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Identification of Regional Areas for the National Development Framework

Final Report

A report by the School of Geography and Planning, Cardiff University

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Final Report to Welsh Government

School of Geography and Planning

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Identification of Regional Areas for the National Development Framework

1 Introduction

1.1 This report outlines the results of the research to identify regional areas for the National Development Framework (NDF).

1.2 The report addresses the following:

- Research context
- Research aims and objectives
- Conceptual considerations: The role of regions within national level planning policy
- Research methods
- Summary of web stakeholder consultation
- Datasets and weightings
- Regions by Well-being Goals
- Final proposed regional boundaries and assessment
- Appendix 1: Stakeholder consultation report (English with all responses)
- Appendix 2: Stakeholder consultation report (Welsh with all responses)
- Appendix 3: Potential datasets and weightings
- Appendix 4: Datasets, sources, and weightings used

2 Research context

National Development Framework

2.1. The Planning (Wales) Act 2015 suggests wide-reaching changes to the planning system in order to deliver appropriate and accountable development across Wales. The Act recognises that planning for land-use development needs to address national, regional, and local concerns across a range of activities, interests and functions.

2.2. The Act provides a statutory requirement for the Welsh Ministers to produce and keep up-to-date a National Development Framework (NDF). While no decisions have been made on what the NDF will consist of, its content or the range and scope of its policies, it could potentially fulfill a number of roles, including setting out the Welsh Government's land use priorities and providing a national land use framework for Strategic and Local Development Plans. The NDF may possibly also concentrate on development and land use issues of national significance which the planning system is able to influence and deliver. Preliminary work on the NDF has begun within Welsh Government, particularly in relation to consultation and evidence gathering.

Regional Context and National Significance

2.3. The Wales Spatial Plan (WSP), a predecessor addressing similar national and regional issues, was developed in the early 2000s and last updated in 2008 in the context of national, long term planning. The influence of the WSP will likely remain in discussions around the NDF given its previous position as a strategic visioning document. The WSP included a strong emphasis on sub-national areas within Wales and as such there will likely be debate about the role of regions within the NDF.

2.4. It is therefore prudent to investigate the potential and issues of regional coverage in the NDF in order to frame future consultation and policy exercises. Additionally there is a need to explore whether or not the NDF should have regional content covering all parts of Wales or

even selectively as opposed to purely focussing on national level issues only. The form of regional content also becomes important, varying from a strategic overview to more detailed regional coverage.

Well-being of Future Generations (Wales) Act 2015

2.5. The Well-being of Future Generations (Wales) Act 2015 requires a range of public bodies in Wales to undertake their duties in a sustainable manner. It requires them to proactively identify and solve problems, plan for the long term, and coordinate activities through partnership with other public bodies, communities, and people.

2.6. The Act sets out seven Well-being Goals to guide a shared vision for the country. The public bodies listed in the Act are required to work towards the achievement of all seven goals. In the context of the data collection for this research, the seven goals provide direction and purpose, helping to frame the type of data to be collected and the manner in which the regional boundaries will be defined. The relation of each goal to the research will now be discussed.

2.7. *A Prosperous Wales*: focuses on data related to economic growth, innovation, and low carbon development. Key considerations include boundaries associated with functional economic areas, city deals, housing markets, income, industry clustering and activities, as well as climate change. Regional areas identified will attempt to ensure each part of Wales has a strong foundation for sustainable development and economic success.

2.8. *A Resilient Wales*: includes aspects of biodiversity and resilience. Data is related to the natural environment, the interaction between people and ecosystems, and potential for adaptation to climate change. Where possible, regional areas identified sought to maintain protected natural environments and ensure each region is environmentally diverse.

2.9. *A Healthier Wales*: draws on data related to public health and leisure in order to ensure that regional boundaries protect current and future physical and mental well-being. Access to healthcare, green space, and leisure opportunities are utilised to help construct regional areas while data on mortality, illness, and physical activity as well as health care delivery boundaries are considered to understand the quality of service provision and access so as to balance long-term care within potential regions.

2.10. *A More Equal Wales*: considers how the construction of regional areas potentially impacts on the socio-economic potential of those living in it. A key principle has been to ensure that the boundaries of regional areas encompass a large enough area to balance poor performance in socio-economic indicators, such as material deprivation, with those that achieve higher levels of performance.

2.11. *A Wales of Cohesive Communities*: considers the role of infrastructure in maintaining access within and between communities when constructing regional areas. The viability of regions is considered by utilizing demographic data and area classifications. Distance to population centres is explored to understand connections between places in combination with service provision related to crime and safety.

