REDS - Red Española para el Desarrollo Sostenible, 2020).

Generally speaking, the REDS reports and the other publications of UN-SDSN feature a high level of methodological detail, with all available information on the sources of data, the definition of the indicators, the reference databases and time and disaggregation availability explained in well-organised statistical annexes. Consistent with the rest of the copious production of UN-SDSN and the whole SDG Index ecosystem, the two REDS reports also make use of ‘traffic light’ assessments of SDG localisation performance over time (see Section 5.4 for a short remark on this topic).

Also because of many other visual aids and tools, the REDS reports have been an especially successful means of awareness-raising among Spanish municipalities and have also been informally used as a ‘quasi-official’ SDG localisation evaluation sheet in institutional communications.

Adapted REDS report indicators were widely referred to or used for local sustainability strategy plans and documents as well as for VLRs. Barcelona’s 2019 methodological guide for its VLR adopted 42 REDS report indicators (a total of 70 indicators were extracted from sources of the larger UN-SDSN/Bertelsmann ecosystem, see also Section 4.3.1 below for more details).

The city of Málaga built part of its strategic commitment to the implementation of the 2030 Agenda on the assessment of the city’s performance as shown in the 2018 REDS report, “a reference, considering the municipal indicators it provides, that we could use to research on Málaga [...] the REDS research work also highlights significant gaps in statistical data available at the local level” (Fundación CIEDES, 2018). City hall worked on expanding the REDS indicator set with new metrics that were more consistent with the city’s context and reality and for which data were available at the municipal level. Ultimately, Málaga’s VLR uses 118 indicators: 70 were developed municipally in the framework of the city’s sustainable development strategy, and 48 were extracted or adapted from the indicator set of the 2018 REDS report.

4.2 Indicator design in evolving approaches to SDG monitoring: the cases of Barcelona and Bristol

Barcelona has been at the forefront of the SDG localisation movement for years. Barcelona hosts United Cities and Local Governments, a first-mover among international organisations to promote the 2030 Agenda and the SDGs as a bridge for local governments, communities and territories to reach for a rightful seat at the global table of the new consensus on the SDGs and the other global agendas.

The Provincial Council of Barcelona has been a local leader in localisation and implementation, with strong partnerships with global actors such as UNDP and UN-Habitat, and a front-runner in good local SDG-related practices (like certified SDG-compatible tendering). Institutions from Barcelona's metropolitan authority system — such as the Barcelona Strategic Metropolitan Plan (PEMB, *Pla Estratègic Metropolità de Barcelona*) — have been local leaders and catalysts of territorially diffuse participation in SDG localisation, and have also prompted local work and collaboration on the definition of localised indicators for the metro area.

Against this backdrop, Barcelona's City Hall published its first report on the localisation of the SDGs in the city in 2019 (Barcelona City Hall, 2019). The document was not branded as a VLR, nor did it strictly follow the most common templates for reviews. The document does not include a qualitative assessment of SDG-aligned policy interventions in the city and the indicators that it selects are not compiled with data from identified sources. The report provided an overview of institutional adaptation to the SDGs and all the activities undertaken in the city to raise awareness and support bottom-up initiatives of alignment from the grassroots to most offices in city government. It also studied in detail the compatibility of each of the 169 Targets of the SDGs with a plethora of municipal and metropolitan strategic and action plans that the city had already designed.¹⁹

The document, however, was also attentive to the issue of indicators and provides a sort of methodological guide to the metrics that city hall selected for the review. It explored the compatibility of the municipal 'Sustainability Indicators',²⁰ a toolkit of locally-designed and locally-sourced complex urban metrics, 29 main indicators and 28 sub-indicators, divided in ten key goals. Barcelona had developed these indicators since 2003 to measure compliance with the Agenda 21 framework,²¹ as introduced in the city through the first Urban Commitment to Sustainability, later updated in 2012.²² The report also included a full-fledged statistical annex on the indicators that it planned to use to measure performance in SDG implementation in the city.

The effort was significant, as the annex lists 205 indicators and their respective metadata. Indicator design in the 2019 document's proposal was quite diverse. 21 indicators (10.2%) were defined internally by city hall within the framework of the report, while 184 (89.8%) were adapted from various sources referring, in turn, to various tiers of governance. Key sources of adapted indicators include three main categories:

- **Indicators developed by international organisations and actors.** A significant proportion of indicator adaptation in the 2019 VLR of Barcelona comes from a specific reporting ecosystem, i.e. the methods, metrics and analysis developed by knowledge- and intelligence-driven policy and research institutions at the global level and close to the UN nebula: 42 indicators were designed by adapting metrics that had been developed for the 2018 REDS report, which the network produced in collaboration with UN-SDSN (REDS - Red Española para el Desarrollo Sostenible, 2018); 6 indicators were adapted from the *SDG-Indikatoren* database;²³ and 6 more were adapted from an SDG implementation review for United States local governments, also edited by UN-SDSN and the Bertelsmann Foundation. Considering the indicators that were designed by mixing indicators developed in any of these three publications, a total 70 indicators out of 205 were adapted from existing sources in the policy network 'epistemic community'. Only one indicator was explicitly adapted from the European Union reviewing ecosystem,²⁴ none was adapted from the official UN mechanism.
- **Indicators developed by civil society/non-governmental sources.** This mixed bloc proves the ability of city hall to identify valuable indicators and metrics even outside the ordinary mechanisms developed at the national or global levels. At least 10 indicators were based on metrics developed by

¹⁹ See specifically: (Barcelona City Hall, 2019).

²⁰ The web portal with the initiative's methodological repositories and a library of all related publications is online at this address: <https://is.gd/PsXdIj>.

²¹ More detail on the political commitment underpinning the technical effort on sustainability indicators, see the very first report on the 'Indicators 21' (Barcelona City Hall, 2003).

²² For more information: <https://is.gd/OXXEKW>

²³ See Section 3.3 for more details.

²⁴ The document does not clarify which source specifically was adapted into the local review.

a research and social engagement project, 'Sustainability Observatory', which self-identifies as a grassroots organisation. 21 indicators were developed by a private consultancy firm.

- **Indicators developed by the city for other (compatible) strategic frameworks and/or initiatives.** The third large bloc of sources includes several local strategic documents and other reviewing initiatives thanks to which different metrics to measure municipal performance in the attainment of local targets had been developed. This group comprises at least 44 metrics adapted from the Barcelona 'Sustainability Indicators'; 11 indicators derived from the 'targets' of the city's Inclusiveness Strategy for the Reduction of Social Inequalities 2017–2027 (Barcelona City Hall, 2017); and 3 indicators developed as a combination of both sources. At least 12 indicators were adapted from other sustainability strategic frameworks developed in various departments of city hall.

Since the publication of this document, Barcelona has undertaken a more systematic process of adaptation to the requirements of the 2030 Agenda, and a deeper work of localisation of the SDGs and their application to local policy-making. As part of this localisation process, that was involving all departments of City Hall and all dimensions of its activities, Barcelona also undertook the production of its fully-fledged VLR, under the supervision of the 2030 Agenda Commission, an office explicitly established for this purpose.

In November 2020, Barcelona published the first publication in this new framework, *L'Agenda 2030 de Barcelona* (Barcelona City Hall, 2020), an extremely thorough analysis of the 17 SDGs and their 169 Targets, accompanied by a rigorous methodology for their localisation and adaptation to the city's institutions, mechanisms and needs. The new document lists 227 indicators to measure localisation performance. The metadata are particularly detailed. Each of the 221 fully-designed metrics include indicator origin, full data source, baseline values, and local-level targets to be reached by 2030 — adaptations of the 'original' SDG targets designed so as to be compatible with the outcomes of dozens of city-level action plans, once these are achieved too.

Indicator design in the new document is easily summed up:

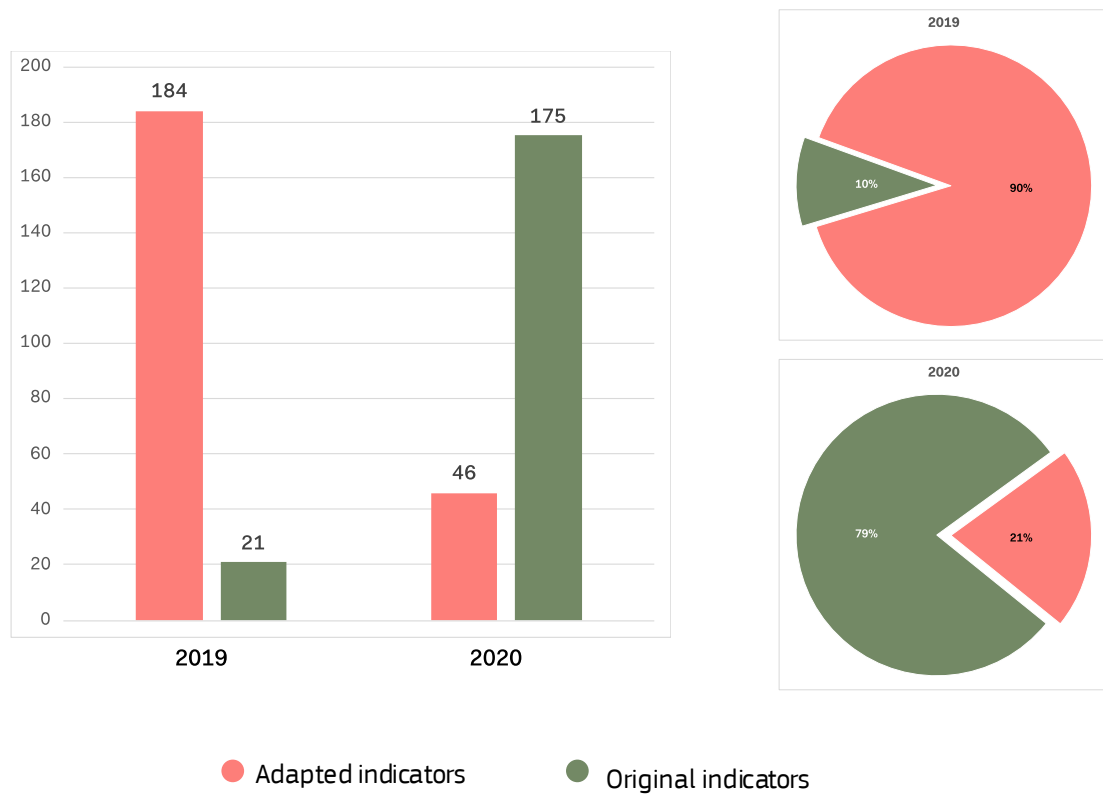
- 36 indicators are adapted directly from the IAEG-SDGs indicators;
- 10 indicators are extracted from Eurostat data sets;
- 175 indicators have been designed on purpose by city hall for the localisation of the 2030 Agenda to the specific reality of Barcelona's socio-economic, demographic and policy context.

What is extremely relevant with the publication of Barcelona's 2020 methodological guide is the evidence it provides as for the paradigmatic shift in the city's approach to localisation and data management — i.e., an understanding that local data measured through locally-adapted metrics is a reliable way to measure the local impact of the 2030 Agenda.

