UK Community Needs Index 2025: Technical methodology paper

Introduction and context

Analysis of the spatial distribution of social infrastructure and community connectedness continues to be a central concern for social policy, with an expanding body of research examining the factors that shape persistent local disadvantage. Studies highlight a combination of low social mobility, limited skills, shrinking public infrastructure and restricted access to public and voluntary sector investment as key drivers of why some areas experience deeper and more sustained challenges than others.

In response to these concerns, Oxford Consultants for Social Inclusion (OCSI) has developed a suite of Community Needs Indexes (CNIs) across the UK over the past decade. The first Index was commissioned by Local Trust in 2018 to create a quantitative definition of 'left-behind' areas in England by focusing on the strength of local social infrastructure. This was followed by a subsequent update for England (CNI, 2023), as well as subsequent releases across Wales (CNI,2021), Scotland (CNI, 2021) and Norther Ireland (CNI, 2022) - each adapting the framework to reflect available data while retaining a shared conceptual foundation.

Across all iterations, the CNI has assessed social infrastructure challenges through three core domains:

- Civic Assets: Capturing the presence of key community, civic, educational and cultural assets in and in close proximity to the area.
- Connectedness: Capturing connectivity to key services, digital infrastructure, isolation and strength of the local jobs market.
- Active and engaged community: Concerning the levels of third sector activity and volunteering and civic participation, social fabric and barriers to participation and engagement.

Findings from analysis of these various iterations of the CNI consistently show that deprived areas lacking civic assets, connectivity and community engagement experience markedly worse outcomes - including higher unemployment, poorer health and higher child poverty - than similarly deprived areas with stronger social infrastructure, placing them among what are now described as 'doubly-disadvantaged areas'.

The UK Community Needs Index 2025 builds on this growing evidence base. It represents the first attempt to produce a single, harmonised measure of community need across all four nations of the UK, drawing together previously separate national approaches into a unified UK-wide framework. This methodology paper outlines the process used to collate, update and align indicators at small-area level, while maintaining continuity with the three-domain structure established in earlier CNIs.

This initial phase of work has focused on updating the Community Needs Index 2023, whilst identifying comparable measures across the devolved nations using publicly available datasets. Further refinement - including the integration of additional indicators that require specialist access or are not yet publicly available - will follow in the next stage of the project.

The overarching aim of the UK Community Needs Index 2025 is to provide a robust and consistent model that reflects the most up-to-date evidence on social infrastructure and community need across England, Wales, Scotland and Northern Ireland. This will enable policymakers, funders and practitioners to better understand where challenges are most acute and how community needs have evolved since earlier releases, particularly in the context of recent social and economic change across all four nations.

About this Technical Report

This report presents the conceptual framework of the UK Community Needs Index; the methodology for creating the domains and the overall Index; the component indicators and domains and the decisions taken to inform the methodological approach.

Methods

Overview of the methodology used to construct the UK Community Needs Index 2025

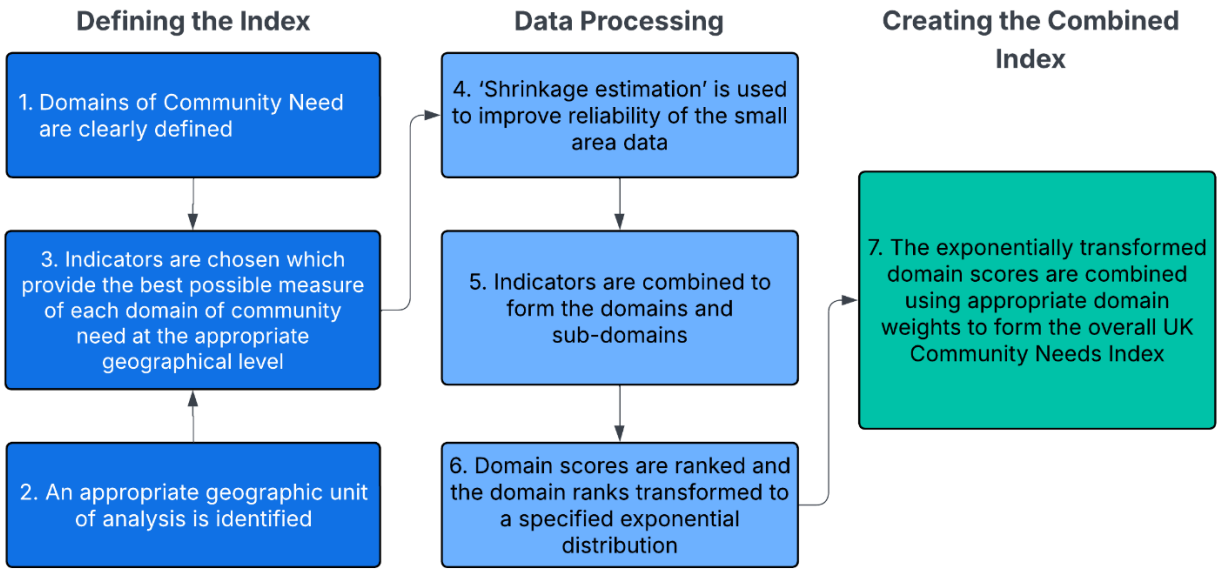
The construction of the UK Community Needs Index 2025 broadly consists of the seven following stages. As shown in Figure 1, these stages fulfil the purposes of defining the Indices, data inputs and data processing procedures, and producing the final Community Needs Index. Each stage is described in the following sections.

1. Dimensions (referred to as domains) of community need are identified.
2. The unit of geography is selected.
3. Indicators are chosen to provide the best possible measure of each domain of community need at the specified unit of geography.
4. 'Shrinkage estimation' is used to improve reliability of the small area data[1].

[1] See Methods for data processing: Applying shrinkage to improve the robustness of indicators and Appendix E for description of the shrinkage technique.

5. Indicators are combined to form the domains, generating separate domain scores. These can be regarded as indices in their own right – the domain indices[2].
6. Domain scores are ranked and the domain ranks are transformed to a specified exponential distribution[3].
7. The exponentially transformed domain scores are combined using appropriate domain weights to form an overall Community Needs Index at small area level. This stage completes the construction of the UK Community Needs Index 2025.

Figure 1. Overview of the methodology used to construct the UK Community Needs Index 2025



[2] In domains where there are sub-domains, this stage involves first combining the indicators into a sub-domain score. The sub-domain scores are then ranked and transformed to an exponential distribution before being combined into their respective domain scores.
[3] See *Methods for data processing: Step 9 Weighting domains* and *Appendix* D for description of the exponential transformation.

Defining the Index

Identifying dimensions of community need

In order to identify appropriate dimensions of community need, it is important to explore the conceptual framework which the index is intending to measure. The UK Community Needs Index is a quantitative measure of social infrastructure challenges at the small area level across England, Wales, Scotland and Northern Ireland. The model of community need which underpins the Index is the same as that which underpinned its predecessors and is based on the idea of distinct dimensions of community need which can be recognised and measured separately.

Figure 2. UK Community Needs Index domains 2025

The social infrastructure challenges the index intends to measure concern issues including poor community and civic infrastructure, relative isolation and low levels of participation and engagement in the wider community. The focus on these aspects of community need arose from conversations Local Trust were having in Big Local Areas, where residents were consistently identifying lack of spaces to meet and poor connectivity as key priority issues, while an active and engaged community was seen as a key necessary ingredient to help affect meaningful change and address challenges and develop the social fabric in deprived communities. Three dimensions of Community Need were identified to capture these challenges (see Figure 2 above).

The approach allows the separate measurement of different dimensions of community need – and these are combined to form the overall measure of community need.

Measuring different aspects of community need and combining these into an overall measure raises a number of questions. Perhaps the most important one is the extent to which area need in one dimension can be *cancelled* out by lack of need in another dimension. Thus, if an area is found to have high levels of civic assets but relatively low levels of participation, should the latter cancel out the former and if so to what extent? The UK Community Needs Index is essentially based on a weighted cumulative model and the methodology is designed to ensure that cancellation effects are minimised[4].

Another question concerns the extent to which the same people or households are represented in more than one of the dimensions of community need. The position taken in the UK Community Needs Index 2025 is that if an individual, family or area experiences more than one social infrastructure challenge this is 'worse' than experiencing only one dimension of community need. The aim is not to eliminate double counting *between* domains – indeed it is desirable and appropriate to measure situations where challenges occur on more than one dimension.

Selecting the geographic unit of analysis

This section explores the approach for selecting the geography to use as the building block in the construction of the 2025 UK Community Needs Index.

In the absence of data at the level of individuals or households, an Index that identifies areas with the greatest intensity of community need should be constructed from data on small geographic units of a standard population size. The UK Community Needs Index has therefore been developed as an area-based measure. An area can be characterised as deprived *relative to other areas* on a particular dimension of community need, on the basis that a higher proportion of people in the area are experiencing the type of need in question or if the area *as a whole* is lacking in assets and or infrastructure. In other words, both the experience of the people in an area and the areas' amenities and assets gives the area its community needs characteristics.

The selection of the unit of geography to use in an area-based analysis is important as it affects both the data we can draw from, and crucially, the focus areas for intervention and resource allocation which are identified as an outcome of the research.

The following key principles have been considered when selecting the appropriate unit of geography for the Index:

- It should be possible to align the geography units to statistical geography boundaries in order to link key socio-economic indicators to the geography units.

[4] See Methods for data processing: Step 9 Weighting domains and Appendix D exponential transformation for details of how the Community Needs Index methodology minimises cancellation effects across the domains.

- Geography units should be of sufficient size in order to ensure they are not smaller than the smallest standard statistical geographies (Output Areas), so that it is possible to obtain key socio-economic indicators to be used in the analysis.
- Geography units should be at a neighbourhood (sub-Local Authority) level in order to capture inequalities in social infrastructure provision and participation.
- Geography units should be relatively homogenous in population size so that it is possible to make direct comparisons between communities in terms of their relative needs and community and civic strength.
- Geography units should be meaningful and recognised as areas by the people residing in them.

For the 2023 Community Needs Index (England), consultation feedback strongly supported moving away from wards (used in the original 2018 iteration) and constructing the Index at the smallest practicable spatial scale.[5] Respondents emphasised the importance of using geographies with relatively even population sizes, strong statistical consistency over time and widespread use in national datasets. Lower-layer Super Output Areas (LSOAs) were favoured by 58.3% of respondents for these reasons.

In developing the UK Community Needs Index 2025, this principle has been extended across all four nations. To ensure comparability, robustness and appropriate resolution of local variation, the Index has been constructed using the closest equivalent small-area statistical geographies available in each country:

- England and Wales: Lower-layer Super Output Areas (LSOA 2021)
- Scotland: Data Zones 2022 (DZ22)
- Northern Ireland: Super Data Zones 2021 (SDZ2021)

These geographies were selected because they provide the best available match across each of the four nations to the defining characteristics that originally made LSOAs the preferred unit for the England CNI:

- Stability over time: All three geographies (LSOA 2021, DZ22, SDZ2021) are updated only at census or major statistical revisions, ensuring consistency across years and limiting boundary changes. This enables more reliable comparison across time and reduces issues associated with more frequently revised administrative geographies.
- Population size and homogeneity: Each geography is designed to contain relatively even-sized populations (typically between 500–1,700 residents), allowing local variation to be captured while reducing distortions caused by very large or heterogeneous units, such as wards or MSOAs.