2.12. *A Wales of Vibrant Culture and Thriving Welsh Language*: seeks to protect regions of Wales where Welsh is spoken by a large percentage of the population, ensure access to heritage and arts resources, and seeks to ensure socio-demographic area characteristics are taken into consideration.

2.13. *A Globally Responsible Wales*: a key element related to this goal is regional area definition related to climate change, waste, and the role of renewable energy, the potential of which will be considered for each proposed region in order to try and ensure renewable energy

production is possible for each region of Wales and that waste can be appropriately managed.

2.14. Forty-six existing national indicators have been developed in relation to the Well-being goals to monitor progress. While not all indicators have a spatial dimension those that do, and for which the data is currently available, have been included in the assessment of potential data noted in Section 7 of this report.

3. Research aims and objectives

3.1. Welsh Government have stated that the NDF will:

· set out where nationally important growth and infrastructure is needed and how the planning system - nationally, regionally and locally - can deliver it;
· provide direction for Strategic and Local Development Plans and support the determination of Developments of National Significance;
· sit alongside Planning Policy Wales, which sets out the Welsh Government's planning policies and will continue to provide the context for land use planning;
· support national economic, transport, environmental, housing, energy and cultural strategies and ensure they can be delivered through the planning system.

3.2. As such, this research project aims to test the appropriateness of the NDF to identify regions across Wales for the purpose of providing a) a context for national infrastructure, growth and projects and b) a framework for planning decisions and plan making within those regions, and to examine the potential alternatives.

3.3. The following four inter-related research objectives have been identified:

(a) Assess the appropriateness of the method developed to identify Strategic Planning Areas (SPA) in Wales for the identification of NDF regional boundaries and modify as appropriate.

(b) Gain stakeholder input on the themes and data to be used in the identification of the NDF regional boundaries and the contemporary appropriateness of the WSP regions.

(c) Apply the approach developed through Parts (a) and (b) to identify distinctive NDF regional areas within the context of the seven well-being goals of the Well-being of Future Generations (Wales) Act 2015.

(d) Explore the validity of the WSP regions in relation to the identified NDF regional boundaries.

4. Conceptual considerations: The role of regions within national level planning policy

4.1. In recent decades, a new role has emerged for sub-regional and sub-national scales to promote economic competitiveness, environmental protection, and sectoral integration, with specific priorities in area investment, conservation, infrastructure, and land use regulation. Regional scales are typically promoted in order to increase cooperation and promote improved relationships between cities, rural areas, and other regions on issues such as economics, land use, and transport policies. The development of more polycentric regions has also been a key goal in many jurisdictions as a way of managing growth, promoting equality, and improving local level coordination between jurisdictions.

4.2. There are a number of traditional approaches to defining regions. This includes the layers approach which breaks down aspects of a region into different components consisting of the substratum – environmental characteristics of the region; networks – national road, rail, and waterways, as well as ports and airports; and occupation – the extent of travel between residential areas, business parks, shopping areas, services and facilities in towns and villages. This method has been used to investigate the potential extent of a region.

4.3. One of the longest established approaches by which regional boundaries have been defined is based on the intensity of interaction between different areas. This functional approach has been broadly defined as areas or locational entities which have more interaction or connection with each other than with outside areas.

4.4. For planning purposes functional areas have most commonly been developed based on travel-to-work areas and housing market areas. More specific methods have also been utilised to define regions, including, migration data, supply chains, and most recently mobile phone traffic data.

4.5. The importance of rural areas is typically under-emphasised when defining and understanding regions. Top-down national approaches tend to focus on economic competitiveness and in so doing risk privileging urban areas over rural areas.

4.6. In this approach, rural areas are often seen as feeders to the urban, leading to a lack of engagement and/or clout in the policy making process. Therefore it is important to consider not only the process of boundary definition but also the purpose. Purpose-led motivations for the inclusion of regions in national level planning may include the promotion of economic and social cohesion, sustainable development, balanced competitiveness, and the deliberate creation of new urban-rural partnerships.

4.7. Along with traditional methods, there is also a need to consider alternative approaches to the definition of regional boundaries such as those based on ecological function, access to services, leisure, health, and education, the use and extent of infrastructure, or socio-cultural relations.

4.8. It is important to also consider that borders are ultimately socio-political constructions and often institutionally embedded. Being socially produced, they are commonly contested and may require more ambiguous definitions that utilise fuzzy, rather than strictly defined, borders.

What contribution do regions make at the national scale?