In terms of methodological awareness, this translates into a shift from indicator selection to 'indicator creation': this practice has involved city departments and local stakeholders and built extensively on existing sustainability plans and platforms to guarantee a localised analysis and a degree of consistency with the previous strategic efforts of the local administration. Figure 4 shows how the distribution between locally-defined and adapted indicators in Barcelona's strategic review has changed — to the extent that it almost flipped in the span of the one year of work on a more localised methodology.

The city plans to publish the first full review of SDG localisation performance, i.e., a more conventional VLR, in the summer of 2021. It will be an opportunity to see how the design of locally-created indicators is able to grasp the complexity of a 1.6 million-people metropolis and the challenges that come with such a paradigmatic investment in localisation.

Figure 4 Comparison between the number and share of adapted indicators (peach) and locally-developed indicators (green) in the two methodological guidelines (2019 and 2020) of the city of Barcelona.



Source: own elaboration.

To date, Barcelona is one of the most advanced VLR laboratories in terms of methodological rigour and technical commitment to data collection and management. Its evolving approach can become a blueprint for those local governments that are still locating themselves in the balance between two very common “options that cities [...] face: prioritising measurable targets or investing to obtain new data to measure targets that are relevant to achieving the SDGs” in a specific context (Siragusa et al., 2020).

4.2.1 Bristol’s definition of indicator toolkits

In 2019, Bristol too published a VLR with an extremely detailed statistical annex and sophisticated data analysis, and with quite a diverse indicator design. The process with which the British city came to define 39 ‘original’ indicators (26.5% of all metrics in the VLR) was very different to that of Barcelona.

Bristol’s One City initiative approached the issue of indicators by selecting which metrics from the IAEG-SDGs set — identified not as the highest level of the monitoring system, but rather as the one which would have guaranteed the highest compatibility (and comparability) of Bristol’s VLR with the national reviews’ methods — could be used with locally-sourced data.²⁵ It then proceeded to fill the gaps of this first round of match-ups with national indicators and other relevant urban metrics. When some information provided locally was still lacking an indicator through which it could be expressed, the city would then define an original indicator on its own. Bristol favoured this methodological process with the aim of establishing the Office for National Statistics — the United Kingdom’s NSO — as the ultimate reference point for all local governments willing to take part in similar reporting activities, singling out a set of ‘core’ indicators that, being systematised at the national level, could be available to all British local authorities alike.

These cases show different instances of an ‘evolutionary’ approach in which cities go through either trial/error processes or incremental stages, learning what information is available for review and the kind of measurement is viable according to their resources and capacity.

Ultimately, **there is no inherent value in having more or fewer locally, nationally or globally-designed indicators**, since the diversity of pre-existing conditions will inevitably translate into multiple needs and

²⁵ The author had an opportunity to discuss this topic with a representative of Bristol’s City Council in an interview in late January 2021.

preferences in data collection and measurement. Rather, it is important to show that **there are various strategic paths leading to the same result**: the capacity to establish a set of indicators and metrics that a) is able to provide clear information on the social, economic and demographic reality it is expected to describe; and b) can be used because the necessary data is easily and affordably available through time.

4.3 Alignment of existing strategic frameworks with the SDGs

A local review is not necessarily the first opportunity for local and regional governments to report on progress and achievements in local sustainable development policy. In many cases municipalities and regions approach the SDGs with significant previous experience and familiarity with reporting within any of the other strategic frameworks that they had established, either before or after the 2030 Agenda.

When faced with the challenges of collecting reliable local data compatible with a set of indicators, such as the 2030 Agenda's, designed for a different level of governance, many local and regional governments have relied on the work that they had already done on local monitoring and reporting.

Inevitably, therefore, many of the indicator sets that have been adopted in the European VLRs either draw significantly from the toolkits that had been developed for other strategic plans and frameworks and adapt their terminology and scope to that of the SDGs.

4.3.1 Barcelona: the VLR as patchwork of existing (and effective) assessment tools

In the case of Barcelona's latest methodological guide, for instance, the city has included at least 11 indicators (out of 227, 4.8%) that had already been developed and used in its Barcelona 'Sustainability Indicators'. 18 indicators (7.9%) have been adapted from pre-existing municipal plans. The borrowed metrics in the methodological toolkit refer, in particular, to two mainstays of City Hall's sustainability framework: the above-mentioned 'Inclusiveness Strategy for the Reduction of Social Inequalities 2017–2027' (Barcelona City Hall, 2017), which itself builds on a set of 68 indicators to monitor the achievement of its outcomes and impact; and Barcelona's 'Climate Plan 2018–2030' (Barcelona City Hall, 2018), which includes 76 locally-developed indicators. The Climate Plan is Barcelona's strategic adaptation of its 2030 Climate Commitment, with which it vowed to cut CO₂ emissions by 40% on the 2005 baseline and increase urban green spaces by 1.6 km², all by 2030. More generally, Barcelona's methodological guide explicitly refers to over 100 municipal plans, regulations and policy frameworks as guidelines for the localisation of the SDGs' 169 Targets and the search for compatible metrics for reviewing and reporting.

4.3.2 A paradigm of systematic local-data collection: the case of Jaén

The example of the province of Jaén is also particularly outstanding. The review includes a really detailed statistical annex with all basic information provided for each of the 110 selected indicators (there are technically 140 metrics in the review, since several indicators are broken down into sub-indicators according to specific disaggregation variables, such as sex or age): all metadata is provided alongside baseline values, origin of the indicator, source of the data used to measure it, values through time whenever time-series data was available.

Technically speaking, all 110 indicators of the province of Jaén are original and localised. The review makes it clear from the onset that the metrics were built "taking the variables established at the international level as a reference and those defined by Eurostat, the National Institute of Statistics (INE), the Institute of Statistics and Cartography of Andalusia (IECA) and the Spanish Sustainable Development Network (REDS)" and adapted so as to define indicators similar to those "employed in other territories with the same purpose" and "increase comparability and adopt the same criteria when it comes to measure the achievement of the SDGs" (Herrador Lindes et al., 2019, p. 15 [author's translation]).

More specifically, 40 indicators out of 110 (36.4%) were defined from scratch and with the purpose of this review, according to the abovementioned criteria of comparability with the assessments of other local governments. 61 indicators (55.4%), however, were obtained directly from the pre-existing 2nd Strategic Plan and, in particular, from a quantitative assessment tool — the Comprehensive Management Dashboard (*Cuadro de Mando Integral*, CMI) — that the team in charge of the implementation of the sustainable development strategy had developed to guarantee monitoring and assessment.

Nine indicators (8.2%) were extracted from the CMI and then adjusted to better fit the reviewing framework of the SDGs. The CMI itself is a gargantuan effort (especially for a 600,000-inhabitant administration) which developed 381 indicators, divided into eight core policy spheres, adapted from various international and national sources so as to fit the data that the province had available at its own level of governance. The CMI measurements of performance in the implementation of the local strategic plan, moreover, have been regularly

updated every six months since 2014.²⁶ When the CMI was first set up, the main framework of reference was still the Europe 2020 strategy for ‘for smart, sustainable and inclusive growth’.²⁷

One of the tasks carried out by the team in charge of the latest strategic documents — the ‘VLR’ which is considered in this study — was in fact that of selecting the CMI indicators that were more easily aligned to the SDGs. **The work performed by the province of Jaén with the fundamental support of the local university** — and a large multi-stakeholder coalitions that spans from public administration to academia, from trade unions to the private sector and financial actors — **is essentially a best practice in both the European and the global context when it comes to the full ownership of the reviewing process**, including a challenging, resource-intensive work of selecting adequate indicators, defining original and localised metrics, and identifying reliable sources of local data.

4.3.3 Local sustainability strategies as methodological legacy: the cases of Turku and Bonn

Turku’s review built on the experience of its urban strategy framework, originally designed in 2014 and updated in 2018 (Turku City Hall, 2018). The ‘Urban Strategy’ favoured local action and commitment to a set of policy pillars — wellbeing, education, sustainable growth, inclusion and equality — and came with a complex set of indicators. At least 63 of the strategy’s metrics were later used in Turku’s VLR²⁸ and adapted to either match as much as possible the indicators of the ‘official’ UN system or make them compatible with the SDG Targets they were selected to measure.

The reasoning behind the indicator adaptation process in the case of Turku is also telling of how difficult it is for a holistic framework with universal vocation such as the SDGs to adequately cover the diversity of the socio-economic reality of territories and communities. As an example, Turku’s VLR explicitly changes the approach of SDG 10 indicators on inequality, arguing that the ‘official’ UN metrics’ focus on income gaps was less relevant in the Finnish context. In Finland, these gaps have historically been narrower than in other countries due to the country’s progressive taxation mechanisms, and generally less relevant than “inequality from the point of view of equal treatment” (Turku City Hall, 2020, p. 50). Accordingly, the urban strategy indicators selected for the VLRs measure perceived quality of life, wellbeing across different demographics and population groups, as well as accessibility of education and other services.

The German city of Bonn is another relevant example in this regard. The city had a long-standing administrative tradition in terms of strategic sustainability planning. Bonn was one of the local governments participating in ‘Sustainable Municipalities’,²⁹ an initiative carried out by *Deutsche Umwelthilfe*, a German non-profit civil society organisation and think-tank: the initiative engaged with 175 German local governments between 2001 and 2004 to monitor the alignment of local policy with the three core pillars of the Agenda 21 framework (society, economy, and the environment).

Within this framework and in constant collaboration and mutual consultation with the involved municipalities, *Deutsche Umwelthilfe* developed a set of 41 local indicators organised by strategic sector: wellbeing; social justice; environmental quality and resource efficiency; and economic efficiency.

Thanks to this experience and relying on its local monitoring capacity, the city of Bonn developed its own local sustainability policy reporting mechanism and has been publishing three-year strategic planning and reviewing documents since 2005. The city’s sustainability reports are methodologically rigorous and pay significant attention to the legitimisation of their indicators and the compatibility between these metrics and the policy information that the city is able to produce locally.

The latest edition of the report, published in July 2020 (Bonn City Hall, 2018), provides a thorough description of each indicator, including the origin of indicator design and the source of the data used to measure it, alongside a review of performance for each indicator in the time-series data available, as well as a direct link with the policy activities and initiatives carried out by the municipality. The 2020 edition of the sustainability report, moreover, links directly each indicator to the SDGs: this way, Bonn’s VLR was able to build on the city’s

²⁶ All issues of the CMI updates are available online at: <https://is.gd/w1g90D>.

²⁷ See, for reference: <https://is.gd/xYgfAj>.

²⁸ The VLR overtly includes 44 indicators from the urban strategy in its review of the 17 SDGs, the remaining ones are more discursively included in the VLR’s contents, in a way not dissimilar from the method adopted by the city of Ghent in its own review.

²⁹ A description of the initiative and an account of its main methodology and results is still available on the website of *Deutsche Umwelthilfe* (German Environmental Aid): <https://is.gd/cxTpFd>.

previous monitoring experience and – at the same time – adapt this knowledge to the alignment of city policies with the 2030 Agenda and its performance with the localisation of the Goals.