[5] See 'Community Needs Index 2023: Technical methodology paper' https://localtrust.org.uk/wp-content/uploads/2023/05/Community-Needs-Index-2023-Technical-Methodology-Paper.pdf for more reasons behind the rationale for moving from Wards to LSOAs

- Compatibility with national statistical systems: These geographies nest cleanly within other statistical units (e.g. Output Areas in England and Wales, Scottish Output Areas, Data Zones in Northern Ireland) without requiring best-fit lookups. This improves data processing efficiency and reduces potential bias introduced through aggregation.
- Alignment with deprivation measures: England, Wales and Scotland Indices of Multiple Deprivation outputs are produced at these small-area levels. Using consistent geographies therefore supports analyses that combine community need with deprivation, including the identification of doubly-disadvantaged areas.
- Detection of small-area variation: Smaller geographies make it possible to identify pockets of need within otherwise less-deprived areas - particularly in rural regions where larger geographies may mask local inequalities.
- Widespread use in key datasets: These geographies are increasingly the default for dissemination of census outputs, administrative statistics and open data releases across the UK. Using them maximises the number of indicators available for consistent UK-wide construction of the CNI.

As with previous iterations of the CNI across all four nations, data availability remains a challenge for certain indicators at small-area level. In cases where data is not available, not sufficiently robust, or conceptually more appropriate at a higher geography, we have adopted a hybrid approach. For example, some indicators have been constructed using MSOA-level data in England and Wales, or equivalent intermediate geographies in Scotland (Intermediate Zones) and Northern Ireland (Super Output Areas), with values allocated to all constituent small areas. For indicators measuring the catchment area around key civic assets, we retain a larger buffer-zone geography (e.g. MSOAs or their national equivalents), as the smallest statistical units are too granular to represent realistic service catchments.

Details of these steps are provided in the section Methods for data processing: Step 1 – Converting indicators to small-area geography (below).

Identifying indicators

For each of the three domains of community need, an assessment has been made about whether the indicators in the UK Community Needs Index 2025 :

- are still appropriate measures of community need for that domain.
- can be updated for all four nations.
- can be strengthened, for example due to better available data.

It was necessary to review the indicators in the Community Needs Index in light of the availability of a wider range of datasets than in 2023 (when the England Index was last updated), as well as to account for the inclusion of all four nations across the UK. In approaching a review of potential indicators we have worked on the basis that the indicator set identified in the 2023 Community Needs Index is a baseline starting

point, and indicators should be retained and brought up to date where this is possible in order to aid backwards comparability. Indicators were only replaced where more robust or up to date indicators could be found from alternative sources, or to ensure coverage across all four nations and geographies required. However, we have also explored the inclusion of additional indicators where they added strength, thematic depth (capture a different facet of community need) or brought together more robust or up to date information on existing aspects of community need.

All new indicators have to meet the same criteria as they did for the Community Needs Index 2023. Indicators should:

- be 'domain specific' and appropriate for the purpose (as far as possible, being direct measures of that form of community need or social infrastructure challenge.
- measure major features of that domain (not conditions just experienced by a small number of people or areas).
- be up-to-date and (as far as possible) updateable[6].
- be statistically robust at the small area level.
- be available for the whole of England, Wales, Scotland and Northern Ireland at a small area level in a consistent form.
- be available at sufficient granularity in order to make meaningful comparisons between areas.
- are non-disclosive and open.
- are sufficiently statistically robust to be included in a measure intended for use in resource allocation.

This section outlines the key indicators we have included in the UK Community Needs Index 2025 - highlighting key changes from 2023 iteration of the model.

The table below provides an overview of each of these indicators with metadata detailing:

- Source (included URL).
- Timepoints the data is available for.
- Geographical unit at which the data is published.
- Notes/Caveats associated with the indicator – including robustness issues to consider when incorporating the data.
- Details of change from the 2023 Community Needs Index.

[6] Wherever possible, indicators are used that can be regularly updated. However not all indicators can be regularly updated, for example those based on Census 2021. Census data is used only when alternative data from administrative sources is not available.

Indicator	Details	Source	Date	Granularity	Notes/Caveats	Changes to 2023 CNI
Civic Assets						
CA1: Density of Community Assets	This is conceptualised as the number of community and civic assets inside the local area or within 1km of the local area boundary, divided by the number of people living inside the local area. Rate is expressed per 100,000 population. This includes assets such as: community support and welfare services, voluntary and non-profit organisations, religious institutions, social clubs, town halls, public amenities and services supporting families, youth, older people, and vulnerable groups. See Appendix A for a full list of the assets that are included.	Point of Interest data for the United Kingdom https://data.geods.ac.uk/dataset/point-of-interest-data-for-the-united-kingdom	2024 Population denominators: Eng and Wales MYE 2024 Scot: MYE 2022 NI: MYE 2023	Point Location	Details are not available on how accessible the assets are to the community. The UK Point of Interest (POI) dataset has been subject to academic peer review and external validation on a subset of the data, demonstrating good overall accuracy. However, further checks are recommended to fully assess completeness, representation and potential bias. Further details are available at: https://data.geods.ac.uk/dataset/point-of-interest-data-for-the-united-kingdom	Updated source (replacing Address Base indicators which covered England, Wales and Scotland only)

Indicator	Details	Source	Date	Granularity	Notes/Caveats	Changes to 2023 CNI
CA2: Density of Educational Assets	This is conceptualised as the number of educational assets inside the local area or within 1km of the local area boundary, divided by the number of people living inside the local area. Rate is expressed per 100,000 population aged 21 and under. This includes assets such as: schools (primary, secondary and specialist), higher and further education institutions, libraries, childcare and early years provision, vocational and professional training centres, tutoring services, and adult learning facilities. See Appendix A for a full list of the assets that are included.	Point of Interest data for the United Kingdom https://data.geods.ac.uk/dataset/point-of-interest-data-for-the-united-kingdom	2024 Population denominators: Eng and Wales MYE 2024 Scot: MYE 2022 NI: Census 2021	Point Location	Details are not available on how accessible the assets are to the community. The UK Point of Interest (POI) dataset has been subject to academic peer review and external validation on a subset of the data, demonstrating good overall accuracy. However, further checks are recommended to fully assess completeness, representation and potential bias. Further details are available at: https://data.geods.ac.uk/dataset/point-of-interest-data-for-the-united-kingdom	Updated source (replacing Address Base indicators which covered England, Wales and Scotland only)

Indicator	Details	Source	Date	Granularity	Notes/Caveats	Changes to 2023 CNI
CA3a: Density of Leisure Assets	This is conceptualised as the number of leisure assets inside the local area or within 1km of the local area boundary, divided by the number of people living inside the local area. Rate is expressed per 100,000 population. This includes assets such as: entertainment venues, hospitality and food outlets, recreational attractions, parks and natural spaces, sports facilities, gyms and fitness centres, outdoor activity providers and tourism and visitor attractions. See Appendix A for a full list of the assets that are included.	Point of Interest data for the United Kingdom https://data.geods.ac.uk/dataset/point-of-interest-data-for-the-united-kingdom	2024 Population denominators: Eng and Wales MYE 2024 Scot: MYE 2022 NI: MYE 2023	Point Location	Details are not available on how accessible the assets are to the community. Some of the facilities identified will have a cost associated with access, which could potentially exclude those on lower incomes in the community. The UK Point of Interest (POI) dataset has been subject to academic peer review and external validation on a subset of the data, demonstrating good overall accuracy. However, further checks are recommended to fully assess completeness, representation and potential bias. Further details are available at: https://data.geods.ac.uk/dataset/point-of-interest-data-for-the-united-kingdom	Updated source (replacing Address Base indicators which covered England, Wales and Scotland only)

Indicator	Details	Source	Date	Granularity	Notes/Caveats	Changes to 2023 CNI
CA4: Density of Cultural Assets	This is conceptualised as the number of cultural assets inside or within 1km of the local area boundary divided by the number of people living inside the local area. Rate is expressed per 100,000 population. This includes assets such as: museums, galleries, theatres and performance venues, cultural centres, historic landmarks, monuments, festivals, architectural and heritage attractions and organised cultural tours. See Appendix A for a full list of the assets that are included.	Point of Interest data for the United Kingdom https://data.geods.ac.uk/dataset/point-of-interest-data-for-the-united-kingdom	2024 Population denominators: Eng and Wales MYE 2024 Scot: MYE 2022 NI: MYE 2023	Point Location	Details are not available on how accessible the assets are to the community. Some of the museums will not be free to enter, which will exclude some sections of the community. Some of the libraries and reading rooms will not have open access. The UK Point of Interest (POI) dataset has been subject to academic peer review and external validation on a subset of the data, demonstrating good overall accuracy. However, further checks are recommended to fully assess completeness, representation and potential bias. Further details are available at: https://data.geods.ac.uk/dataset/point-of-interest-data-for-the-united-kingdom	Updated source (replacing AddressBase indicators which covered England, Wales and Scotland only)

Indicator	Details	Source	Date	Granularity	Notes/Caveats	Changes to 2023 CNI
CA5: Density of Retails Assets	This is conceptualised as the number of retail premises in the local area or within 1km of the local area boundary divided by the number of people living inside the local area boundary. The rate is expressed per 100,000 population. The following assets are included: food retailers and markets, convenience and grocery stores, clothing and fashion outlets, home and hardware stores, specialist and independent shops, shopping centres and a wide range of comparison retail services.	Point of Interest data for the United Kingdom https://data.geods.ac.uk/dataset/point-of-interest-data-for-the-united-kingdom	2024 Population denominators: Eng and Wales: MYE 2024 Scot: MYE 2022 NI: MYE 2023	Point Location	Does not take into account the size of the retail unit or how accessible it is to the local community. The UK Point of Interest (POI) dataset has been subject to academic peer review and external validation on a subset of the data, demonstrating good overall accuracy. However, further checks are recommended to fully assess completeness, representation and potential bias. Further details are available at: https://data.geods.ac.uk/dataset/point-of-interest-data-for-the-united-kingdom	Updated source (replacing Address Base indicators which covered England, Wales and Scotland only)

Indicator	Details	Source	Date	Granularity	Notes/Caveats	Changes to 2023 CNI
CA6: Greenspace coverage, public parks and gardens	The percentage of an area that is covered by public parks and gardens. OCSI have intersected data from OS Open Greenspace with Output Area boundaries to produce a measure of total greenspace area per Output Area. Rate calculated as = (Total area of public parks and gardens)/(Total OA Area)*100	Eng, Wales, Scot: Ordnance Survey (2025) https://www.ordnancesurvey.co.uk/products/os-open-greenspace NI: Outdoor Recreation Northern Ireland (ORNI) 2023 https://www.arcgis.com/home/item.html?id=c809afd275dd4dd4a519638978bd304a	2023/2025	Eng, Scot, Wales: Output Area NI: Data Zone		
Connectedness						

Indicator	Details	Source	Date	Granularity	Notes/Caveats	Changes to 2023 CNI
CN1a Jobs Density in the Local Area	Shows the number of jobs located in the local area as a ratio of the working age population in that area. Data is taken from the Business Register and Employment Survey (BRES) of approximately 80,000 businesses and weighted to represent all sectors of the UK economy. The BRES definition of an employee is anyone working on the BRES reference date who is aged 16 years or over that the contributor directly pays from its payroll(s), in return for carrying out a full-time or part-time job or being on a training scheme. Rate calculated as = (Total employment)/(Population aged 16-64)	Business Register and Employment Survey (BRES) https://www.nomisweb.co.uk/query/construct/summary.asp?mode=construct&version=0&dataset=189 NI: https://www.nisra.gov.uk/publications/bres-publication-and-tables-2023	Eng, Wales, Scot: 2024 NI: 2023 Population denominators: Eng and Wales MYE 2024 Scot: MYE 2022 NI: MYE 2023	Eng, Wales, Scot: LSOA NI: District Council Area		Replacement for the indicator Jobs Access Score which does not have full UK coverage