In terms of the ‘absolute’ origin of the indicators that these VLRs have re-adapted in the framework of SDG localisation, in the case of Turku there is currently no sufficient evidence — neither from desk research nor following conversations with the officers that contributed to the production of the VLRs — of the earlier process stage that led to the initial definition of the indicators. In the case of Bonn, it was not possible to retrieve specific information on the definition of the original indicators in the framework of the ‘Sustainable Municipalities’ initiative back in 2001–2004.

In terms of the kind of adaptation and upgrade with which these indicators were integrated in the VLRs, Turku’s urban strategy relied extensively on the availability of large amounts of national data disaggregated by cities and urban areas. The comparison between Finland’s ‘six cities’ is a recurring item in policy and performance assessment: also because of this systematic disaggregation at the municipal level, there is a significant coincidence between Turku’s strategy’s indicators and the metrics that are defined and used by the Finnish NSO. Bonn’s approach, on the other hand, specifically aimed at providing the city government with a consistent set of local data over a large period of time, allowing for time-series ‘self-benchmarks’ for policy performance evaluation. Its statistical system is, to a certain extent, more strictly locally-based, and also a sort of exception in the broader German ‘ecosystem’ of sustainability data and knowledge management, as mentioned also in Section 4.1 above.

5 Data collection and management in European VLRs

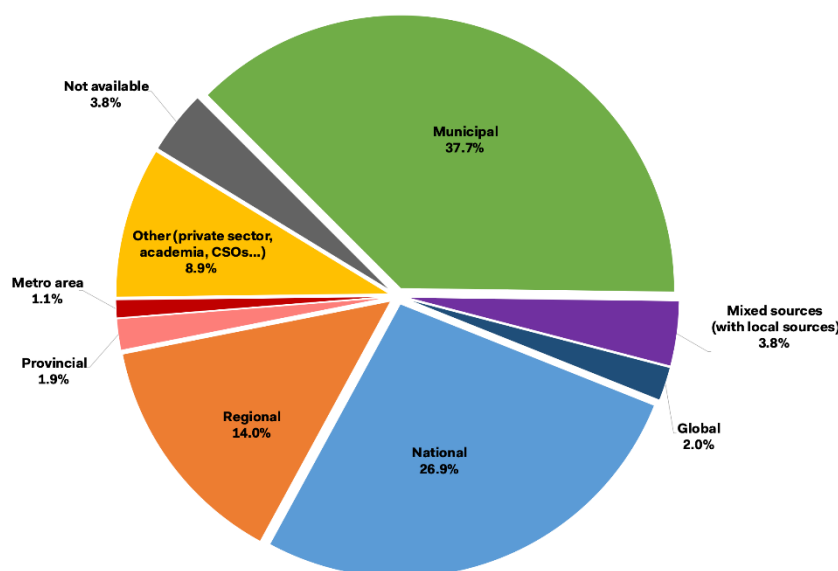
Besides identifying viable indicators for the measurement of SDG localisation performance, the reliability of VLRs also depends on the capacity of local governments to compile these indicators with accessible, disaggregated, durable and affordable data.

In terms of accessibility, the organisation of most national statistical systems and data collection mechanisms revolves around the establishment of national statistics offices (NSOs) that tend to centralise — and have a lawful mandate to do so — the collection and management of data across all territorial levels. In spite of the diversity of national contexts and approaches to data management, there are several examples around the world of decentralised representation of the NSOs at the sub-national level, as well as fully sub-national authorities with devolved powers on data management. Just to name a few, the United Kingdom’s Office for National Statistics (ONS) collects regional and sub-regional information from devolved administrations. In Korea, the NSO is supported by the work of five regional offices, one local office, and 34 district offices. Spain’s autonomous communities have their own regional-level statistical offices, often with a certain degree of autonomy from the central NSO. In centralised systems, however, the actual ability of local governments to access data and use them is limited to what the NSO is actually making available to other levels of governance and institutional actors.

This has, of course, significant impact on the availability of disaggregated and durable information: if the NSO centralises data management, the degree to which this information is fragmented according to variables, across different tiers of government, or the time span across which it has been collected will vary depending on decisions that are not for local governments to make. Diversity is key, in this regard: most information collected by Spain’s NSO is disaggregated down to the provincial level; the NSOs of Finland and Sweden, on the other hand, do collect data narrowed down to the municipal level at least for the largest urban areas.

Finally, affordability raises an issue with local governments being able or willing to undertake the process of data collection on their own. This endeavour may not be available to most local governments not only for issues of budgetary constraints, but also for the technical and human resources required.

Figure 5 Overall distribution of data sources in European VLRs



(a) N of European VLRs with information on data sources N = 14

Source: own elaboration

Figure 5 shows the distribution of indicators in European VLRs according to the source of the data used to measure them. In spite of the widespread difficulties that come with managing data, measuring indicators and, more generally, adapting the UN monitoring mechanisms to the local level, to date **about 37% of the indicators used in European VLRs is sourced directly at the municipal level**. Table 3 shows the basic information on data sources and treatment of data in each published European VLRs.

Because of the diversity of resources and approaches available in different national contexts, there are a few variables through which the topic of data sources in European VLRs can be further explored. This group can be sorted into: a) VLRs that actually collect data on purpose or access data that is 'originally' sourced at the local level; b) VLRs that adapt pre-existing sources of data — most notably, NSOs — and attempt at downscaling or single out local information from broader sets of data.

Table 3 Data sources distribution in VLRs which provided metadata or data-sourcing information.

Source: own elaboration.

Local Government	Country	Type	Year	Data sources								
				Local	Mixed (and local)	Global	National	Regional	Provincial	Metro	Other (CSOs, Academia, private...)	N/A
Barcelona	Spain	City	2019	64	5	10	84	1	1	3	37	0
Barcelona^(a)	Spain	City	2020	157	2	0	3	13	0	12	11	23
Bonn^(b)	Germany	City	2020	34	8	0	1	2	0	0	1	0
Bristol	United Kingdom	City	2019	43	1	0	92	0	1	0	10	0
Espoo^(c)	Finland	City	2020	9	6	0	13	0	0	0	1	8
Ghent	Belgium	City	2020	84	2	0	32	68	4	0	34	0
Gothenburg^(b)	Sweden	City	2019	4	0	0	46	0	4	0	1	10
Helsinki	Finland	City	2019	20	0	0	15	0	0	0	0	0
Jaén^(b)	Spain	Provincial	2020	0	1	0	59	53	15	0	12	0
Málaga	Spain	City	2018	20	26	18	34	15	1	0	6	0
Mannheim^(b)	Germany	City	2019	35	1	0	8	4	0	0	1	4
Stuttgart	Germany	City	2020	50	4	0	10	2	0	0	11	0
Turku^(b)	Finland	City	2020	14	1	0	20	1	0	0	0	8
Totals				534	57	28	417	159	26	15	125	53

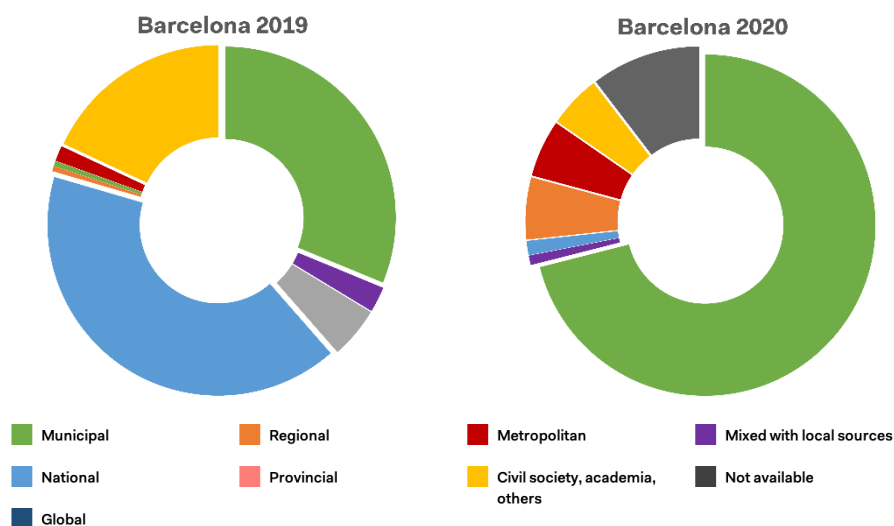
- (a) Sources for 23 indicators are categorised as not available because they are left knowingly undefined in the VLR as the office in charge awaits to define their methodology better.
- (b) More details on data-sourcing for these VLRs were provided upon direct contact and/or interviews with the officials in charge of the documents and/or the indicators' metadata (only the sources for the 44 indicators adapted from the city strategy are listed here).
- (c) The recount for Espoo only includes the 'key indicators' highlighted in the VLR (for which sources are provided), even though non-systematised data is provided in the VLR analysis. Highest values per VLR highlighted in bold.

5.1 Locally collected and available data

5.1.1 Barcelona

Barcelona's example, as it was the case with the discussion of indicator design and definition, is especially important in a time-based comparative perspective — i.e., with regard to how the city's expectations and capacities have evolved over (a relatively short amount of) time. If compared to the 2019 methodological document (Barcelona City Hall, 2019), in which 31.2% of all indicators were sourced with municipal data, the figure skyrockets in the 2020 guidelines (Barcelona City Hall, 2020), **with about 71% of all metrics being used with data collected at the municipal level** — a change consistent with the shift from adapted to original locally-developed indicators (from 10% in 2019 to 79% of all indicators in 2020).

Figure 6 Distribution of indicators according to the selected source of data, VLRs of Barcelona, 2019 and 2020 .



Source: own elaboration

Data for over 30 indicators were sourced directly from local surveys carried out by municipal agencies (active, in particular, in the public health, healthcare, service provision and discrimination and inequality sectors). At least 28 indicators were compiled using local data from evaluation reports of pre-existing policy programmes or strategic frameworks. At least 19 indicators were measured with data collected and managed by the Department of Statistics and Data Dissemination, i.e., Barcelona's own local statistics office (*Departament d'Estadística i Difusió de Dades*).

The same shift in paradigm that had affected the definition of the indicator set — an attempt to further localise the quantitative assessment of SDG implementation performance by increasingly relying on original metrics tailored specifically on the city's reality — **also impacted the provision of adequate data to feed these measurements, increasing collection, management and use of purely local data**, while minimizing reliance on sources from different (and higher) tiers of governance: national sources in the 2020 methodological guide are limited to just 1.4% of indicators, overtaken also by regional (5.9%) and metropolitan (5.4%) sources of data.

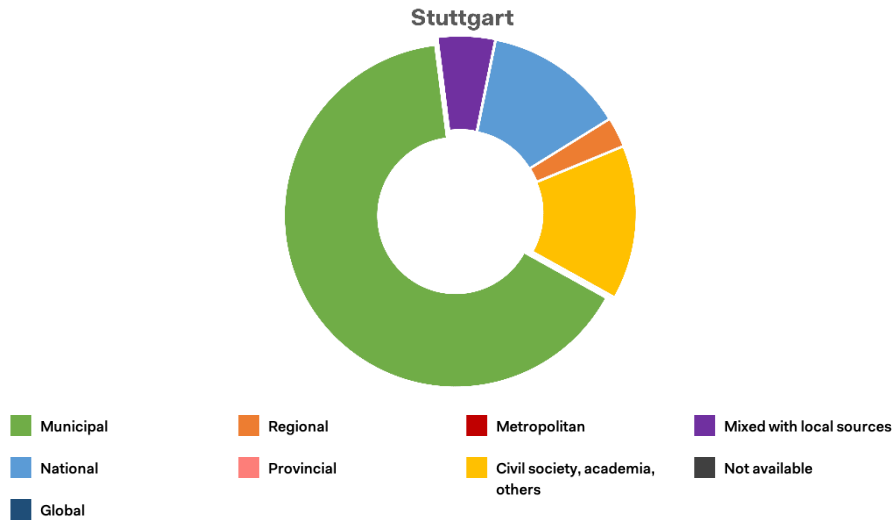
5.1.2 Stuttgart

Among the VLRs with a high prevalence of municipal data sources, **the case of Stuttgart** is also interesting. The VLR was developed as a pilot case study of a local review fully integrated with the Bertelsmann Foundation's *SDG-Indikatoren* framework (see also Section 4.1 above). While the VLR adopts 60 indicators out of 77 directly from the *SDG-Indikatoren* toolkit — 43 metrics out of the set of 54 core indicators identified in the framework, as well as 17 extracted from the larger body of the 196 'basic' local metrics that the *SDG-Indikatoren* aligns with the SDGs — the range of the data used to measure these metrics was actually more complex and diverse.

- About 20 indicators in Stuttgart's VLR use locally sourced data managed directly by the city's statistical department.

- At least 15 more indicators were compiled using with data provided by city agencies and specialised departments (mostly environment and planning).
- Ultimately, a total of 50 indicators out of 77 (64.9%) used locally-sourced data from the municipal level, whereas just nine indicators (11.7%) used data already available through the *SDG-Indikatoren* framework and its statistical databases.

Figure 7 Distribution of indicators according to the selected source of data, VLR of Stuttgart.



Source: own elaboration

Without inferring a general conclusion from a single case-study, the output of Stuttgart's VLR — formally embedded in the *SDG-Indikatoren* framework — shows that standardised statistical toolkits and indicator sets can be essential to lift a resource-intensive burden off the shoulders of local governments and, thus, incentivise participation in SDG localisation monitoring; however, because of the inevitable diversity of the socio-economic realities these indicators attempt to measure, local data provided at the closest possible level are still a fundamental source of knowledge.

5.2 National and regional data in VLRs

About 27% of all indicators used in European VLRs are compiled using national sources of data. These tend to include at least two major categories of documents and/or data sets. On the one hand, there is widespread reference to the data collected by national statistical offices (NSOs). NSOs are inevitably relevant when it comes to data collection and management in the framework of the 2030 Agenda and the SDGs for two basic reasons:

- a) the resources that NSOs have at their disposal are generally unmatched at other levels of governance, and especially so at the local level. The amount of technical and human resources needed to maintain the necessary data-management capacity to actually gather adequate data for the kinds of indicators that have been developed with SDG targets has already proved to be challenging for many national governments. Moreover, because of the resources they are provided with, many NSOs are able not only to collect sufficient amount of data for longer times, but they are also more endowed to fully disaggregate them, not just across basic variables (age, gender, income, etc.), but most importantly also across different tiers of government. Many NSOs are in fact able to provide locally scaled-down data for metrics that local governments would hardly be able to collect.
- b) the **original ‘official’ sets of indicators** defined by the IAEG-SDGs were designed for national governments to use them in national review, so indicator definition and metadata are commonly adapted to the national level: **the kind of data, the scale of data availability, the level of disaggregation and time coverage required are often unattainable at the local level**. The inherently country-wide or high-level nature of the ‘official’ indicator set, moreover, can also imply that some of the issues that are covered by the indicators may also not be relevant to the local level in terms of policy, thus making it even harder for local authorities to provide meaningful data, e.g. some SDG 14 indicators on life under water for landlocked territories with no waterway access; some SDG 17 indicators on whole-of-society alliance-building for sustainable development. On the other hand, **national sources also include many databases that only national governments and their department or agencies** — because of how competencies and powers are generally distributed across most countries — **might establish and maintain**. SDG 8 on decent work, for instance, often uses metrics that rely extensively on social security, employment services or enterprises registers. SDG 3 on health and wellbeing, similarly, can require strongly centralised data in those contexts in which health as a policy competence has not been devolved to lower tiers. SDGs with strong impact of utility-generated data (e.g., SDG 6 on water, SDG 7 on energy production and consumption) can require a national perspective if the provision of such services is still centralised.

5.2.1 The example of the Finnish municipalities

In the current landscape of European VLRs, **there are a few examples that stand out for their reliance on national sources of data**. Finnish municipalities, for instance, rely on the data of Finland’s NSO (*Tilastokeskus*)³⁰ especially because almost all data in its databases is already disaggregated down to the municipal tier of governance.

Turku’s review uses this opportunity to present the (national) data relative to the municipal territory of the city both against the baseline of the national average and compared to the performance of the other five largest Finnish cities.

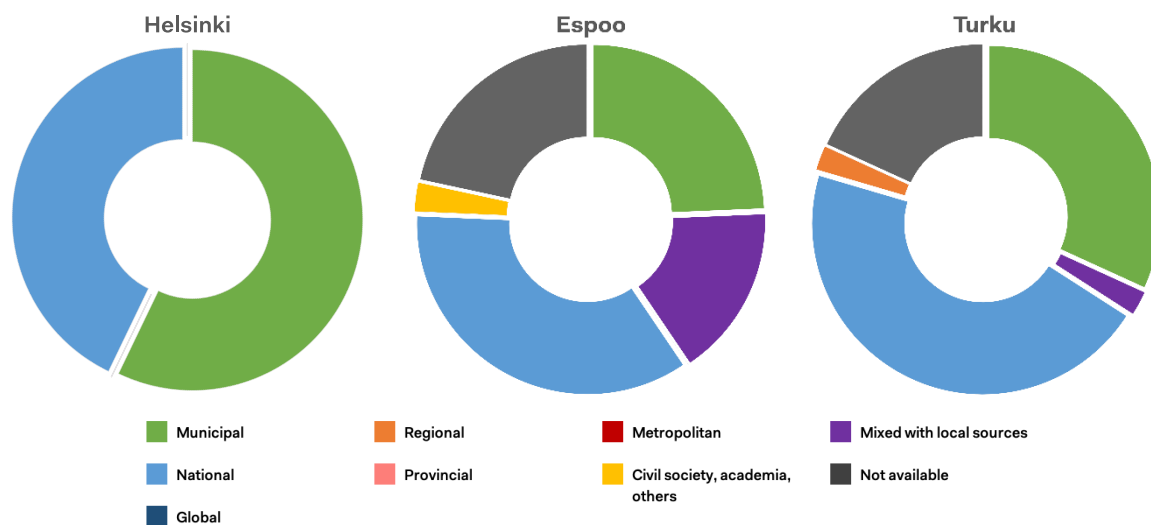
Espoo adopts this method only for a few indicators, whereas its VLR has a larger impact of ‘mixed’ sources with local data included — in particular, nation-wide surveys or databases coordinated by national agencies that are integrated with local information collected by or available to city hall.

This was all the more evident in certain SDGs in which the data was accompanied by spatial visualisation, and the resources or tools developed at a certain tier or within a certain institutions were then integrated with the data managed by the Espoo municipality: the usage of public transportation for SDG 11, for instance, was visualised via data and tools both local and managed by the metropolitan region of Helsinki (where Espoo is

³⁰ The web portal of the agency provides nearly all resources in English too: https://www.stat.fi/index_en.html.

located) and the other municipalities of the area; data on SDG 13 were visualised through tools of the Helsinki's metropolitan region's utility for water provision and waste treatment (*Helsingin seudun ympäristöpalvelut*, HSY); SDG 14 maps and monitoring were developed with Espoo data and the work of two national research agencies, the Finnish Environment Institute (*Suomen ympäristökeskus*, SYKE) and the National Land Survey of Finland (*Maanmittauslaitos*, MML).

Figure 8 Distribution of indicators according to the selected source of data, VLRs of Helsinki, Turku and Espoo.



Source: own elaboration

5.2.2 Looking for data across all governance levels: the examples of Jaén and Bristol

With regard to the definition of adequate data sources for their indicators, the VLRs of Bristol and the province of Jaén have at least two things in common. Both documents pay extremely detailed attention to method, data and the value of statistical information for the review they carry out. Both documents also had large amounts of information available for *their own level* of governance — municipal in the case of Bristol, provincial in the case of Jaén — *in other tiers'* database, and in particular at both the national and regional levels. Even with all their differences, **both VLRs are an interesting example of an exhaustive use of all available technical resources at the national and sub-national level**, i.e., an example of how a well-structured statistical ecosystem in which data are abundant and accessible across different tiers of governance can become itself an enabling environment favourable to local reviews of SDG localisation.

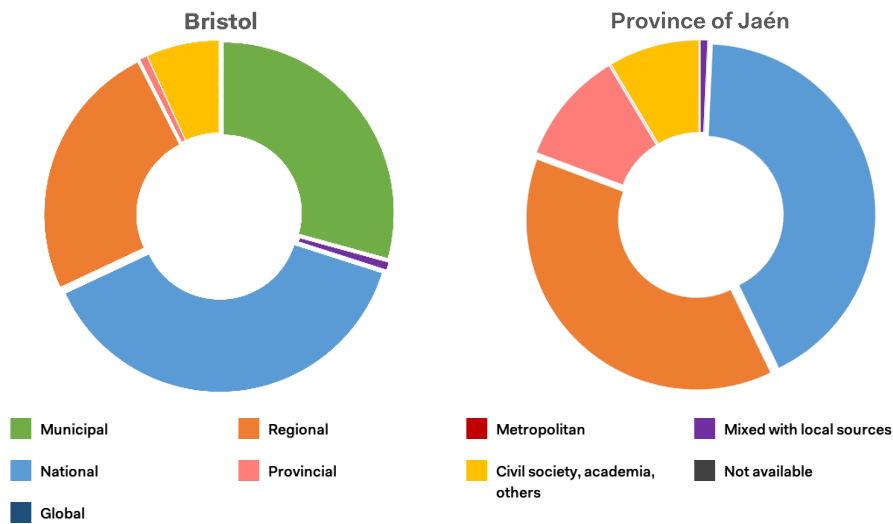
The case of **Bristol** is also notable because of how diverse the range of the databases and sources used in the VLR was. The review refers extensively to the information collected by several specialised national and regional agencies. 36 indicators (almost 25% of all indicators) were measured with data from Public Health England.³¹ Eight indicators were compiled directly with data from the Office for National Statistics (ONS). The ONS provides a significant amount of data disaggregated to the municipal and local levels across 72 different basic geographic areas,³² which in turn cluster the information of dozens of local areas down to municipal and county terms for all four countries of the United Kingdom. At least 21 indicators used data from Nomis,³³ a statistical repository on the labour market, provided by the ONS and the University of Durham, which too collects a wealth of information disaggregated down to the county and municipal levels for England and Wales.

³¹ See also: <https://www.gov.uk/government/organisations/public-health-england>.

³² The local statistics section of the ONS database is available online: <https://www.ons.gov.uk/help/localstatistics>.