Indicator	Details	Source	Date	Granularity	Notes/Caveats	Changes to 2023 CNI
CN1b Jobs Density in Travel to Work Area	The number of jobs located in the Travel to Work Area as a ratio of the working-age population in that area – this is to be used as a measure of economic opportunities locally. Data is taken from the Business Register and Employment Survey (BRES) of approximately 80,000 businesses, weighted to represent all sectors of the UK economy. This indicator has been calculated at travel-to-work-area (TTWA) level rather than at community- geography level, to reflect the fact that people typically commute outside of their local area to work. TTWAs are a geography created to approximate labour-market areas. In other words, they are designed to reflect self-contained areas in which most people both live and work.	Business Register and Employment Survey (BRES) https://www.nomisweb.co.uk/query/construct/summary.asp?mode=construct&version=0&dataset=57	2023	TTWA (for Eng, Wales and Scot only) NI: DCA	Data for Northern Ireland uses the 'Jobs Density in the Local Area' values from the indicator above, this is because TTWAs are not available for Northern Ireland.	Replacement for the indicator Jobs Access Score which does not have full UK coverage

Indicator	Details	Source	Date	Granularity	Notes/Caveats	Changes to 2023 CNI
CN2: Households with no car	The proportion of households who do not have a car or van. Figures are based on responses to the 2021/2022 Census car ownership question, which asks for information on the number of cars or vans owned or available for use by one or more members of a household. It includes company cars and vans available for private use. This is included to supplement the accessibility of key services and labour market indicators in this domain, to take account of the additional challenges in accessing services for those without access to private transport.	Eng, Wales, NI: Census 2021 Scot: Census 2022	2021/2022	Output Area/Data Zone	The count of cars or vans in an area is based on details for private households only. Cars or vans used by residents of communal establishments are not counted.	
CN3: Broadband upload/download speed (Mbit/s)	The average broadband download/upload line speed (Mbit/s) for connections in the area. This data is collected from the Ofcom annual Connected Nations reports.	Ofcom https://www.ofcom.org.uk/phones-and-broadband/coverage-and-speeds/connected-nations-2023/data-downloads	2023	Output Area/Data Zone	Due to variations in broadband performance over time, this data should not be regarded as a definitive and fixed view of the UK's fixed broadband infrastructure. However, the information provided here may be useful in identifying variations in broadband performance.	Replacement for Digital Exclusion Index and Digital Exclusion Risk Index indicators, which do not have UK wide coverage

Indicator	Details	Source	Date	Granularity	Notes/Caveats	Changes to 2023 CNI
CN4: Loneliness (People living alone)	Shows the proportion of households that comprise one person living alone (as a proportion of all households). Figures are self-reported and taken from the household composition questions in the 2021 census.	Eng, Wales, NI: Census 2021 Scot: Census 2022	2021/2022	Output Area/Data Zone	This is included as a proxy measure of social isolation.	
CN5: Facebook Support Ratio	This indicator takes each person in the area, looks at all of their Facebook friends (even if those friends live elsewhere) and for each friend, checks whether that friend shares at least one other friend in common with the original person. This is then computed into a fraction of friends who do share a friend in common with the original person. This creates a "support ratio" for each person in the area and the indicator is the average of that support ratio across all people in the area.	Facebook	2025	MSOA/ Super Data Zone	This is included as a measure of local social cohesion and network embeddedness, capturing the extent to which residents are connected through mutually reinforcing social ties.	New
Active and engaged community						
Civic Participation Subdomain						

AE1: Voter turnout at local elections	Valid voter turnout (%) at the most recent Local Council Elections. The Elections Centre publish their Local Elections Handbooks in collaboration with the House of Commons Library, with turnout figures sourced from ward-level election results provided by local authority websites. Due to the variation in the frequency and dates of local elections, with different parts of the country going to the polls at different times, this indicator uses multiple election years where available to get the maximum ward coverage, whilst keeping the latest available Local Election figures for each ward.	Electoral Commission/House of Commons Library England: https://commonslibrary.parliament.uk/2024-local-elections-handbook-and-dataset/ Wales: https://commonslibrary.parliament.uk/data/parliament-elections-data/2022-local-elections-handbook-and-dataset/ Scotland: https://www.electoralcommission.org.uk/research-reports-and-data/our-reports-and-data-past-elections-and-referendums/report-may-2022-scottish-council-elections	Eng: 2019-2024 Wales and Scotland: 2022 NI: 2023 City of London and Isles of Scilly: 2025	Eng, Wales, Scot: Ward NI: DEA	There is some local variation in the frequency and dates of local elections, with different parts of the country going to the polls at different times and at different intervals. Caution is therefore advised when drawing direct comparisons between local areas, as the socio-political context and weather conditions vary from year to year with associated impacts on turnout rates. Another factor affecting turnout is whether the local election is concurrent with other elections (for example, turnout is generally higher when general elections coincide with local ones).	Updated

Indicator	Details	Source	Date	Granularity	Notes/Caveats	Changes to 2023 CNI
AE2a Participate in volunteering group on Facebook	The proportion of people in this area who participate in at least one volunteering group on Facebook.	Facebook	2025	Eng, Wales: MSOA Scot: Data Zone NI: Super Data Zone	This is included as a measure of community capacity and local civic participation, capturing the presence of volunteer-oriented social infrastructure within the area.	New
AE2b Participate in activism group on Facebook	The proportion of people in this area who participate in at least one activism group on Facebook.	Facebook	2025	Eng, Wales: MSOA Scot: Data Zone NI: Super Data Zone	This is included as a measure of civic mobilisation and community voice, indicating the extent to which residents are engaged in organised collective action.	New

Indicator	Details	Source	Date	Granularity	Notes/Caveats	Changes to 2023 CNI
AE3 Short term population turnover	Proportion of people whose address at one year before the Census was different to that on Census Day. The information comes from responses to information on the usual address of a resident and the address one year ago.	Eng, Wales, NI: Census 2021 Scot: Census 2022	2021/2022	Output Area/Data Zone	This indicator is included as a measure of neighbourhood stability or cohesion. The previous residential address for children aged under one in households is determined by the status of their next of kin (defined as in order of preference, mother, father, sibling (with nearest age), other related person, Household Reference Person).	
Civic Activity Subdomain						

Indicator	Details	Source	Date	Granularity	Notes/Caveats	Changes to 2023 CNI
AE4: Third sector organisations	Third sector organisations per 100,000 population. Figures are taken from the UK Third Sector Database. The database is the project of an ESRC funded (Project Reference: ES/X000524/1) and a group of collaborators seeking to improve data infrastructure surrounding the UK's third sector and civil society. The database utilises relevant extant data sources that are generated and shared by UK bodies with regulatory oversight of third sector organisations. Additionally incorporating data generated by membership bodies such as Co-operatives UK where available. Sources include; Companies House, Charity Commission, Office of Scottish Charity Regulator, Charity Commission for Northern Ireland, Cooperatives UK, FCA Mutuals Public Register, Care Inspectorate Scotland, Care Quality Commission, Scottish Housing Regulator, Regulator of Social Housing. Rate Calculated as: (Third Sector Organisations/ Total Population) *100000	UK Third Sector Database https://uk-third-sector-database.github.io/data/	March 2025 Population denominators: Eng and Wales MYE 2024 Scot: MYE 2022 NI: MYE 2023	Postcode	This is based on the location of organisations rather than on their area of operations (some will have a global focus). This indicator is included in this theme to capture the level of third sector activity in the local area. Some organisations appear on multiple registers – duplicate records have been stripped so only unique records remain. This will exclude smaller companies not registered and exclude co-operatives, community benefit societies, associations, trusts and partnerships (of varying types).	Updated source with one with UK coverage including organisations registered up to March 2025.

Indicator	Details	Source	Date	Granularity	Notes/Caveats	Changes to 2023 CNI
AE5: National Lottery Grant Giving per head	Combined total of grants made to local projects and organisations by the National Lottery Community Fund (NLCF) or National Lottery Heritage Fund (NLHF) between 1995 and 2025 per head. This data has been sourced from 360 Giving data for all NLCF/NLHF grants that had assigned Ward codes. Grants have been matched to OAs through a cascading lookup strategy – attempting to match to the latest ward boundaries first, before moving down through Ward boundaries back to 2015. Each matched grant is then apportioned across constituent English, Welsh and Scottish current OAs using population weighting. This achieves a coverage of over 90% of the grant values in the source dataset. Northern Ireland grant data has been apportioned from 2024 Ward Codes to Super Data Zones.	360 Giving https://grantnav.threesixtygiving.org/	1995-2025 Population denominators: Eng and Wales MYE 2024 Scot: MYE 2022 NI: MYE 2023	Ward level	Included in the active/engaged community theme to capture the level of third sector activity in the local area.	Updated to 1995-2025 timepoint.

Indicator	Details	Source	Date	Granularity	Notes/Caveats	Changes to 2023 CNI
AE6: Grant funding per head from major grant funders	Combined grant funding for all grants from over 300 major grant funders from 1999-2025 per head of population (where postcode information was provided), as recorded and subjected to the 360giving standard. Grant givers with a specific area focus (Community Foundations and Local Authorities) have been excluded to mitigate against reflecting the extent to which local grant givers have submitted data to GrantNav e.g. not all Community Foundations have submitted data to Grant Nav and we want to guard against introducing systematic bias into the data by including data for some regions and excluding others. See Appendix B for a list of the funding organisations included in this indicator.	360 Giving Grant Nav data https://grantnav.threesixtygiving.org/	1991-2025 Population denominators: Eng and Wales MYE 2024 Scot: MYE 2022 NI: MYE 2023	Postcode level	Data are based on the location of grant recipients rather than the location of their beneficiaries. Grants are only included where a recipient postcode is provided (63.6% of all grants in the dataset). This indicator is included in this theme to capture the level of third-sector activity in the local area. Grants above £3m excluded to avoid distorting the final output (99% of grants are below £3 million with a small number of extremely high grants (e.g. over £1 billion).	Updated to 1991-2025 timepoint.

Indicator	Details	Source	Date	Granularity	Notes/Caveats	Changes to 2023 CNI
AE7a: SME lending by banks	Total value of lending to SME businesses from key financial lenders (Barclays, CYBG, Lloyds Banking Group, HSBC, Nationwide Building Society, Royal Bank of Scotland and Santander UK in Great Britain).	UK Finance	2024	Postcode sector Population denominators: Eng and Wales MYE 2024 Scot: MYE 2022 NI: MYE 2023	The measure covers two biannual releases of lending data at postcode sector level in 2024. The data is modelled from postcode sector to Output Areas using a weighted lookup built from the numbers of shared postcodes between a postcode sector and Output Area in combination with the working age population per Output Area. Data is then aggregated to local area level to get total value of SME lending at local area level.	Updated

Indicator	Details	Source	Date	Granularity	Notes/Caveats	Changes to 2023 CNI
AE7b: Small businesses: Local Business Units with 0-4 employees	Small businesses: VAT registered local businesses with 0-4 employees per 10,000 population	Inter Departmental Business Register (IDBR)	2025	MSOA Population denominators: Eng and Wales MYE 2024 Scot: MYE 2022 NI: MYE 2023		Updated
AE8a Number of volunteering groups per 1,000 people on Facebook	Considering all volunteering groups in which anyone from the area participates on Facebook, this indicator shows the number of such groups there are per 1,000 people in this area based on Facebook activity.	Facebook	2025	Eng, Wales: MSOA Scot: Data Zone NI: Super Data Zone	This is included as a measure of community capacity and local civic participation, capturing the presence of volunteer-oriented social infrastructure within the area.	New

Indicator	Details	Source	Date	Granularity	Notes/Caveats	Changes to 2023 CNI
AE8b Number of activism groups per 1,000 people on Facebook	Considering all activism groups in which anyone from this area participates on Facebook, this indicator shows the number of groups there are per 1000 people in the area based on Facebook activity.	Facebook	2025	Eng, Wales: MSOA Scot: Data Zone NI: Super Data Zone	This is included as a measure of civic mobilisation and community voice, indicating the extent to which residents are engaged in organised collective action.	New

See Appendix C for a list of the indicators that were considered for inclusion in the UK Community Needs Index 2025, but were excluded due to methodological constraints.

Methods for data processing

This section outlines the proposed step by step approach to developing the 2023 Community Needs Index.

Step 1 Convert all indicators to LSOA geography

The 2025 UK Community Needs Index has been produced at 2021 Lower layer Super Output Area (LSOA) geography) for England and Wales; 2022 Data Zone for Scotland and Super Data Zone 2021 for Northern Ireland.

However, the majority of the indicators in the Index are not published at these geographic levels . It is therefore necessary to convert these indicators to the required geographies for use in the Index.

The table below outlines our approach to converting indicators to the above geographies, for all those indicators that were not already published at the required geographic level for each country:

Geography	Indicators	Approach to conversion
Postcode	Grant funding per head from major grant funders Third sector organisations	Postcode: Use ONS Postcode Directory (ONSPD) for the United Kingdom to aggregate from postcode to 2021 LSOA for England and Wales and Data Zone/Super Data Zone for Scotland and Northern Ireland.
Postcode Sector	SME Lending by Banks	Postcode Sector: The data is modelled from postcode sector to Output Areas using a weighted lookup built from the numbers of shared postcodes between a postcode sector and Output Area in combination with the working age population per Output Area. Data is then aggregated to LSOA 2021 for England and Wales and Data Zone/Super Data Zone for Scotland and Northern Ireland.
Polygon	Greenspace coverage, public parks and gardens	Overlay Output Area boundaries and Address Base points against polygon boundaries. If the majority of residential addresses within an Output Area fall within the polygon, the Output Area has been identified as part of the polygon. A best-fit approach is taken with no splitting across multiple polygons or apportioning in/out of a polygon and the entire OA is included in a single LSOA. The Output Area 2021 to LSOA 2021 Lookup table developed by the ONS has been used to aggregate data from Output Area to LSOA level for England and Wales and Data Zone/Super Data Zone for Scotland and Northern Ireland.
2011 Output Area	Broadband speeds Scotland	Overlay the 2011 and 2021 Output Area boundaries with individual residential postcode data from the ONS Postcode directory. Apply a point-in-polygon method to calculate the number of postcodes that fall within each 2011 and 2021 Output Area boundaries. Use this to weight the extent of overlap between 2011 and 2021 Output Areas. Apply this weighting to generate 2021 Output Area estimates. Aggregate from 2021 Output Area to Data Zone using the Output Area to Data Zone level lookup table from the ONS Census 2022 geography products.
2021 Output Area/ Data Zone Northern Ireland	Households with no car People living alone Short term population turnover Broadband speeds (England, Wales, Northern Ireland)	Use the Output Area to LSOA level lookup table from the ONS Census 2021 geography products to aggregate to LSOA for England and Wales/Data Zone for Scotland. Use the Data Zones (DZ2021) to Super Data Zones (SDZ2021) lookup table from Northern Ireland Statistics and Research Agency (NISRA) to aggregate to Super Data Zone for Northern Ireland.
2021 MSOA	Small businesses: VAT registered local businesses with 0-4 employees per 10,000 population Facebook indicators	Use the 2021 Output Area to 2021 MSOA Look-up table to apportion data to 2021 Output Area. Aggregate from 2021 Output Area to 2021 LSOA/Data Zone using the Output Area to LSOA level lookup table from the ONS Census 2021 geography products.

Electoral ward	Voter turnout at local elections National Lottery funding per head	Apportion data from relevant ward to Output Area (using ONS open geography portal Output Area to ward lookup tables). Aggregate from 2021 Output Area to 2021 LSOA/Data Zone using the Output Area to LSOA/Data Zone level lookup table from the ONS Census 2021 geography products. Where wards are present in the dataset which were not present in ONS look-ups, we have developed our own look-ups using the ONS best fit method with postcode centroids where a valid parent child relationship requires at least 50% of postcode centroids to fall within the boundaries.
2011 TTWA	Jobs density in the Travel to Work Area	England, Wales and Scotland only: Use TTWA 2011 to OA 2021 lookup table to apportion TTWA data to LSOA/Data Zone using a population weighted conversion
Norther Ireland District Council/Electoral Area	Jobs Density in the Local Area (Northern Ireland only) Voter turnout at local elections (Northern Ireland only)	Use the Super Data Zones (SDZ2021) to DEA lookup table from Northern Ireland Statistics and Research Agency (NISRA) to apportion data from DEA to Super Data Zone for Northern Ireland.

In addition, there are a small number of indicators where data has been produced at MSOA level, with a 1km buffer zone applied around the MSOA boundary. This applies to all of the Point of Interest indicators in the Civic Assets domain, with the 'buffer zone MSOA' geography representing the wider catchment area around each of these assets, as in most cases, LSOAs/Data Zones are too granular to represent a catchment area around an asset. The table below lists these indicators and highlights the approach taken to create data at this geographical level:

Indicators	Approach to conversion
Density of community ssets Density of educational assets Density of leisure assets Density of cultural assets Density of retail assets	Point of Interest data was classified into five service types (Community, Culture, Education, Leisure, Retail) and loaded as point geometries. MSOA boundaries were buffered by 1,000 metres to create catchment areas representing reasonable service access distance. A spatial join operation overlaid the POI points against the buffered MSOA polygons using a point-in-polygon method to identify which services fall within each MSOA's buffer zone. Results were aggregated to produce counts of each service type per MSOA, with all MSOAs retained in the output (including

	those with zero services) to maintain complete geographic coverage.

Step 2 Quality assurance of the data

The next step was to comprehensively check the distributions of all the indicators at LSOA/Data Zone/Super Data Zone level to ensure that all indicators have passed the relevant fitness tests and are "fit for purpose". These tests include excluding indicators with high numbers of zeros or equal upper limits (for example where a large number of areas have values of 100%) which would distort the Index. All of the indicators selected above passed these quality assurance tests.

Step 3 Applying shrinkage to improve the robustness of indicators

Where a rate or other measure of community need for a small area is based on small numbers, the resulting estimate may be unreliable, with an unacceptably high standard error. The technique of shrinkage estimation is used to 'borrow strength' from larger areas to increase the reliability of small area data; the impact of shrinkage will tend to move an LSOA/Data Zone's score towards that of their parent higher-level area. Shrinkage moderates the levels of unreliability in the dataset and reduces the impact of chance fluctuations from year to year. Such scores occur most commonly where numbers are small at LSOA/Data Zone level and the event is thus relatively rare. This may be the case for the indicator as a whole or only for particular LSOA/Data Zones. In shrinkage estimation the score for a small area is estimated as a weighted combination of that small area's score and the mean value for a larger area from which the smaller areas within the larger area borrow strength. The most up to date set of Local Authority Districts as the larger area (this was the larger area used in the Indices of Deprivation shrinkage calculations). LSOA/Data Zones within a single Local Authority District share issues relating to local governance. To a certain extent, they may also share issues relating to labour market sub-climates.

Further details about the shrinkage technique are given in Appendix E.

Step 4 Ensuring that all indicators are "pointing in the same direction"

In order to combine the indicators into domains, it is necessary for each of the indicators to be orientated in the same direction. However, for some of the indicators included in the UK Community Needs Index, a *high* value indicates *low* levels of need – for example an area with high levels of grant funding would be measured as having low levels of need. By contrast, for other indicators, a high score denotes high levels of

need – for example areas with a high proportion of people living alone . It is necessary therefore to 'reverse the polarity' for some scores to ensure that a high value is negative for all indicators – so they can be consistently combined.

Step 5 Producing composite indicators

A small subset of the indicators have been amalgamated to provide composite indicators before combining with the other indicators to create domain scores. The purpose of creating composite indicators is to produce more robust data that captures multiple facets of what the indicator is intending to measure.

The following indicators are grouped together:

Domain	Original indicators	Combined indicator
Connectedness	• Jobs Density in the Local Area • Jobs Density in Travel to Work Area	Jobs density
	• Broadband upload speeds • Broadband download speeds	Broadband
Active and Engaged Community	• SME lending by banks • Local business units with 0-4 employees	Small businesses
	• Participate in volunteering group on Facebook • Participate in activism group on Facebook	Participation in volunteering and activism
	• Number of volunteering groups per 1,000 people on Facebook • Number of activism groups per 1,000 people on Facebook	Activity in volunteering and activism

Before combining each of the individual indicators to produce an overall composite indicator, the indicators have first had shrinkage applied (to reduce any standard errors associated with small numbers). The indicators are then standardised (by ranking and transforming to a normal distribution) – as each of the composite indicators are on a different scale (step 6 below describes the standardisation process in more detail). Indicators are then weighted before combining to produce the composite indicators. Each of these indicators were given equal weighting.

Step 6 Standardisation

When combining measures, it is important to ensure that indicator scores are comparable and that the weighting of domains is not distorted by the variation in distribution across different indicators. The indicators in the UK Community Needs Index are based on different metrics and each indicator in the Index needs to be standardised to ensure that they have a common distribution, so that indicators can be combined, without a single indicator dominating due to having a wide distribution. Indicators in the UK Community Needs Index 2025 have been standardised by ranking each of the indicators and then transforming to a normal distribution.

Step 7 Weighting

Because the UK Community Needs Index is a compositional measure, decisions have to be made as to the weight given to the various indicators and domains of the Index. There are a number possible approaches to weighting the indicators in a domain.

Option 1 is to provide equal weightings to each of the indicators in a domain. This was the approach taken in the 2019 Community Needs Index.

Option 2 is to apply different weights depending on theoretical judgements regarding the suitability of indicators in the model. Examples of this approach include applying higher weightings to indicators which are constructed from more robust administrative data sources and lower weightings to data from modelled data sources. Alternatively higher weightings can be applied to indicators which more closely match the issue that is being captured – this can be ascertained through a Discrete Choice Experiment (DCE) – a survey of key stakeholders and people from impacted communities identifying the relative importance of indicators.

Option 3 is to introduce a statistical technique called Maximum Likelihood Factor Analysis to determine the weights of the indicators within each domain (Appendix F provides a more detailed explanation of the process). Factor analysis works most effectively where there is a single overwhelming factor which explains the performance on a set of indicators within a domain[7] and where indicators within a domain exert an influence on one another. The outcome of applying factor analysis is that not all indicators in the domain will have equal weights, with the weights affected by the extent to which each of the indicators within a domain measure the underlying aspect that the domain is trying to capture. A key advantage of using factor analysis, is that it takes into account 'double-counting' within domains. However, if there is no underlying factor common among the indicators in a domain, factor analysis is less effective. One way to get around this is to split domains into subdomains which share a common factor.

Having reviewed the indicators in each domain, it was determined that all of the indicators in the Civic Asset domains have close associations (they are all measuring aspects of the same issue – the density of assets of community benefit or community value in a local area) and that

[7] For example, in the 2025 Indices of Deprivation, factor analysis was used to weight indicators in the health domain because there was an underlying factor (general health) that impacted on the range of measures from prevalence of long term illness, hospital admissions to premature mortality.

factor analysis could be safely applied. This was also the case for the Connectedness domain with indicators focusing on wider measures of connectivity. However, the *Active and engaged community* domain measure conceptually distinct subsets of indicators and needed to be split into subdomains in order for factor analysis to be applied.