³³ The web portal is accessible at this address: <http://www.nomisweb.co.uk/>.

Figure 9 Distribution of indicators according to the selected source of data, VLRs of Bristol and the Province of Jaén.



Source: own elaboration

The strategic document of the province of Jaén builds on the premise that “the metrics employed by countries, regions or larger cities and metropolitan areas are often not available for Spanish provinces” (Herrador Lindes et al., 2019) and undertook a process of identification of the most adequate sources to ‘scale down’ available data to its own governance level. For this reason, the range of data sources adopted in the strategic document of the province is particularly diverse, since it relied on the information contained in larger and more established databases — such as the regional Institute of Statistics and Cartography of Andalusia (IECA) and the Spanish NSO (INE) — that was either disaggregated down to the provincial level of governance or was easily broken down into per-province averages.

Both for the relatively scarce availability of provincial data (which, by the way, account for 10.7% of all indicators) and to preserve the efficiency of the review process, using scaled-down data was more viable and effective than fully localizing the necessary sources. It is important, at the same time, to highlight the impact of data collected and managed by the University of Jaén, the local university (and the institution that authored the methodological guidelines), which ultimately provided data for 8.6% of all indicators used in the review.

5.3 Open data and source accessibility: a few good practices

European VLRs to date include about 1,600 pages of reporting and use some 1,240 indicators or metrics to measure performance in SDG implementation. This overwhelming amount of information is expected to be transparently available and accessible. Open data platforms, open repositories of metadata and freely available datasets are often a complicated feat for national governments to achieve: it is often just unattainable for many local governments, considering how many of them already meet (and report about) significant difficulties in finding, managing and translating this information into a policy strategy or review. There are, however, a few interesting examples of how local governments can manage to provide the data they use as openly as possible, as well as evidence that this issue can be one of the most convenient drivers of collaboration and mutual learning among local governments even in very different policy contexts.

5.3.1 The province of Jaén

Alongside an outstanding example of methodological rigour in the identification, management and presentation of indicators and quantitative information, the team that worked on the VLR of the **province of Jaén** has also curated its systematisation into an open-access web portal that collects a selection of 212 indicators from the provincial government's Comprehensive Control Dashboard (CMI). This includes 110 SDG-aligned indicators that are measured within the province's sustainable development strategic plan, as well as all the raw data accessible by municipality, county or at the provincial level.³⁴ All indicators are presented with time-series comparisons whenever available (since 2007 at the earliest) and all raw data can be freely downloaded.

5.3.2 Bristol

In the case of **Bristol**, the VLR mentions extensively all available sources of data used in its statistical study. Not only are most of these resources fully available online, but they are also highly institutionalised sources of open data (provided directly by governmental institutions and licensed in the Commons) that are systematised efficiently through easily accessible metadata and raw repositories: the British NSO (ONS), all governmental agencies involved, and all the local sources of data provided by Bristol's offices (see Section 4.2 above).

More generally, Bristol's One City plan for sustainable development adaptation and the City Council team that worked on the VLR were also explicit about their support to the ONS and its work on a centralised and yet capillary database of information on the SDGs, fully aligned with the IAEG-SDGs indicators, and with data disaggregated across as many variables as possible and down to the smallest localisable area.³⁵ This central hub of information is expected to serve as a catalyst for the participation of even more British municipalities in the reviewing process, sharing much more localised information, and creating a new 'enabling environment' revolving around the ONS and improving horizontal and vertical dialogue across different local realities and with the national government.

5.3.3 Northern Europe: Gothenburg and Turku

For the performance analysis of its VLR, **Gothenburg** used the data set of the 65 indicators that were available for the city in the national database on the 2030 Agenda indicators and implementation that the Swedish NSO managed by the Council for the Promotion of Municipal Analysis (*Rådet för främjande av kommunala analyser*, RKA), a service jointly provided by the Swedish government and the cities and regions that join the programme and provide their data.

Kolada,³⁶ as the database is called, is freely available online. The platform allows the visualisation of metadata, origin and source for each indicator. All data are visualised in comparison with the other municipalities whose data are available in the database. It is possible to visualise time-series trends (with data from 2007 at the earliest) compared to average trends for all municipalities and nation-wide. It is possible to break down indicators according to gender disaggregation. All raw data can be downloaded. All indicators, finally, show whether the values for the selected city fall in the best or worst 25% of the available range, or rather in the

³⁴ The platform can be accessed online at this link: <http://www.cajaruraljaen.com/indicadoresdesarrollo/>.

³⁵ The open-data portal is available online at: <https://sdgdata.gov.uk/>. The ONS also publishes yearly reports on their measurements and review: <https://is.gd/vo8L5N>. The platform is based on an Open Government Licence open-data standard, Open SDG, which is also actively used by the city of Los Angeles (another outstanding example of methodological and statistical expertise in the realm of VLRs) and several national governments, including Germany, Iceland, Poland and the United States. For more information: <https://is.gd/mosK4Q>.

³⁶ The resource is accessible online: <https://www.kolada.se> [in Swedish].

middle 50% (a specific use of the traffic-light visualisation which locates the city in a continuum rather than assess performance relative to SDG Targets' baselines).

A similar approach to visualisation was adopted by **Turku** for the indicators of its urban sustainability strategy, with performance assessed against the baseline set by the city's strategic plans. The data are collected and browsable via an open-access platform and online application,³⁷ even though they are not fully accessible or available for download. Time-series comparisons are limited to the strategic plan's deployment period (2016–2019).

³⁷ The resource can be accessed online: <http://is.gd/EQQTQ> [in Finnish].

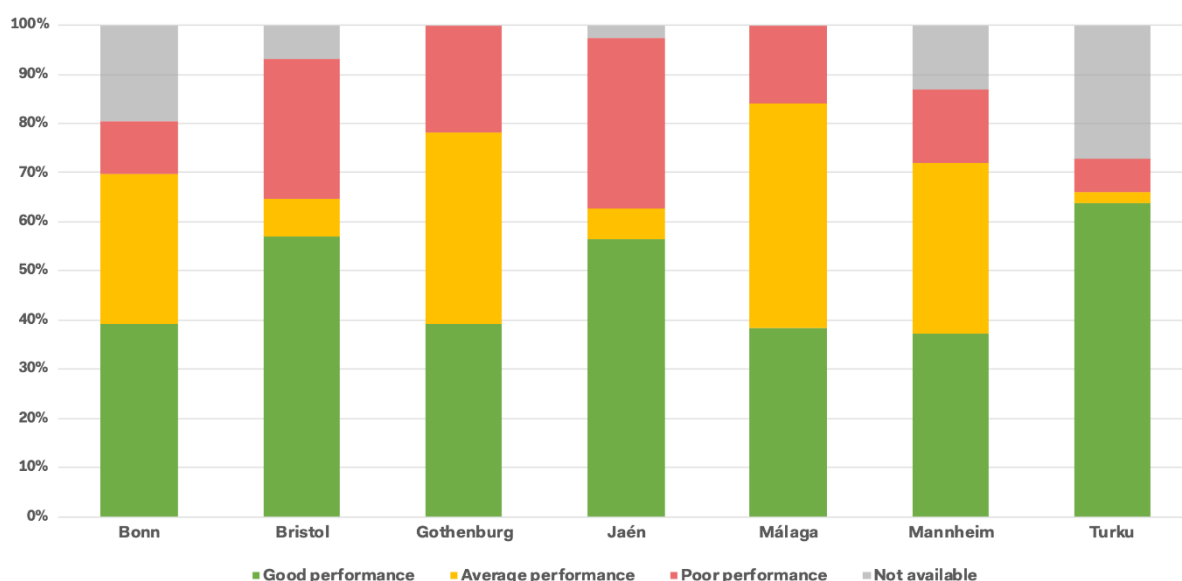
5.4 Visualisation, communication and lessons learnt: the ‘in-a-glimpse’ approach to SDG measurements

An often-understated element of quantitative analysis and the use of indicators, metrics and data is the ability to easily communicate information and knowledge that would otherwise be harder to disseminate, especially to larger, non-specialised or non-engaged audiences. This can have significant consequences.

On the one hand, VLRs look for ways in which they can quickly and effectively share the impact of their policies and initiatives on the localisation of the SDGs: they need to communicate results, share positive (or negative) impacts, and engage the larger non-expert public in awareness-raising and mobilisation. On the other hand, the ability to communicate achievements, positive results and progress in the localisation of the SDGs can drive more commitment and trigger a snowball effect for more initiatives, more alignment and — to a certain extent — more technical and financial resources dedicated to the localisation framework.

Figure 10 shows the distribution of these performance ‘self-assessments’ in the VLRs that adopt such systems. All these examples divide performance in good, average and poor classes against either previous years’ performance baselines or other similar thresholds (e.g., expected performance values in strategic planning).

Figure 10 Distribution of good, average and poor performance assessments in the visualisation aids included in certain European VLRs.



Source: own elaboration.

Many local governments have used a specific approach to these visualisation tools, besides the intuitive reliance on green, yellow and red to signal good, average or poor performance. The assessment may refer to performance compared to a pre-set baseline or according to a time-series average (e.g., Turku’s urban strategy). Gothenburg, for instance, uses the traffic-light system to assess the latest available measurement of an indicator against the expected baseline, but also adopts a system of signalling arrows to show whether performance on a given indicator is improving, stable or worsening. Málaga’s visual assessment is even more articulate: left-right arrows signal recent trends in the measurements of the indicators; up-down arrows assess performance relative to the baseline of SDG Targets; and the traffic-light system sums up the relationship between the other two tools, showing the ‘prospects’ for the attainment of the Targets according to how the city has fared in recent years. Mannheim, on the other hand, only uses arrows.

Again, besides being anecdotic about the way local governments approach the visualisation of their results and outcomes, reliance on this tool can make a significant difference when it comes to communicating about the effectiveness of localisation policies and, more generally, about the paying off of a community’s commitment to the 2030 Agenda and its achievement. Several local governments have singled out the lack of appeal of the SDG framework or, more precisely, a perceived distance between a powerfully symbolic and global framework and the day-to-day humdrum of local administration. Small tweaks such as the ability to show how many ‘positive’ or improving measures and tasks a committed local government is able to carry out can have some sway on both public and political opinion.

6 Bridging the gap: city indicators and the European Handbook

The analysis of data and indicators in European VLRs provides a very valuable opportunity to assess how close the metrics used in these documents are to the indicators that were selected and defined in the European Handbook for SDG Voluntary Local Reviews. In order to do so, this report constructs a simple *Indicator Proximity (IP) Index* to explore:

- how compatible the indicator sets of the VLRs have been with the Handbook's metrics;
- which specific SDGs showed significant (or negligible) proximity across different VLRs;
- and what expectations or conclusions can be preliminarily drawn about the versatility of the Handbook's indicator examples and the next steps to be taken to revise or update its metrics.

The report examines the indicators of all VLRs with clearly identified and defined metrics (N = 16) and compares them with the 71 indicators of the European Handbook (henceforth, EUH). Each VLR indicator is then classified according to the 'proximity' to each EUH indicator. The outcome of this process is summed up in Table 4.