The Active and engaged community domain consists of measures concerning participation and engagement, alongside measures of the strength of the community sector. It therefore made conceptual sense to group these into separate subdomains as follows:

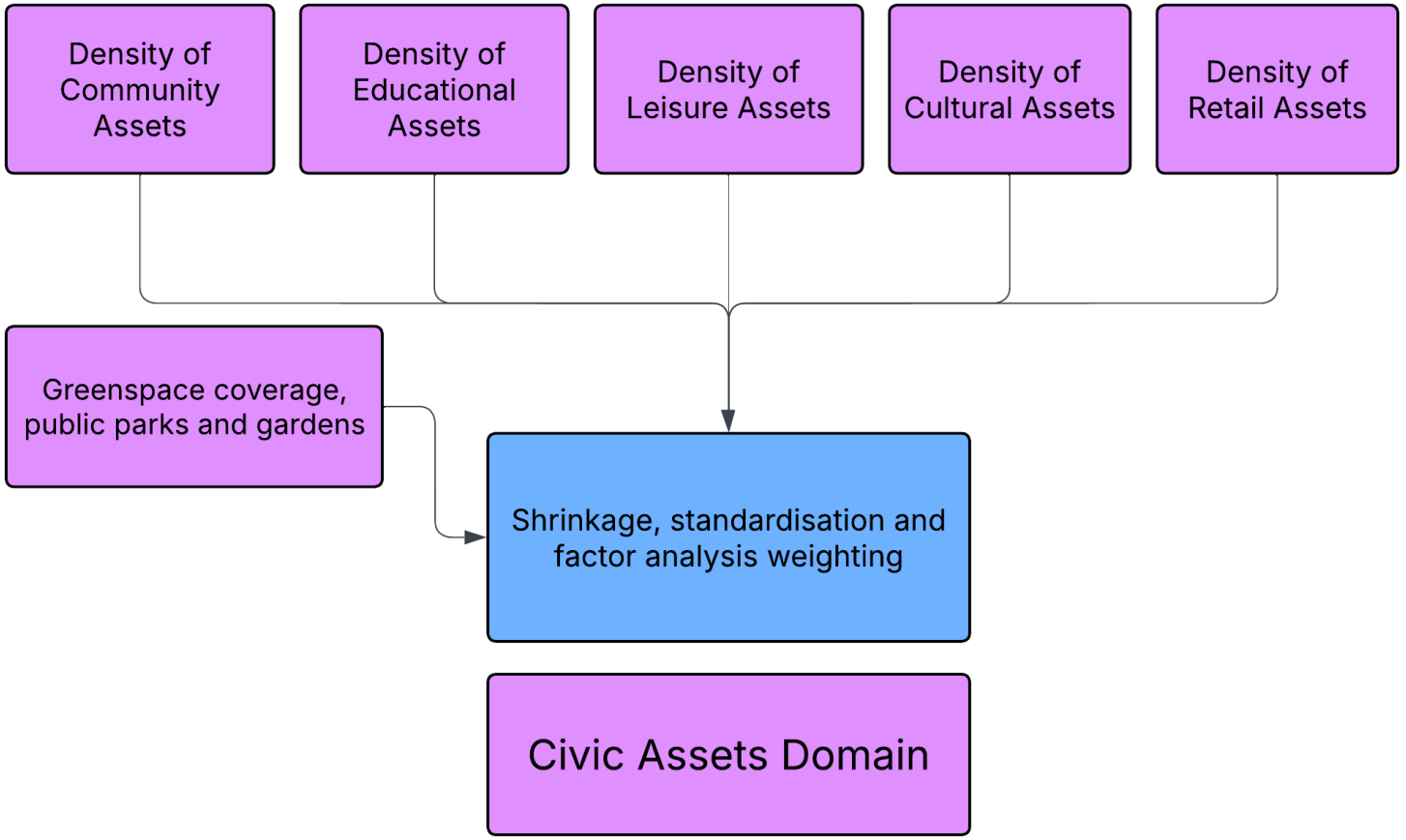
Subdomain	Indicators
Civic participation	Voter turnout at local elections Participation in volunteering and activism (composite indicator) Short-Term Population Turnover
Voluntary sector	Third sector organisations per 100,000 population National Lottery funding per head Grant funding per head from major grant funders Small businesses (composite indicator) Activity in volunteering and activism (composite indicator)

The weighted and standardised indicators are combined to form subdomain scores (in the case of indicators in the *Active/engaged community* and *Connectedness* domains) and domain scores (in the case of the Civic assets domain – which would not contain any subdomains).

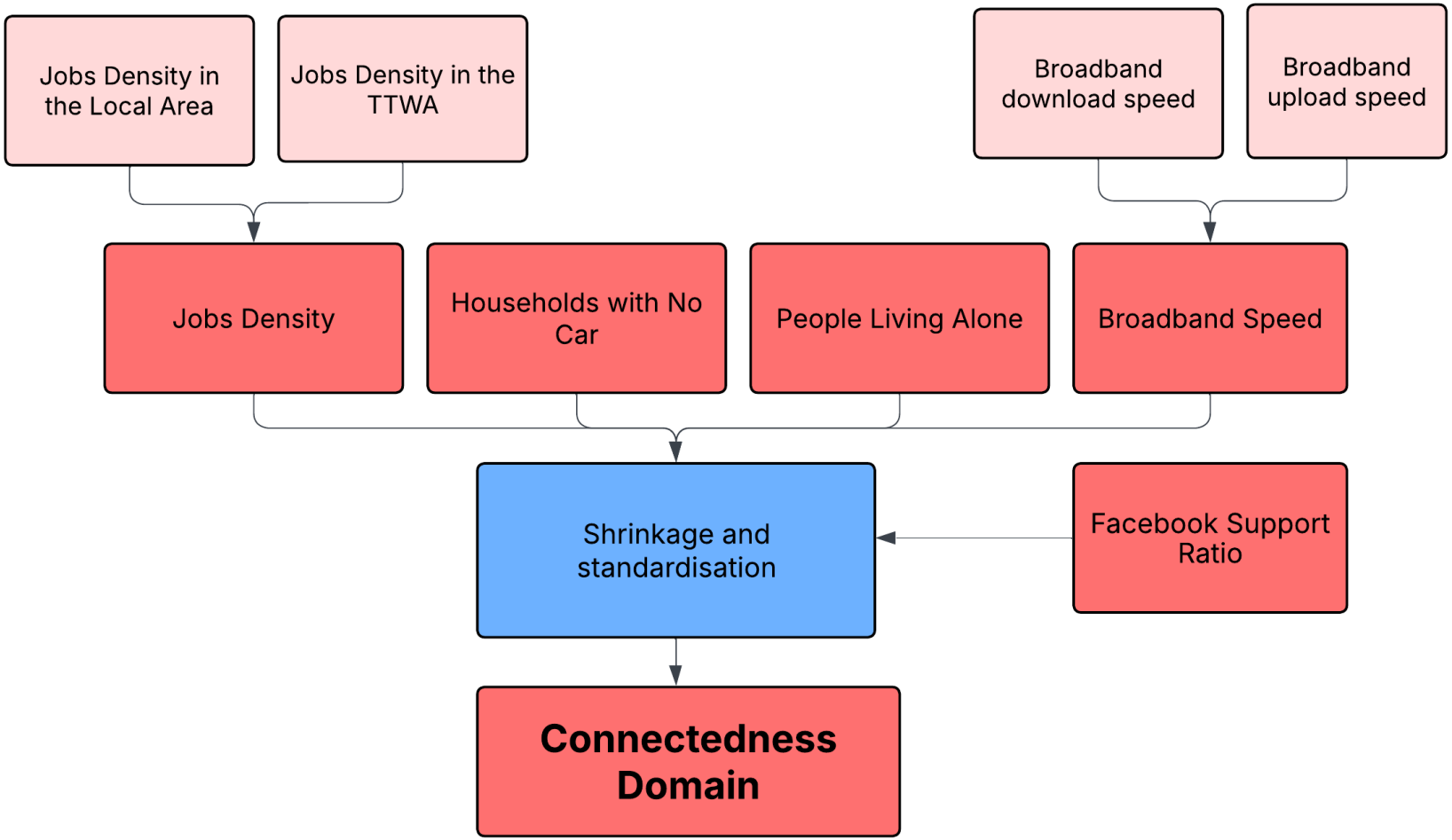
The combination process involves summing each of the weighted indicator scores (the standardised indicator scores * weight) together for all of the indicators within a domain/subdomain. The subdomains are then standardised (using the exponential transformation method outlined in step 8 below) and added together to form domain scores.

The flow charts below show the overall structure of these indicators and subdomains:

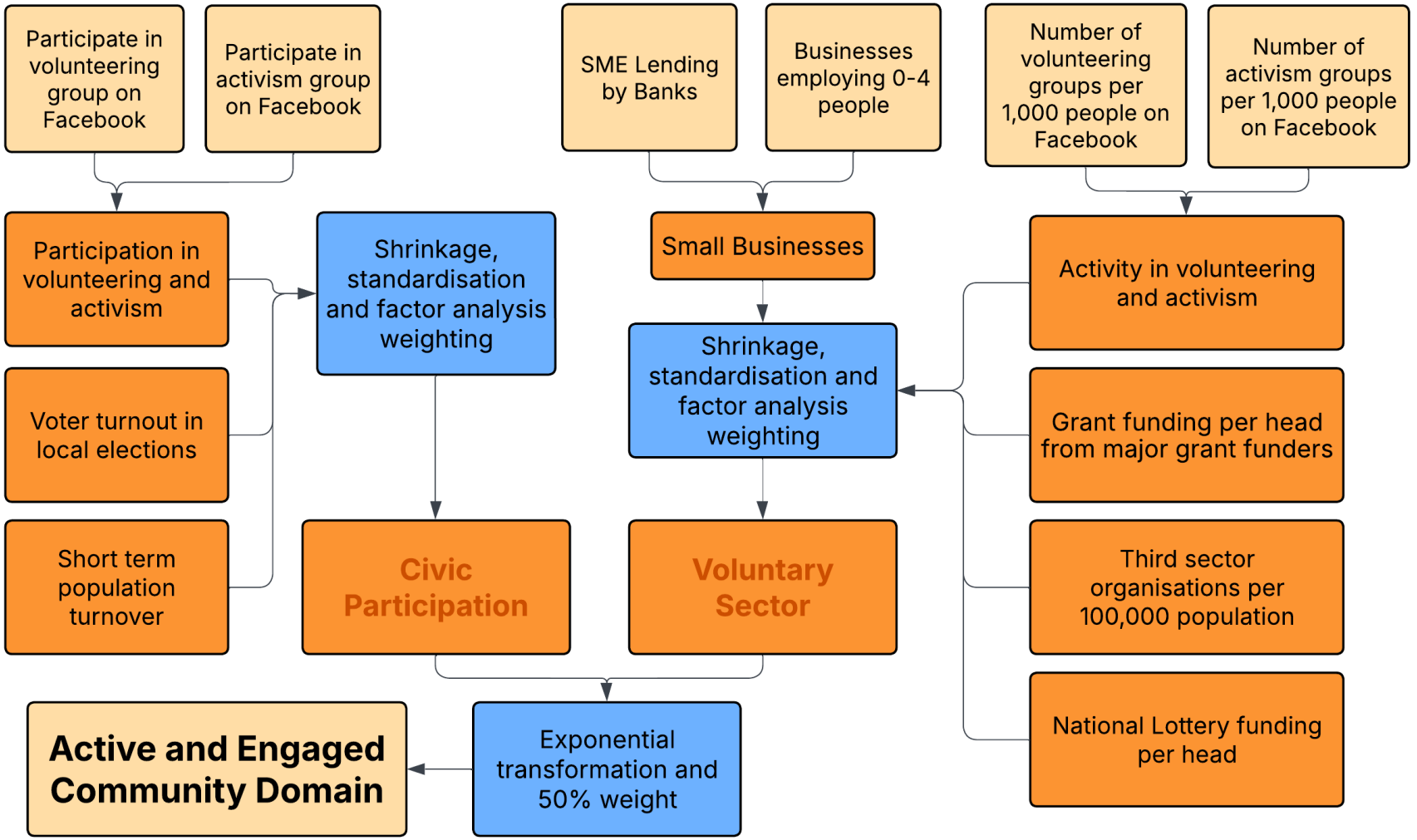
Civic Assets



Connectedness



Active and Engaged Community



Step 8 Standardising domains

The three domain scores are then combined to produce the overall UK Community Needs Index.