The indicators are classified into three ranges of proximity in Table 4:

- meaningful coincidence or overlap of the EUH metric with that of a VLR (green dots) — e.g., EUH's SDG 6 indicator on 'Wastewater safely treated', which was included, almost verbatim, in five VLRs;
- comparable metrics that share context, objective or method but whose differences have to be discussed (yellow dots) — e.g., Malaga's indicator on 'Population linked to sanitation and water treatment systems';
- non-comparable metrics that, however, refer to the same conceptual plane and show an analytical interest of the VLR in the same topic or domain as the EUH indicators (red dots) — e.g., Gothenburg's 'Groundwater bodies with good chemical and quantitative status': it still refers to the quality of water available in the municipality, but falls outside of the scope of sanitation and/or wastewater treatment proper.

Table 4 Proximity index between the European Handbook's indicators and the indicators included in the European VLRs.

Source: own elaboration

EU Handbook for SDG VLRs' indicators	Barcelona 2019	Barcelona 2020	Basque Country	Besaron	Bonn	Bristol	Espoo	Gothenburg	Helsinki	Jaén	Málaga	Mannheim	NR-Westphalia	Stuttgart	Turku					
SDG 1																13	6	0	45	9.00
People at risk of income poverty after social transfers	●	●	●		●	●	●	●				●	●	●	●	6	5	23		
People living in households with very low work intensity			●													1		3		
Lone parent private households (with children aged 0 to under 18)											●					2		6		
Households in social housing					●											1		3		
<i>Homeless people</i>		●				●			●							3	1	10		
SDG 2																6	15	2	34	11.33
Adults overweight (including obese)		●	●			●		●				●	●	●	●	6	2	20		
Organic food purchased for schools	●	●	●	●				●			●	●	●	●	●	11	1	11.5		
<i>Soup kitchens for people who cannot afford food</i>	●					●	●				●	●	●	●	●	2	1	2.5		
SDG 3																17	4	0	55	13.75
Infant mortality	●	●				●				●	●	●	●	●	●	7	1	22		
Adolescent births		●				●										2		6		
Deaths in Road Accidents	●	●				●				●	●	●	●	●	●	8		24		
Daily smokers in 1st and 2nd year of upper secondary school																	3	3		
SDG 4																13	15	2	55	13.75
Children 0-4 in day care or school	●	●			●			●			●	●	●	●	●	8	1	25		
Adults with less than primary, primary and lower secondary education	●	●					●				●	●	●	●	●	1	5	1	8.5	
Students in higher education	●	●	●				●	●	●	●	●	●	●	●	●	4	6	18		
Non-native students graduating from upper secondary schools								●	●			●	●			3	1	3.5		
SDG 5																18	15	0	69	13.80
Gender employment gap	●		●			●		●		●	●	●	●	●	●	3	6	15		
Satisfaction with life by sexual identity for 15-year-old children		●															1	1		
Formal complaints for episodes of 'violence against women'	●	●				●	●			●	●					4	4	16		
Female hospitalization for assault data		●				●				●						1	2	5		
Seats held by women in municipal governments	●	●			●	●	●			●	●	●	●	●	●	10	2	32		
SDG 6																11	8	4	43	10.75
Wastewater safely treated	●	●	●		●	●	●	●	●	●	●	●	●	●	●	5	3	3	19.5	
Drinking water consumption	●	●	●	●	●	●				●	●	●	●	●	●	5	5	1	20.5	
Recycled water used for open spaces		●														1		3		
<i>Blue City Index (BCI)</i>																		0		
SDG 7																9	26	1	53.5	13.38
<i>New buildings</i>		●																2		
<i>Technical Photovoltaic Potential</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	1	14	17		
<i>Energy consumption per capita</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	8	2	1	26.5	
<i>Energy consumption index</i>			●	●	●	●	●			●	●	●	●	●	●	8		8		
SDG 8																28	6	0	90	18.00
Unemployment rate	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	14	4	46		
Accidents at Work	●	●								●						3		9		
<i>Perception about the local labour market</i>											●	●				2	1	7		
<i>Gross Domestic Product (GDP) per capita</i>	●	●	●			●	●	●	●	●	●	●	●	●	●	8	1	25		
<i>Labour productivity</i>	●															1		3		
SDG 9																13	3	6	45	11.25
Journeys to work by public transport	●	●	●		●											3	1	10		
Enterprises in industry, construction and services	●	●	●								●					1	1	3.5		
<i>New Start-ups over 1,000 inhabitants</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	5	1	5	18.5	
<i>City transport performance</i>	●	●	●				●	●	●	●	●	●	●	●	●	4	1	13		
SDG 10																9	9	3	37.5	7.50
<i>Gini Index</i>	●	●	●			●	●	●			●					6		18		
Unemployed people with disabilities	●	●	●	●	●					●	●					1	5	8		
<i>Graduates by field and gender</i>					●												1	1		
<i>Population with migrant background</i>	●	●	●						●	●	●	●	●	●	●	2	3	3	10.5	
<i>Hosted asylum seekers</i>																		0		
SDG 11																28	13	3	98.5	14.07
Housing cost overburden rate	●	●				●				●	●	●	●	●	●	2	3	2	10	
Bicycle traffic	●	●		●	●	●	●	●	●							4	2	14		
<i>Access to public transport</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	10	2	32		
<i>Built-up area per capita</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2	3	9		
<i>Population without green urban areas in their neighbourhood</i>	●	●														2		6		
<i>Population exposed to NO2 concentration</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	8	3	27		
<i>Cultural Creative Cities Index - C3 Index</i>				●														1	0.5	
SDG 12																22	3	0	69	17.25
Local recycling rates	●	●	●			●	●	●	●		●	●	●	●	●	8	1	25		
Urban waste per capita	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	11	1	34		
Pollutants from industrial facilities			●														1	1		
<i>Local tourism intensity</i>	●	●														3		9		
SDG 13																18	2	0	56	14.00
People affected by disasters	●	●				●										2		6		
Greenhouse gas emissions	●	●	●		●	●	●	●	●	●	●	●	●	●	●	14	1	43		
<i>Urban Flood Risk</i>	●	●									●					1	1	4		
<i>Heat vulnerability</i>							●									1		3		

6.1 The VLRs of European cities and how they relate to the Handbook

How close are European cities to the approach that the European Handbook has selected through its indicator set? How does quantifying this proximity help to seek even more indicator coherence in the future? All relevant information about indicator proximity for VLR cities is collected in Table 5. Available information includes a recount of compatible, approximate and conceptually similar indicators for each VLR and their respective share of all the indicators of each VLR; the IP index; and the share of total proximate indicators over the total number of indicators of each VLR. These two variables make it easier to interpret the relationship between VLRs and the EUH from two different perspectives, i.e., in absolute and more relative terms respectively.

Table 5 Summary of indicator proximity information for VLRs with available indicator sets.

Source: own elaboration.

VLR	Year	Compatible indicator		Approximate metric		Shared field / conceptualization		Proximity Index	% of proximate indicators over VLR total
		Recount	% of the VLR's indicators	Recount	% of the VLR's indicators	Recount	% of the VLR's indicators		
Basque Country	2018	14	28.0	11	22.0	5	10.0	55.5	60.0
Espoo	2020	12	32.4	8	21.6	1	2.7	44.5	56.8
Bonn	2020	11	23.9	11	23.9	2	4.3	45.0	52.2
Helsinki	2019	7	17.9	5	12.8	3	7.7	27.5	38.5
Besançon*	2018, 2019	4	8.0	11	22.0	4	8.0	25.0	38.0
NR-Westphalia	2016	10	16.4	13	21.3	0	0.0	43.0	37.7
Stuttgart	2020	16	20.8	9	11.7	2	2.6	58.0	35.1
Gothenburg	2019	9	13.8	11	16.9	2	3.1	39.0	33.8
Málaga	2018	22	18.3	13	10.8	3	2.5	80.5	31.7
Mannheim	2019	18	16.8	11	10.3	2	1.9	66.0	29.0
Jaén	2020	16	14.5	10	9.1	2	1.8	59.0	25.5
Bristol	2019	22	15.0	10	6.8	2	1.4	77.0	23.1
Barcelona	2019	35	17.1	9	4.4	1	0.5	114.5	22.0
Barcelona	2020	28	12.3	13	5.7	2	0.9	98.0	18.9
Turku	2020	19	14.1	4	3.0	1	0.7	61.5	17.8
Averages								59.6	28.7

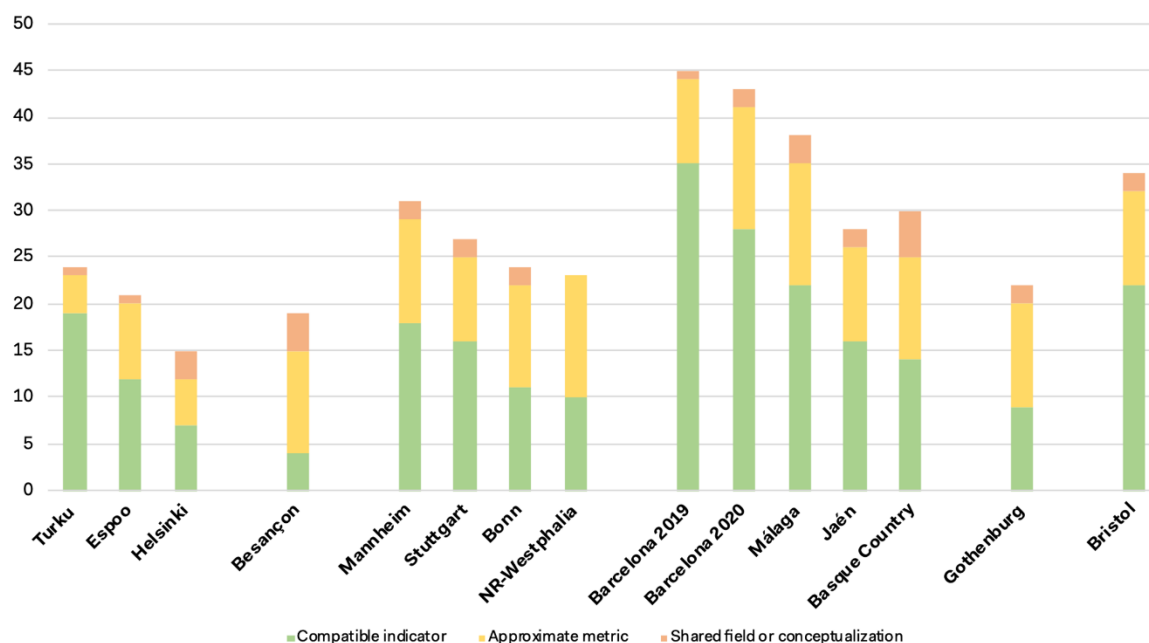
(*) Besançon's VLRs are analysed jointly because they use the same indicator set. VLRs are sorted by the share of proximate indicators over VLR totals (last column on the right).

6.1.1 'Pure' proximity: the data on indicator comparability

In absolute terms, the IP index records the closeness of the approach and analysis between a VLR and the Handbook. The 2019 methodological guide of Barcelona (IP = 114.5, the average score across all VLRs being $\mu_{IP} = 59.6$) had 45 indicators proximate to the EUH's 71 metrics (63.3%), 35 of them being fully compatible or almost literally coincident with the EUH indicators. Barcelona's 2020 VLR too scores high in proximity (IP = 98.0), but it is interesting to see how the degree of compatibility between the city's indicator system and the Handbook's set decreased following the revision and update of the VLR. Consistent with the analysis in Section 4.3, the city of Barcelona revisited the issue of monitoring performance in SDG localisation by taking on a much larger share of indicator design and definition, prioritising metrics that had already been locally defined in pre-existing local plans and strategies and those indicators which could be measured with fully-localised data — so that the 2020 IP is relatively smaller than in 2019.

The one explanatory issue with the IP index is, in fact, that it is still proportional to the number of VLR indicators compatible with or at least proximate to the Handbook indicators. This overstates the proximity of the VLRs with the larger number of indicators: if a review has many indicators it is simply more likely that more of them will be proximate in content or scope to those of the Handbook. The index, however, still provides valuable information this bias notwithstanding. Figure 11 sums up the information on this variable, clustering cities by country and sorting them by the number of 'green dots', i.e., compatible indicators.

Figure 11 Aggregate indicator proximity recount by category, clustered by country. Note: country clusters sorted by alphabetical order; within each cluster, local governments are sorted by number of compatible indicators (green bar).



Source: own elaboration.

There are a few suggestions that can be deduced from the data:

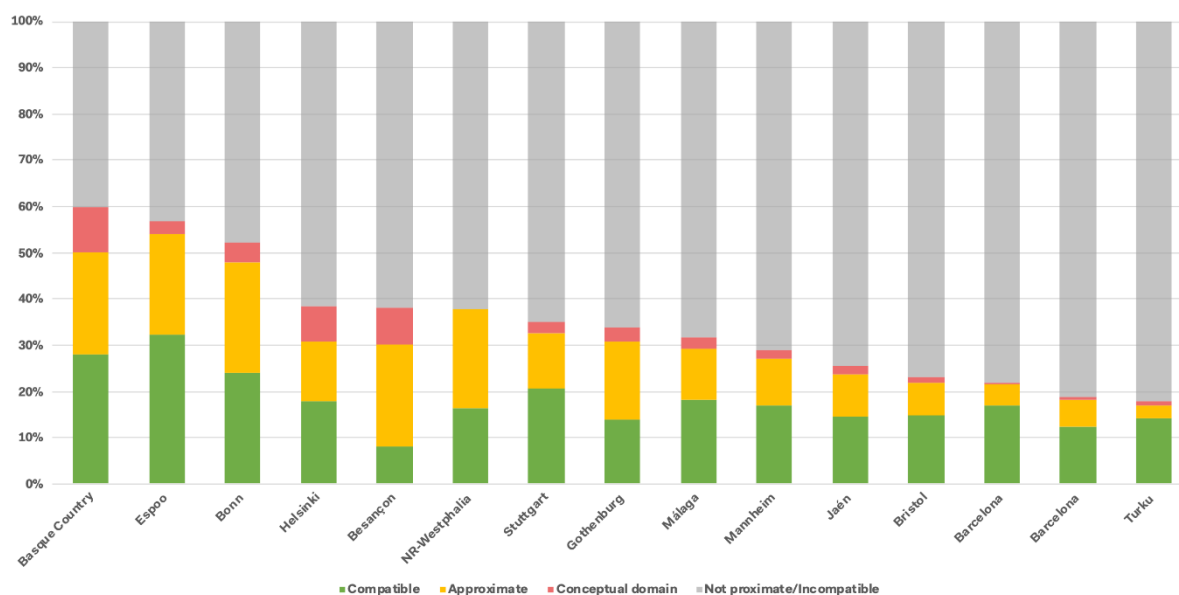
- Consistent with the analysis of Section 3.1, national clusters of VLR cities are probably to be interpreted as the outcome of more political processes rather than a common methodology or technical approach to monitoring and reviewing: indicator proximity across local governments within the same national cluster varies significantly and it can be argued that there are no data or indicator strategies that local authorities refer to when creating their VLR. The few similarities — Mannheim and Stuttgart in Germany and Málaga and the province of Jaén in Spain — can be linked to the use of third-party indicator sets such as those of the Bertelsmann Foundation or the REDS network.
- The three non-municipal local governments whose VLRs have an indicator or data component — North Rhine-Westphalia (IP = 43.0), the province of Jaén (59.0) and the Basque Country (55.5) — all have relatively similar levels of indicator proximity even though they are diverse in terms of their methodology and the number of indicators that they analyse. There is a potential additional research question on whether the Handbook indicator set adopts metrics that resonate less with either the strategic priorities of regional and provincial governments or the kind of data to which they are able to gain access.

6.1.2 Relative proximity: how much do compatible indicators weigh on the total?

The proportion of proximate indicators over the total number of indicators in a VLR is a useful variable because it overcomes the overestimation of larger indicator sets and relativises the index to the specific data features of each VLR. The eight VLRs with the highest share of proximate indicators — Basque Country, Espoo, Bonn, Helsinki, Besançon, North Rhine-Westphalia, Stuttgart, and Gothenburg — all have fewer total indicators than the average ($\mu_{ind} = 98$) of all analysed VLRs.

Barcelona's 2019 VLR, for instance, has almost more 'green dots', i.e., fully-compatible EUH-VLR indicators, than the Basque Country, Espoo and Bonn combined. However, in these three VLRs the proportion of proximate indicators with the EUH was higher than half of the VLR indicators. Arguably, these VLRs — in terms of the approach to and the vision of the reviewing process and the identification of 'core' metrics more adapted to their societies and to the resources they had available — had been able to identify fewer metrics that were nonetheless conceptually closer to the purposes of the European Handbook. Figure 12 breaks down the share of proximate indicators into the three ranges of compatibility used in the analysis.

Figure 12 Share of indicators either compatible or non-compatible with the European Handbook indicator set for each European VLR.



Source: own elaboration

Figure 12 raises a few open questions about the scope of the Handbook’s research and the possibilities to revise or update the indicator set in the future: what should be made of the grey areas? How should the Handbook try to increase the coherence across indicator sets?

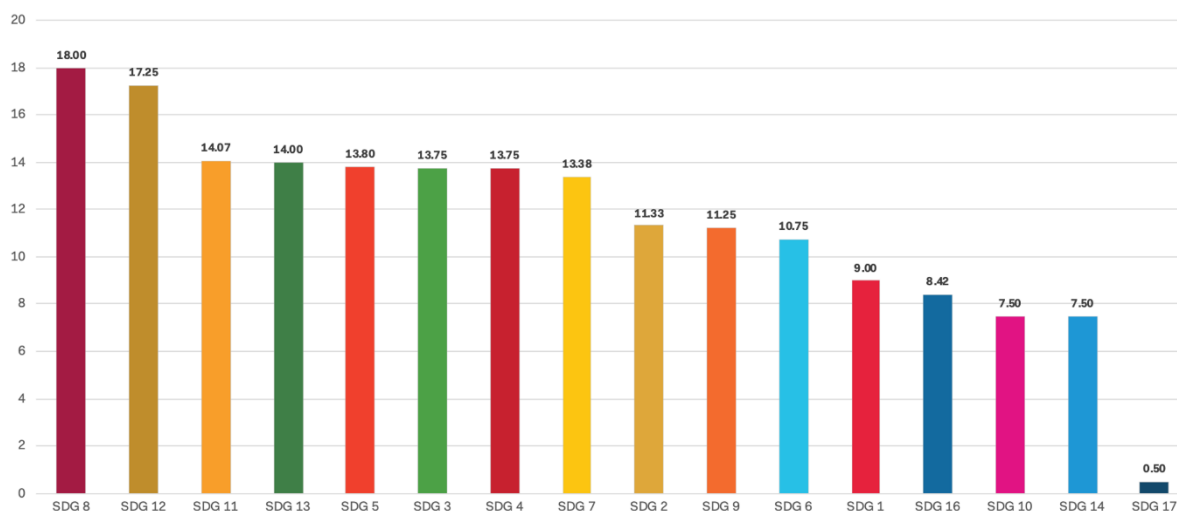
It will be essential to explore the reasons behind the discrepancies in indicator proximity: why do certain local governments’ indicator choices resonate more with the criteria adopted by the Handbook? How relevant is the reliance on ‘widespread’ sets of indicators and data — e.g., Eurostat’s or national statistics offices’ — to explain convergence on specific, more common metrics? What should be done with experimental indicators, inevitably less likely to be fully coincident outside of the contexts in which they have been developed?

The VLRs have also brought a community of like-minded cities and local governments together. How effective can this kind of horizontal collaboration and communication on data and indicators be to increase coherence — as well as comparability and replicability — across the indicators and data that European local governments (and the European Union) are using to measure and improve SDG localisation?

6.2 Analysis by SDG: how to approach the Handbook's indicator set?

By adding up the IP Index for each European Handbook indicator, it is possible to obtain a total proximity index per each SDG and then normalise the figures by dividing them by the number of indicators selected for each SDG to allow for comparison. This index is useful to know which SDGs have elicited a higher coherence between the scope defined by the Handbook's indicator selection and the metrics that local governments have identified as more accessible and available when they designed their own indicator sets (see Figure 13).

Figure 13 Index of indicator proximity between EUH indicators and VLR indicators by SDG.



Source: own elaboration.

6.2.1 What SDGs elicited the highest proximity? And the lowest?

SDGs 8 and 12 are almost 'surprisingly' significantly higher than the others because of a high occurrence of compatible metrics with a relatively smaller number of indicators available per SDG. Both SDGs, moreover, include a few extremely commonly used metrics — e.g., unemployment rate (SDG 8) or local recycling rates (SDG 12) — which have grown to be almost synonymous with the very field or policy area they explore. SDG 11, on the other hand, was expected to be one of the most proximate metrics, considering how relevant all the dimensions that SDG 11 explores are for the urban context and policy structure as a whole.

Some of the lowest ranking SDGs warrant an explanation too. SDG 17 has historically been statistically *sui generis*, mostly because of the wide spectrum covered by the 'partnership goal' and the large diversity in terms of the indicators that local governments have selected to measure its implementation.

To a certain extent, SDG 14 has become a 'situational' indicator largely dependent on specific circumstances and conditions. Several local governments — especially those without open or extensive access to significant bodies of water, waterways or water-based ecosystems — have preferred to discard its assessment altogether rather than approaching it in a more fragmented way.

SDG 10, on the other hand, poses more methodological questions: its relatively low proximity index could be related to the prevalence (four indicators out of five) of 'experimental indicators', defined by the European Handbook as "indicators produced by individual cities or organisations/institutions through innovative and experimental methods", selected to "provide help in describing specific local situations in the most appropriate way, assessing particular local challenges, and issues related to the specificity of each city" (Siragusa et al, 2020).

Experimental indicators as a whole, however, have fared relatively well. There are 26 of them in the Handbook indicator set. Taken together, they score an average proximity index of 10.19 (in fact, one experimental indicator for SDG 11, 'Access to public transport', has the third-highest IP index of all EUH indicators), which would rank them before SDG 6 and 1 and is almost three points higher than SDG 10 (7.50). This discrepancy leaves room for a few hypotheses about SDG 10's relatively low performance: the fact that SDG 10 covers a wide spectrum

of socio-political issues and it has been approached through very diverse, often heavily contextualised metrics; or the fact that certain topics that underpin SDG 10 and its scope are often not adequately represented by the metrics traditionally measured by NSOs, making indicators, data and reliable sources scarcer than for other Goals.