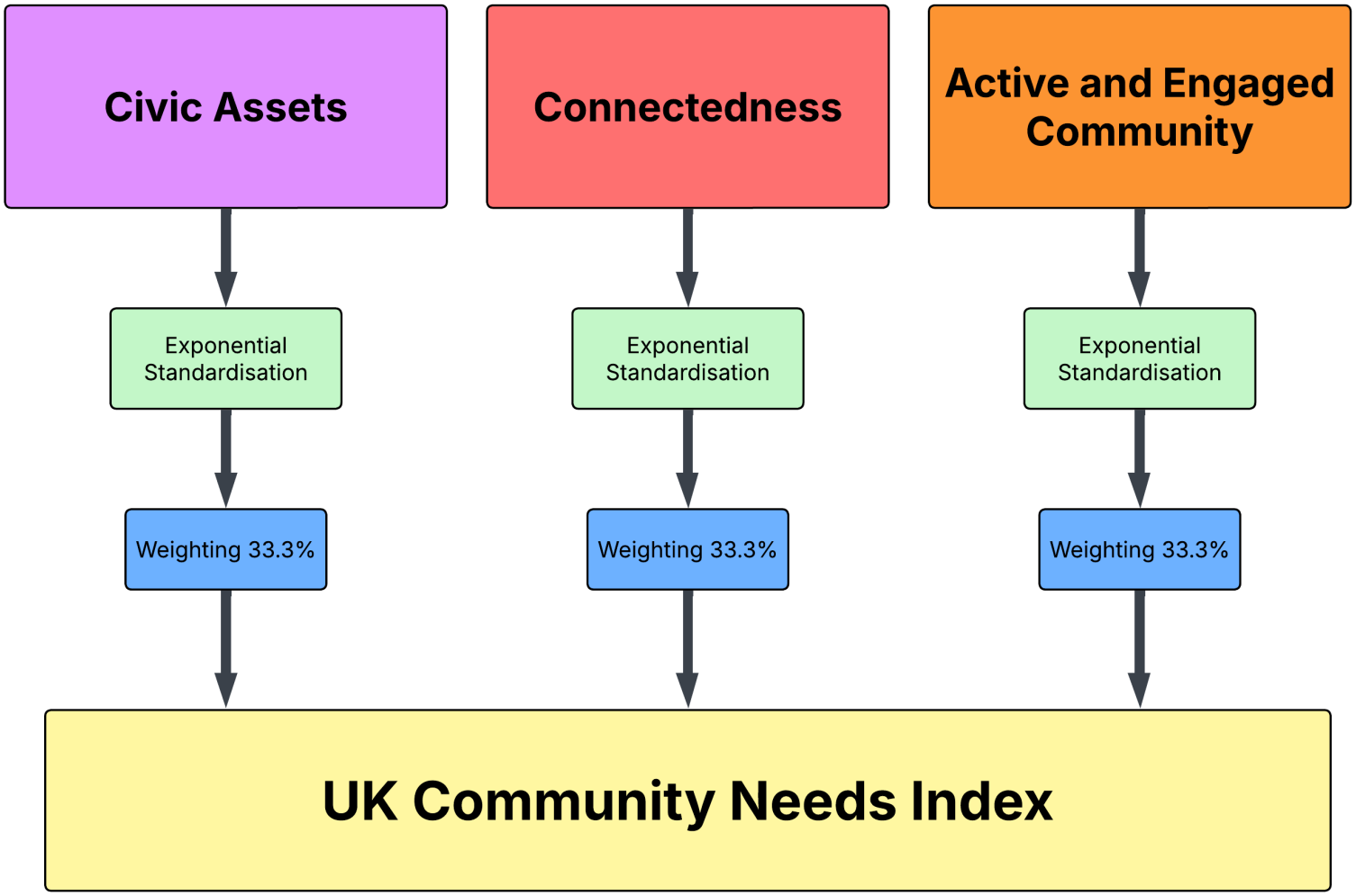
However, each of the domains will be on a different scale to one another, with two of the three domains produced from combined subdomain scores, while the *Civic assets* domain is produced from combined weighted indicators.

It was therefore necessary to standardise the domain scores before combining. As with the 2023 Community Needs Index, the method of standardisation that was adopted in the 2025 UK Index was to transform the domains to a specified exponential distribution using an *exponential transformation* function (see Appendix D for details). The exponentially transformed subdomain/domain scores were then be combined to form an overall 'community need' measure at LSOA level.

The *exponential transformation* method of standardisation differs from the normal distribution method as it gives more emphasis on the top end of the distribution (the areas with the highest scores) and so facilitates identification of the areas with the highest levels of need. This was the method of standardisation applied in the Indices of Deprivation in order to control cancellation effects (e.g. high levels of deprivation in one domain are not completely cancelled out by low levels of deprivation in a different domain) and ensures that areas that perform particularly badly on one aspect of community need are moved closer to the high end of the community need spectrum even when they show positive outcomes on other indicators.

Step 9 Weighting domains

The final stage for producing the UK Community Needs Index is to assign weights to the three domains that have been created – to apply to the domain scores before importing. It is important to note that all potential combinations of domains involve weights. If, after standardisation, the domains are simply added together, this gives each domain an equal weight. It is intended that the weights should be explicit and based on clear criteria. Part of this commitment to transparent weights involves the standardisation of the domain Indices as outlined above. This ensures that the domains can be combined without 'hidden' weights. Having standardised the domains, it is then necessary to choose explicit weights. Equal weights have been applied to each of the three domains to mirror the approach taken in the 2023 Community Needs Index where equal weights were selected to reflect the equal importance afforded to each of the dimensions of Community Need. Once each domain was weighted, the domains were combined to produce the overall UK Community Needs Index. The combination process involves summing each of the weighted standardised domain scores (the exponentially transformed domain scores * weight) together to produce an overall UK Community Needs Index score (see flow chart below).


Civic Assets
Connectedness
Active and Engaged Community
Exponential Standardisation
Exponential Standardisation
Exponential Standardisation
Weighting 33.3%
Weighting 33.3%
Weighting 33.3%
UK Community Needs Index

Appendix A: List of Assets included in the Point of Interest indicators

Indicator	Assets included
Density of Community Assets	choir, charity organization, community center, community services non profits, disability services and support organization, donation center, environmental conservation and ecological organizations, environmental conservation organization, family service center, food banks, foster care services, fraternal organization, gay and lesbian services organization, halfway house, homeless shelter, homeowner association, labor union, non governmental association, organization, private association, scout hall, senior citizen services, social and human services, social club, social service organizations, social welfare center, veterans organization, volunteer association, youth organizations, public restrooms, public toilet, town hall, anglican church, baptist church, buddhist temple, catholic church, church cathedral, convents and monasteries, evangelical church, hindu temple, jehovahs witness kingdom hall, mission, mosque, pentecostal church, religious destination, religious items, religious organization, sikh temple, spiritual shop, synagogue, temple
Density of Educational Assets	adult education, after school program, art school, bartending school, business schools, campus building, child care and day care, childbirth education, circus school, college university, computer coaching, cooking classes, cooking school, cosmetology school, cpr classes, dance school, day care preschool, dentistry schools, drama school, driving school, dui school, education, educational camp, educational research institute, educational services, educational supply store, elementary school, engineering schools, first aid class, flight school, food safety training, high school, language school, law schools, library, massage school, medical school, medical sciences schools, middle school, montessori school, music school, nursing school, parenting classes, photography classes, preschool, religious school, research institute, school, science schools, specialty school, speech training, sports school, student union, test preparation, traffic school, tutoring center, university housing, vocal coach, vocational and technical school, wine tasting classes, adult entertainment, amusement park
Density of Leisure Assets	botanical garden, memorial park, community gardens, urban farm, aquarium, arcade, bar, beer bar, beer garden, bingo hall, bowling alley, cabaret, champagne bar, children hall, cigar bar, cinema, circus, cocktail bar, comedy club, country dance hall, dance club, dive bar, drive in theater, eatertainment, escape rooms, fair, festival, gay bar, general festivals, haunted house, hookah bar, indoor playcenter, jazz and blues, karaoke, kids recreation and party, laser tag, music venue, outdoor movies, piano bar, pool and billiards, pool billiards, pool hall, salsa club, silent disco, speakeasy, sports bar, tabletop games, tiki bar, topic concert venue, trampoline park, video and video game rentals, water park, whiskey bar, wine bar, wine tasting room, afghan restaurant, african restaurant, american restaurant, arabian restaurant,

	argentine restaurant, armenian restaurant, asian fusion restaurant, asian restaurant, australian restaurant, austrian restaurant, azerbaijani restaurant, bagel restaurant, bangladeshi restaurant, bar and grill restaurant, barbecue restaurant, basque restaurant, belgian restaurant, bistro, brasserie, brazilian restaurant, breakfast and brunch restaurant, british restaurant, bubble tea, buffet restaurant, bulgarian restaurant, burger restaurant, burmese restaurant, cafe, cafetaria, cajun creole restaurant, cambodian restaurant, canadian restaurant, caribbean restaurant, cheesesteak restaurant, chicken restaurant, chicken wings restaurant, chilean restaurant, chinese restaurant, colombian restaurant, comfort food restaurant, cuban restaurant, curry sausage restaurant, dim sum restaurant, diner, diy foods restaurant, dominican restaurant, eastern european restaurant, ecuadorian restaurant, egyptian restaurant, ethiopian restaurant, european restaurant, falafel restaurant, fast food restaurant, filipino restaurant, fish and chips restaurant, fish restaurant, flatbread restaurant, fondue restaurant, food court, food stand, food truck, french restaurant, gastropub, gelato, georgian restaurant, german restaurant, gluten free restaurant, greek restaurant, guatemalan restaurant, halal restaurant, hawaiian restaurant, health food restaurant, himalayan nepalese restaurant, hong kong style cafe, hot dog restaurant, hungarian restaurant, indian restaurant, indo chinese restaurant, indonesian restaurant, international restaurant, irish pub, irish restaurant, israeli restaurant, italian restaurant, jamaican restaurant, japanese restaurant, kombucha, korean restaurant, kosher restaurant, kurdish restaurant, latin american restaurant, lebanese restaurant, live and raw food restaurant, malaysian restaurant, mediterranean restaurant, mexican restaurant, middle eastern restaurant, molecular gastronomy restaurant, moroccan restaurant, nicaraguan restaurant, nigerian restaurant, noodles restaurant, oriental restaurant, pakistani restaurant, pan asian restaurant, panamanian restaurant, pancake house, patisserie cake shop, persian iranian restaurant, peruvian restaurant, pizza restaurant, polish restaurant, polynesian restaurant, portuguese restaurant, pub, puerto rican restaurant, restaurant, romanian restaurant, rotisserie chicken restaurant, russian restaurant, salad bar, scandinavian restaurant, scottish restaurant, seafood restaurant, singaporean restaurant, slovakian restaurant, smoothie juice bar, soup restaurant, south african restaurant, southern restaurant, spanish restaurant, sri lankan restaurant, steakhouse, street vendor, sushi restaurant, swiss restaurant, syrian restaurant, taco restaurant, taiwanese restaurant, tapas bar, tea room, texmex restaurant, thai restaurant, theme restaurant, turkish restaurant, ukrainian restaurant, vegan restaurant, vegetarian restaurant, venezuelan restaurant, vietnamese restaurant, waffle restaurant, winery, wok restaurant, aerial tours, attraction farm, attractions and activities, beach resort, tours, visitor center, walking tours, petting zoo, wildlife sanctuary, zoo, pier, active life, adventure sports center, aerial fitness center, airsoft fields, amateur sports league, amateur sports team, archery range, archery shop, atv recreation park, atv rentals and tours, backpacking area, badminton court, barre classes, baseball field, baseball stadium, basketball court, basketball stadium, batting cage, beach,