6.2.2 How to improve coherence between Handbook and VLR indicators?

Figure 14 breaks down the index measurement into an assessment by the degree of comparability. It is split into two graphics for a simple analytical reason. On the one hand, the bar chart on the left — which sorts the SDGs according to the total figure of proximate indicators regardless of their degree of closeness — shows how close the VLR indicators came to the Handbook ones on a more conceptual basis: it shows what areas were so relevant to both the Handbook and the VLRs that somehow indicators in both were identified in order to have a measurement of that area, however literally close or overlapping they may be. The six most proximate SDGs include urban settlements, energy, decent work, gender equality and education. The graphic on the left, in other words, suggests which areas of policy intervention and commitment have been more pressing and relevant to *both* the Handbook and the VLRs so that, eventually, the indicators came to coincide more frequently than in other areas. It visualises, to a certain extent, a sort of ‘epistemic’ convergence or coherence between the various indicator sets.

Figure 14 SDGs sorted according to (left) total recount of proximate indicators and (right) compatible indicators (i.e., green bars)



Source: own elaboration.

On the other hand, the bar chart on the right sorts the SDGs according to how many strictly comparable or overlapping indicators the VLRs shared with the Handbook. It shows, in other words, the SDGs that could elicit a more ‘technical’ coherence between the Handbook and the VLRs. There is a whole range of possible explanations. Those SDGs may rely more extensively on common metrics that have become standard measurements across national, regional or even local statistical offices and databases. They may refer to more technical fields in which the availability of very specific data constraints the kind or design of the metrics that can ultimately measure them.

This analysis, moreover, raises a few more methodological questions about indicator design and selection processes: what to do with Handbook metrics that, while certainly relevant to local governments too (e.g., SDG 7 on affordable and clean energy), in the end were conceptually far from those that VLRs have selected for their analysis? How could the Handbook approach relevant or even recurring VLR metrics for specific SDGs that local governments seem to find more reliable and/or technically accessible? This sort of questions can be crucial in the revision, update or adaptation of the Handbook’s toolkit. It was essential to survey the existing VLRs, and the way they represent the approach of a whole community to the practice of localisation, to crosscheck the viability of some of the selected metrics and the alternatives that are commonly used by reviews that explore similar fields or manage the same kind of data.

Conclusions

The European context has been an enabling environment for the emergence of many local reviewing efforts for the localisation of the Sustainable Development Goals (SDGs). The reasons for this can be found, particularly in the framework of the European Union, in the openness to multi-level dialogue, the relevance of sustainable development as a policy-making paradigm, and several institutional spaces where local governments can share and collaborate. At the end of February 2021, there were, to the best of the editorial team's knowledge, 24 Voluntary Local Reviews available and published by 22 European local and regional governments. 16 of these reviews included some kind of indicator and data analysis and/or statistical annexes in their contents. In total, European VLRs include 1,583 indicators on all 17 SDGs. In other words, indicators, data management and comparable measurement have been key components of European local reviews. Accordingly, this report explored:

- how indicators have been defined and designed in European VLRs;
- what sources of data were identified and used;
- how VLR indicators relate to the 71-indicator set defined by the JRC's European Handbook for SDG VLRs.

The main findings are as follows.

How European VLRs define their indicators for SDG Voluntary Local Reviews

The report explored how VLRs had defined the indicators they use, i.e., whether and to what extent they were originally developed at the local level or adapted/adopted from pre-existing sources and, if that was the case, from which ones.

- There is significant **institutional and technical path-dependency on the pre-existing strategic and policy planning frameworks** that were already available to local and regional governments when they approached the reviewing effort and the creation of their VLRs. These **strategic plans often included indicator sets**³⁸ and **specific methods** for the measurement of performance and compliance with their goals and targets.³⁹ Most of these resources were **extremely localised in scope** and became a valuable source of known and tested tools to establish the methodology and the assessment framework for the SDGs.⁴⁰
- The contribution of **'third-party' brokers of information and data** has been quite relevant in several VLR processes — especially in those contexts in which these institutions had already been active drivers of SDG alignment or awareness-raising. The **German 'eco-system'** [4.1.1] and its reliance on the work of the **Bertelsmann Foundation** and the **Spanish VLR cities'** work with the indicators, methods and data collected and analysed by the Spanish **REDS network** [4.1.3] (with, in both cases, a strong contribution by **UN-SDSN**) are both good examples of the role that third-party methodologies and toolkits can play in easing part of the burden that comes with producing a VLR. They have been serving as catalysts for more local participation and engagement and establishing, via a shared platform, **a community or 'cluster' of local governments** that mutually share and learn in the process.

How European VLRs identify and use their data sources

Besides the identification of valid and reliable indicators, selecting accessible data sources to measure localisation performance has been challenging for both local and regional governments.

The European context still shows **a significant centralisation of data collection and management** at the national level, where national statistics offices (NSOs) maintain a certain degree of control over what data are fully available over time and at different levels of disaggregation (e.g., on SDGs 7, 8 or 13, because of the policy

³⁸ For instance, Turku's 2014 Urban Strategy [see Section 4.3.3]

³⁹ Bonn's method was developed, for example, with the 'Sustainable Municipalities' national project already in 2003 [see Section 4.3.3]. The province of Jaén created and manages a 381-indicator dashboard on the implementation of its local sustainability strategy [see Section 4.3.2].

⁴⁰ Barcelona's own 'Sustainability Indicators' [see Section 4.2], for example, ranged a large spectrum of policy fields, including gender equality, violence against women, discrimination and marginalisation, public health, social and education inclusion, integration of migrant population, among others.

competences that are still exclusive to the central level). However, many cities have been able to **identify valuable sources of 'purely' local data**, in particular when registers are managed at the local level (eg, SDG 3, 4, 11 and 12). The final mix of data sources in the VLRs suggests that about 37% of data are collected at the local level, 27% is extracted from national sources, 14% from regional ones. About 9% of data comes from civil society, academia and the private sector: these categories include most data and work of 'third-party' knowledge brokers. More insight:

- Definitions of what is 'national' or 'local' appear more constraining than they really are. In the case of Finland and the VLRs of Finnish cities, for instance, there is **a relatively high reliance on national-level data** as collected by *Tilastokeskus*, Finland's NSO. The data, however, are systematically **disaggregated at the municipal level**, to the extent that Finnish VLRs are able to frequently compare performance across the country's major urban area.
- Several VLRs, such as Bristol's and the province of Jaén's, have tried to access **a diverse mix of data sources across all government levels** and with relevant contributions from civil society and other stakeholders. These examples show **how impactful a well-functioning statistical system** — decentralised and adapted to each level's resources — **can be on the ability of local governments to manage data** and use indicators to monitor implementation performance in their VLRs.

How European VLRs relate to the European Handbook for SDGs Voluntary Local Reviews

This report studied the proximity between the 'European Handbook on SDG Voluntary Local Reviews' indicator set and the metrics used in the European VLRs. It did so by identifying:

- indicators that were compatible or coincident;
- indicators that measured the same phenomena or policy topic but with a certain technical distance;
- and indicators that were not compatible but still addressed the same conceptual plane.

Several VLRs (e.g., the Basque Country, Espoo or Bonn) had **a significant percentage of compatible or similar indicators with the Handbook's set**: in the case of Espoo, for instance, over one third of all VLR indicators were compatible with the Handbook's, and more than a half had some kind of proximity with them. However, **13 VLRs out of 16 that use indicators had less than 40% of proximate indicators** with the Handbook. This outcome raised a question of what the Handbook should do to increase the degree of compatibility and to what extent diverging approaches to indicators could explain these gaps: too much or too little reliance on national/local sources or data? Too much or too little room for experimental metrics?

This report also explored the degree of VLR/Handbook indicator proximity in terms of the SDGs measured through those indicators. The results raised a question about the 'inevitability' of certain indicators. Some are **'down-to-earth' metrics and often represent the only possible way to approach a policy field or phenomenon**. Some of these are: unemployment, employment gender gap, access to welfare or other social security mechanisms for SDG 8, or recycling rates for SDG 12 and carbon or GHG emissions for SDG 13. They have become **so embedded in the study of the SDGs that it is simply more likely** that different sets of indicators will use them. Moreover, as shown by data on sourcing of indicators in VLRs, some metrics are more 'accessible' than others whose core data are only available to NSOs or, more generally, from a more nation-wide perspective.

In conclusion, there is a set of topics that might be worth considering in the next version of the European Handbook, such as: addressing the SDGs that engendered little indicator proximity with the VLRs; taking into consideration local indicators that have been recurring in several VLRs; assessing the impact that the European Handbook is having on the VLRs in preparation, also taking into consideration the feedback received from those local governments involved in the Urban2030 project; and continuing to propose the inclusions of certain indicators in VLRs which are useful to measure topics that are relevant for policy, even if their inclusion has been neglected so far by most of the published local reviews.

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List of abbreviations and definitions

BBSR *Bundesinstitut für Bau-, Stadt- und Raumforschung* (Federal Institute for Building, Urban and Spatial Research)

CEMR-CCRE Council of European Municipalities and Regions - *Conseil des communes et régions d'Europe*

CMI *Cuadro de Mando Integral* (Comprehensive Management Dashboard)

DST *Deutscher Städtetag* (German Council of Cities)

DStGB *Deutscher Städte- und Gemeindebund* (German Union of Cities and Municipalities)

EC European Commission

EU European Union

EUH European Handbook for SDG Voluntary Local Reviews

Eurostat European Statistical Office

FEMP *Federación Española de Municipalidades y Provincias* (Spanish Federation of Municipalities and Provinces)

HLPF United Nations High-Level Political Forum on Sustainable Development

HSY *Helsingin seudun ympäristöpalvelut* (Helsinki Region Environmental Services)

IAEG-SDGs Inter-Agency Expert Group on the Sustainable Development Goals

IECA *Instituto de Estadística y Cartografía de Andalucía* (Institute of Statistics and Cartography of Andalusia)

IGES Institute for Global Environmental Strategies

INE *Instituto Nacional de Estadística* (National Statistics Institute)

IP Indicator Proximity

JRC Joint Research Centre

LGA Local government association

MML *Maanmittauslaitos* (National Land Survey of Finland)

NSO National Statistics Office

OECD Organisation for Economic Cooperation and Development

ONS United Kingdom's Office for National Statistics

PEMB *Pla Estratègic Metropolità de Barcelona* (Metropolitan Strategic Plan of Barcelona)

REDS *Red Española para el Desarrollo Sostenible* (Spanish Network for Sustainable Development)

RKA *Rådet för främjande av kommunala analyser* (Council for the Promotion of Municipal Analysis)

SDGs Sustainable Development Goals

SYKE *Suomen ympäristökeskus* (Finnish Environment Institute)

UCLG United Cities and Local Governments

UN United Nations

UNDESA United Nations Department of Economic and Social Affairs

UN-SDSN United Nations Sustainable Development Solutions Network

VLRs Voluntary Local Reviews

VNRs Voluntary National Reviews

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