	beach equipment rentals, beach volleyball court, bicycle shop, bike rentals, bike repair maintenance, boat charter, boat rental and training, boating places, boot camp, boxing class, boxing club, boxing gym, brazilian jiu jitsu club, canoe and kayak hire service, canyon, cardio classes, cave, challenge courses center, chinese martial arts club, climbing service, country club, cricket ground, cycling classes, disc golf course, dive shop, diving center, driving range, equestrian facility, esports league, esports team, fencing club, fishing charter, fishing club, fitness exercise equipment, fitness trainer, flyboarding center, football club, football stadium, forest, go kart club, go kart track, golf club, golf course, golf equipment, golf instructor, gym, gymnastics center, hang gliding center, health and wellness club, high gliding center, hiking trail, hockey arena, hockey equipment, hockey field, horse racing track, horse riding, horseback riding service, hunting and fishing supplies, ice skating rink, indoor golf center, island, jet skis rental, karate club, kickboxing club, kiteboarding, kiteboarding instruction, lake, lawn bowling club, lookout, martial arts club, miniature golf course, motorsports store, mountain, mountain bike parks, mountain bike trails, muay thai club, national park, nature reserve, outdoor gear, paddleboard rental, paddleboarding center, paintball, park, pilates studio, playground, professional sports league, professional sports team, qi gong studio, race track, racquetball court, rafting kayaking area, river, rock climbing gym, rock climbing instructor, rock climbing spot, roller skating rink, rowing club, rugby pitch, rugby stadium, sailing area, sailing club, sand dune, school sports league, school sports team, scuba diving center, scuba diving instruction, self defense classes, shooting range, skate park, skate shop, skating rink, ski and snowboard school, ski and snowboard shop, ski area, ski resort, sky diving, snorkeling, soccer club, soccer field, soccer stadium, sport equipment rentals, sporting goods, sports and fitness instruction, sports and recreation venue, sports club and league, squash court, stadium arena, state park, surf lifesaving club, surf shop, surfboard rental, surfing, surfing school, swimming instructor, swimming pool, table tennis club, taekwondo club, tai chi studio, tennis court, tennis stadium, track stadium, trail, volleyball court, waterfall, yoga instructor, yoga studio
Density of Cultural Assets	art gallery, art museum, arts and entertainment, auditorium, cartooning museum, castle, childrens museum, civilization museum, community museum, computer museum, costume museum, cultural center, decorative arts museum, design museum, embroidery and crochet, film festivals and organizations, fort, fountain, history museum, landmark and historical building, lighthouse, marching band, military museum, modern art museum, monument, museum, music festivals and organizations, national museum, observatory, opera and ballet, paint your own pottery, palace, performing arts, planetarium, plaza, public plaza, ruin, science museum, sculpture statue, sports museum, state museum, textile museum, theaters and performance venues, theatre, theatrical productions, architectural tours, art tours, beer tours, bike tours, boat tours, bus tours, food tours, historical tours

Density of Retail Assets	asian grocery store, bagel shop, bakery, butcher shop, cheese shop, coffee shop, cupcake shop, custom cakes shop, dairy stores, delicatessen, ethical grocery, farmers market, fishmonger, frozen yoghurt shop, greengrocer, grocery store, health food store, health market, herb and spice shop, herbal shop, honey farm shop, ice cream and frozen yoghurt, ice cream shop, indian grocery store, indian sweets shop, international grocery store, japanese confectionery shop, korean grocery store, kosher grocery store, market stall, meat shop, mexican grocery store, night market, organic grocery store, pasta shop, pie shop, popcorn shop, public market, russian grocery store, sandwich shop, seafood market, shaved ice shop, specialty grocery store, supermarket, water store, post office, aquatic pet store, reptile shop, adult store, antique store, appliance store, army and navy store, art supply store, auction house, audio visual equipment store, baby gear and furniture, bags luggage company, bathroom fixture stores, battery store, bedding and bath stores, beer wine and spirits, beverage store, books mags music and video, bookstore, boutique, brewing supply store, bridal shop, candle store, candy store, cards and stationery store, carpet store, ceremonial clothing, childrens clothing store, christmas trees, clothing company, clothing rental, clothing store, coin dealers, comic books store, computer store, concept shop, convenience store, costume store, craft shop, custom clothing, custom t shirt store, customized merchandise, dance wear, department store, designer clothing, diamond dealer, discount store, do it yourself store, drone store, drugstore, duty free shop, e cigarette store, electronics, fabric store, fashion, fashion accessories store, firewood, firework retailer, flea market, flooring store, florist, flowers and gifts shop, formal wear store, framing store, fur clothing, furniture accessory store, furniture rental service, furniture store, gemstone and mineral, gents tailor, gift shop, goldsmith, grilling equipment, guitar store, gun and ammo, handbag stores, handicraft shop, hardware store, hat shop, hobby shop, holiday decor, holiday market, home and garden, home decor, home goods store, home improvement store, home theater systems stores, jewelry repair service, jewelry store, kiosk, kitchen supply store, knitting supply, lawn mower store, leather goods, lighting fixtures and equipment, lighting store, linen, lingerie store, liquor store, luggage store, maternity wear, mattress store, mens clothing store, military surplus store, mobile phone accessories, mobile phone store, music and dvd store, musical instrument services, musical instrument store, newspaper and magazines store, online shop, outdoor furniture store, outlet store, paint store, party supply, pen store, perfume store, piano store, plus size clothing, pop up shop, retail, rug store, shades and blinds, shoe store, shopping, shopping center, souvenir shop, sports wear, stocking, sunglasses store, superstore, swimwear store, t shirt store, thrift store, tile store, tobacco shop, toy store, traditional clothing, trophy shop, uniform store, used bookstore, used vintage and consignment, video game store, vinyl record store, wallpaper store, watch repair service, watch store, wig store, window treatment store, womens clothing store, woodworking supply store

Appendix B: Funding Organisations included in ‘Grant funding per head’ indicator

10GM, A B Charitable Trust, abrdn Financial Fairness Trust, Access to Justice Foundation, Alan & Babette Sainsbury Charitable Fund, Alex Ferry Foundation, Allen Lane Foundation, Andrew Lloyd Webber Foundation, ARCADIA, Architectural Heritage Fund, Arts Council England, Aurora Trust, BÃ²rd na GÃ idhlig, Backstage Trust, Barking & Dagenham Giving, Barnwood Trust, Barrow Cadbury Trust, BBC Children in Need, Brian Mercer Trust, Buttle UK, Cabinet Office, CAF, Calouste Gulbenkian Foundation, Calouste Gulbenkian Foundation, UK Branch, Camden Giving, CareTech foundation, Charles Hayward Foundation, CHK Foundation, City Bridge Foundation, City Bridge Trust, Cloudesley, Comic Relief, Community Land Scotland, Coop Foundation, Co-operative Group, Corra Foundation, Cripplegate Foundation, Crisis UK, Crowdfunder, Culham St Gabriel's Trust, Daiwa Anglo-Japanese Foundation, Department for Business and Trade, Department for Business, Energy and Industrial Strategy, Department for Culture, Media & Sport, Department for Culture, Media and Sport, Department for Digital, Culture, Media & Sport, Department for Digital, Culture, Media and Sport, Department for Education, Department for Energy Security and Net Zero, Department for Environment, Food and Rural Affairs, Department for International Development, Department for International Trade, Department for Levelling Up, Housing and Communities, Department for Science, Innovation and Technology, Department for Transport, Department for Work and Pensions, Department of Health, Department of Health and Social Care, Disability Action, EA Foundation, Educational Opportunity Foundation, Energy Saving Trust Foundation, Esme Fairbairn Foundation, FÃ¨isean nan GÃ idheal, Family Fund Business Services, Fenton Arts Trust, Fight for Sight, Firstport, Foothold, Foreign and Commonwealth Office, Foreign, Commonwealth & Development Office, Forever Manchester, forRefugees, Foundation Scotland, Friends Provident Foundation, Garfield Weston Foundation, Gatsby Charitable Foundation, GMSP Foundation, Gower Street, Greater London Authority, Greater Manchester Mayor's Charity, Greenwood Place, Guy's and St Thomas' Charity, Haberdashers' Company, Hackney CVS, Halifax Foundation for Northern Ireland, Hammersmith United Charities, Hampton Fund, Hands Up for Trad, Harpur Trust, Hazelhurst Trust, Historic Environment Scotland, HM Revenue & Customs, HM Treasury, Home Office, Hyde Charitable Trust, Imperial Health Charity, Independent Age, Indigo Trust, Innox Foundation, J J Charitable Trust, JAC Trust, Joffe Charitable Trust, Joffe Charitable Trust , John Ellerman Foundation, John Lyon's Charity, John Moores Foundation, Joseph Levy Foundation, Joseph Rowntree Charitable Trust, Joseph Rowntree Reform Trust , JRSST-CT, Justice Together Initiative, Kingston Voluntary Action, KPMG Foundation, Kurt and Magda Stern Foundation, LandAid Charitable Trust, Lankelly Chase Foundation, LEF, LGBT Consortium, Lisbet Rausing and Peter Baldwin, Lloyds Bank Foundation for England and Wales, Lloyd's Register Foundation, Local Trust, London Catalyst, London Councils, London Legacy Development Corporation , London Legal Support Trust, London Marathon Foundation, Longleigh Foundation, Lund, LUND TRUST, Macc, Making A Difference Locally, Manchester Pride, Mark Leonard Trust, Masonic Charitable Foundation, Maudsley Charity, Mayor's Office for Policing and Crime, McCarthy Stone Foundation, Mercers' Charitable Foundation, Mercers' School Memorial Trust (Incorporating the Merrett Bequest), Millfield House Foundation, Ministry for Housing, Communities and Local Government, Ministry of Defence, Ministry of Housing, Communities & Local Government, Ministry of Justice, Mission 44, Monument Trust, National Churches Trust, National Emergencies Trust, Nationwide Foundation, Nesta, New Philanthropy Capital (NPC), Northern Powergrid Foundation, Northern Rock Foundation, Nova Wakefield, Nuffield Foundation, Old Oak and Park Royal Development Corporation (OPDC), One Manchester, OVO Foundation, Paul Hamlyn Foundation, Pears Foundation, Pears Foundation , People's Health

Trust, People's Postcode Trust, Peter Harrison Foundation, Peter Minet Trust, Point North, Postcode Active Trust, Postcode Animal Trust, Postcode Care Trust, Postcode Children Trust, Postcode Community Trust, Postcode Culture Trust, Postcode Earth Trust, Postcode Education Trust, Postcode Global Trust, Postcode Green Trust, Postcode Innovation Trust, Postcode International Trust, Postcode Justice Trust, Postcode Local Trust, Postcode Neighbourhood Trust, Postcode Places Trust, Postcode Planet Trust, Postcode Society Trust, Postcode Support Trust, Power to Change Trust, Prudence Trust, Quixote Foundation, R L Glasspool Charity Trust, R S Macdonald Charitable Trust, Rank Foundation, Richmond Foundation, Road Safety Trust, Rosa UK, Rothschild Foundation, Royal Docks , Sam and Bella Sebba Charitable Foundation, Samworth Foundation, Scottish Council For Voluntary Organisations, Scottish Government, Seafarers' Charity, SHAREGIFT, Sir George Martin Trust, Sir Jules Thorn Charitable Trust, Skinners' Charity Foundation, Skinners' Education Foundation, Smallwood Trust, Solace Women's Aid, Southway Housing Trust, Spirit of 2012, Sport England, St Paul's Schools Foundation, St. Martin-in-the-Fields Charity, Staples Trust, Steve Morgan Foundation, Talbot Village Trust, Tedworth Charitable Trust, The Aim Foundation, The Archbishops' Council , The Badur Foundation, The Ballinger Charitable Trust, The Baring Foundation, The Bell Foundation, The Berkeley Foundation, The Bishop Radford Trust, The Blagrave Trust, The Bromley Trust, The Caerlow Trust, The Charity of Sir Richard Whittington, The Childhood Trust, The Clothworkers Foundation, The Clothworkers' Foundation, The Coalfields Regeneration Trust, The Colyer-Fergusson Charitable Trust, The Coutts Foundation, The David & Elaine Potter Foundation, The Dixon Foundation, The Dulverton Trust, The Earl of Northampton's Charity, The Eaton Fund, The EQ Foundation, The Fore, The Foyle Foundation, The Funding Network, The Goldsmiths' Foundation, The Greggs Foundation, The Grocers' Charity, The Henry Smith Charity , The James Tudor Foundation, The Jerusalem Trust, The Joseph Rank Trust, The Julia Rausing Trust, The Leathersellers' Foundation, The Linbury Trust, The Michael And Betty Little Trust, The MSE Charity, The National Archives, The National Lottery Community Fund, The National Lottery Heritage Fund, The Paul Mellon Centre for Studies in British Art, The Pilgrim Trust, The Postlethwaite Music Foundation, The Rayne Foundation, The Royal Countryside Fund, The Samworth Foundation, The Seafarers' Charity, The Seafarers' Charity , The Segelman Trust, The Shears Foundation, The Teaching Staff Trust, The Triangle Trust 1949 Fund, The Tudor Trust, The Wellcome Trust, The William Syson Foundation, The Wimbledon Foundation, TheÂ Julia Rausing Trust (via MCT), Thirty Percy Foundation, Three Guineas Trust, Thrive LDN, True Colours Trust, Trussell, Trust for London, Trusthouse Charitable Foundation, Tuixen Foundation, UK Community Foundations, Unbound Philanthropy, United St Saviour's Charity, Violence Reduction Unit, Virgin Money Foundation, Vivensa Foundation, Walcot Foundation, Wales Council for Voluntary Action, Walton Charity, Wates Family Enterprise Trust, Wates Foundation, WCIT Charity, Westminster Foundation, William Grant Foundation, Wolfson Foundation, Women's Fund for Scotland, Woodward Charitable Trust, Yorkshire Building Society Charitable Foundation, Youth Music, ZING,

Appendix C Indicators considered for the UK Community Needs but not included

The table below lists the indicators that were used in previous iterations of the Community Needs Index, that have not been included in this iteration of the UK Community Needs Index 2025.

CNI Domain	Indicator	Source	Reason for exclusion
Civic Assets	Density of Sport and Leisure Assets	Active Places Database	England only
	Community-Owned Assets	Renaisi/ Plunkett Foundation/Locality	England only
Connectedness	Travel Time to Key Services by Public Transport/Walk	Department for Transport (DfT)	England and Wales only
	Access to Green/Blue Spaces	Access to Health Assets and Hazards (AHAH)	England, Wales and Scotland only
	Job Access Score	UK Onward	England, Wales and Scotland only
	Digital Exclusion Index	CACI via British Red Cross	England, Wales and Scotland only, Northern Ireland data available only at 2011 geographies and conversion to 2021 units is not feasible due to major boundary changes
	Self-Reported Levels of Loneliness	Community Life Survey: DCMS/Output Area Classification	England only
	Number of GPs per 1,000 Patients	NHS England	England only
Active and Engaged Community	Civic Participation	Community Life Survey: DCMS/Output Area Classification	England only
	Neighbourhood Cohesion	Community Life Survey: DCMS/Output Area Classification	England only
	Estimates of Social Trust	UK Onward	England only
	Residential Mobility Index	Consumer Data Research Centre (CDRC)	England, Wales and Scotland only, Northern Ireland data available only at 2011 geographies and conversion to

			2021 units is not feasible due to major boundary changes. Residential Mobility Index data also positively correlates (correlation coefficient= 0.508) with the Short term population turnover indicator which has been included in the UK CNI index (with coverage for all UK geographies),

Appendix D: Exponential transformation

In order to combine the domains into an overall measure of need, the domain scores first need to be standardised. Any standardisation and transformation should meet the following criteria:

- Standard distribution. It must ensure that each domain has a common distribution, so that domains can be combined, without one domain dominating due to a much larger distribution.
- Identify areas of need. It must facilitate the easy identification of the areas with highest levels of need.
- Scale independent. It must not be scale dependent (in other words confuse population size with level of need).

One possible standardization approach involves each of the domain scores being ranked, and then the ranks are transformed to an exponential distribution. The exponential distribution has a number of properties that satisfy the criteria above.

Standard distribution

The exponential distribution transforms each domain so that they each have a common distribution, the same range and identical maximum / minimum values. The process starts by ranking the scores in each domain to standardise the domain scores (from 1 for the lowest need to 6,791 for the most highest need), before applying the exponential transformation procedure to create a standardised domain score ranging from 0 (lowest need) to 100 (highest need).

Cancellation

The exponential transformation procedure gives control over the extent to which lack of need in one domain cancels or compensates for high need in another domain. It allows precise regulation, although not elimination, of these cancellation effects. The scaling constant (23) used produces roughly 10 per cent cancellation. This means that in the extreme case, an LSOA which was ranked most deprived on one domain but least deprived on another would overall be ranked at the 90th percentile in terms of levels of need. This compares to the 50th percentile if the untransformed ranks or a normal distribution had been used instead.

Identify deprived areas

The exponential transformation effectively spreads out that part of the distribution in which there is most interest - that is the 'tail' which contains the areas with the highest levels of need in each domain. The scaling constant ensures that the most deprived 10 per cent of areas cover 50 per cent of the distribution of scores (in other words, scores between 50 and 100 after exponential transformation).

Scale independent

The transformation is not affected by the size of the LSOA's population.

The exponential transformation calculation

The transformation used is as follows:

For any LSOA, denote its rank on the domain R, scaled to the range [0,1]. R=1/N for the least deprived and R=N/N (in other words R=1) for the most deprived, where N=the number of LSOAs in England.

The transformed domain score X is given by:

$$X = -23 \ln\left(1 - R\left(1 - \exp^{-100/23}\right)\right)$$

where 'ln' denotes natural logarithm and 'exp' the exponential or antilog transformation

Appendix E: Shrinkage

Improving the reliability of small area data values using shrinkage estimation

The shrinkage technique is designed to deal with the problems associated with small numbers in an LSOA. In some areas – particularly where the at-risk population is small – data may be 'unreliable', that is more likely to be affected by sampling and other sources of error. The technique of shrinkage estimation (in other words empirical Bayesian estimation) is used to 'borrow strength' from larger areas to avoid creating unreliable small area data. Shrinkage estimation involves moving LSOA scores towards another more robust score, often relating to a higher geographical level. All LSOA scores will move somewhat through shrinkage, but those with large standard errors (in other words the most 'unreliable' scores) will tend to move the most. The LSOA score may be moved towards a 'higher need' or 'lower need' score through shrinkage estimation. Without shrinkage, some LSOAs would have scores which do not reliably describe the community need in the area due to chance fluctuations from year to year.

It could be argued that shrinkage estimation is inappropriate for administrative data which are, in effect, a census. This is not correct. The problem exists not only where data are derived from samples but also where scans of administrative data effectively mean that an entire census of a particular group is being considered. This is because such censuses can be regarded as samples from 'super-populations', which one could consider to be samples in time. All the data from administrative sources and the 2011 Census are treated as samples from a super-population in this way, and the shrinkage technique was applied to indicators which use this data. The exceptions are the indicators supplied at Local Authority District level.

Selecting the larger areas from which unreliable small area data can borrow strength

The principle for selecting the larger area should be that the LSOAs within them share characteristics. In the current shrinkage methodology, Local Authority Districts are used. The LSOAs within a single district share issues relating to local governance and possibly to economic sub-climates. To a certain extent, they may also share issues relating to labour market sub-climates.

The shrinkage calculation

The actual mechanism of the shrinkage procedure is to estimate deprivation in a particular LSOA using a weighted combination of (a) data from the LSOA, and (b) data from another more robust score (in the case of the Indices, this is the Local Authority District score). The weight attempts to increase the efficiency of the estimation, while not increasing its bias. All LSOA scores are adjusted to some degree through the shrinkage process, but the magnitude of the adjustment will be greatest for areas with the least reliable scores. The amount of movement depends on both the size of the standard error and the amount of heterogeneity amongst the LSOAs in a Local Authority District.

The ‘shrunk’ estimate of a LSOA level proportion (or ratio) is a weighted average of the two ‘raw’ proportions for the LSOA and for the corresponding District. The weights used are determined by the relative magnitudes of within-LSOA and between-LSOA variability.

If the rate for a particular indicator in LSOA j is r_j events out of a population of n_j, the empirical logit for each LSOA is:

$$m_j = \log\left[\frac{(r_j + 0.5)}{(n_j - r_j + 0.5)}\right]$$

whose estimated standard error s_j is the square root of:

$$s_j^2 = \frac{(n_j + 1)(n_j + 2)}{n_j(r_j + 1)(n_j - r_j + 1)}$$

The corresponding counts r out of n for the district in which LSOA j lies gives the district-level logit:

$$M = \log\left[\frac{(r + 0.5)}{(n - r + 0.5)}\right]$$

The ‘shrunk’ LSOA level logit is then the weighted average:

$$m_j^* = w_j m_j + (1 - w_j)M$$

where w_j is the weight given to the ‘raw’ LSOA-j data and (1-w_j) the weight given to the overall rate for the district. The formula used to determine w_j is:

$$w_j = \frac{1/s_j^2}{1/s_j^2 + 1/t^2}$$

where t^2 is the inter-LSOA variance for the k LSOAs in the district, calculated as:

$$t^2 = \frac{1}{k-1}\sum_{j=1}^{k}(m_j - M)^2$$

Thus large LSOAs, where precision $1/s_2^j$ is relatively large, have weight w_j close to 1 and so shrinkage has little effect. The shrinkage effect is greatest for small LSOAs in relatively homogeneous districts.

The final step is to back-transform the shrunk logit m_j^* using the 'anti-logit', to obtain the shrunk LSOA level proportion for each LSOA:

$$z_j = \frac{\exp\left(m_j^*\right)}{1+\exp\left(m_j^*\right)}$$

Appendix F: Factor Analysis methodology

Factor analysis is used as a method for combining indicators, by finding appropriate weights for combining indicators into a single score based on the inter-correlations between all the indicators.

Factor analysis is only used in domains where 'latent variables' are hypothesised to exist and where the indicator variables are 'effect indicators', i.e. indicators that are influenced by the latent variable.

There are many candidates in terms of types of factor analysis. Two of the main contenders are maximum likelihood factor analysis (as used in the current and previous versions of the Indices of Deprivation) and Principal Components Analysis. The distinction between maximum likelihood factor analysis and Principal Components Analysis is a technical one. In brief, the assumptions underpinning Principal Components Analysis are that the indicators going into the analysis are perfectly reliable and measured without error. Maximum likelihood factor analysis requires no such assumption.

The process of combining indicators using factor analysis comprises three stages:

- All indicators are converted to the standard normal distribution.
- The standardised scores were factor analysed (using the Maximum Likelihood method), deriving a set of weights.
- The indicators were then combined using these weights.