4.9. Broadly there has been a shift in the role of national government from a position of authority to that of enablement, establishing new influences over urban planning practices at a meta-governance level. National planning in the UK has generally allowed for the specialisation of roles at the regional and local development level.

4.10. National planning policy in the UK continues to play a key role as a strategic driver at both the regional and local development level, with variations in the level of emphasis on place-based policy versus aspatial policy. Yet the importance of national planning agencies in ensuring the success of targeted regional planning projects and infrastructure has been largely overlooked.

4.11. Regions have provided key platforms to advance strategic employment and residential sites that are deemed to be of greater than local importance and advance national objectives of industrial investment and housing affordability for example. Major national energy and natural resource projects have also been advanced through regional coordinating frameworks.

4.12. The development of national Infrastructure networks has also formed a major component of regional development initiatives. Such networks are often viewed as providing the conditions necessary for new business activities, and related services through the improvement of site accessibility, logistics networks, services clustering, and expansion of national and international supply chains.

4.13. National level planning has made use of regions to advance environmental goals through the identification and protection of natural landscapes, including watersheds, forests, geological features, as well as marine and coastal features.

4.14. Regions also function as a means of recognising the distinctive character of places. Such an approach allows for the development of tailored policy, regional specialisation, and creates a more conducive environment for policy innovation. Regions therefore act as useful mechanisms to ensure the protection of the unique cultural identities of regions, whether that is defined in terms of economy, language, environment, or other features.

What is the policy rationale for regional areas within a national development framework?

4.15. Devolution in the United Kingdom has allowed for the development of national level planning policy within the devolved nations. This has led to a broadening of the scope of national and regional planning policy in Wales, first through the two iterations of the Wales Spatial Plan, and secondly through the Planning (Wales) Act 2015 which provided for Strategic Planning Areas and the National Development Framework.

4.16. Various motivations exist for national level planning. One is to promote balanced regional development and combat inequality. The literature highlights that understanding the particular characteristics and needs of each region is important when considering the implementation of region-specific policies. In Wales, this has already been seen when allocating resources in the Assembly's Sustainable Development Scheme, where consideration of accessibility and cultural factors were key priorities.

4.17. In the Netherlands a core motivation for national planning is to manage housing growth through the coordination of infrastructure, special subsidies for administrative and building expenses, and grants for multifunctional facilities within local municipalities. This helps to reinforce the association between national growth and regional development within the country.

4.18. Alongside national level planning policy there are a range of different sectors, departments and agents that play a key role in the process of national planning. The interactions between various government agencies and departments are complex, with traditional approaches to planning unable to adequately capture the range of overlapping interests. The use of regions can be utilised as a mechanism to better promote inter-departmental policy coordination, particularly in relation to overlapping local and national policy interests.

4.19. Inclusive approaches to governance which draw upon public, private and voluntary sectors can also assist the decision making process in targeting priorities, roles and responsibilities of different sectors. Understanding the valuable role of these sectors is key when spatial considerations in the decision-making and strategic policy making processes are being developed.

5. Research methods

Five-stage methodological approach

5.1. The research utilised the methodological approach developed through the Welsh Government funded 'Exploring methods for the Identification of Strategic Planning Areas' project[1]. Feedback on the approach was positive, with particular reference to the flexibility it provided in terms of implementation. While the high-level stages of the method were deemed appropriate to the objectives of this research, the specific components of each stage has been modified to acknowledge the national-regional dynamic inherent in the research as well as the more technical capabilities of the researchers to undertake statistical regionalization analysis.

Figure 1: Five-stage methodological approach

Stage 1: Conceptual consolidation

Clarifying the basic concept to be represented by the analysis

⇣

Stage 2: Analytical structuring

Providing an analytical framework within which data will be collated and analysed

⇣

Stage 3: Identification of data

Translation of key factors identified in Stage 2 into specific measurable datasets

⇣

Stage 4: Weighting, clustering, and mapping of data

Weighting datasets and clustering the identified data into maps, an analytical summary, and boundaries

⇣

Stage 5: Final boundary delineation and institutional suitability check

Consideration of implementation and the acceptability of proposed boundaries

[1]http://gov.wales/topics/planning/planningresearch/publishedresearch/strategic-planning-areas-research/?lang=en

5.2. **Stage 1: Conceptual consolidation** This foundation stage ensures direction and purpose prior to the collection of data. There is a danger that a poorly developed conceptual phase may result in the exercise turning into a haphazard collection of data that does not allow for the rigorous delineation of regions. During the conceptual consolidation stage key questions are posed and the answers are then utilised to narrow down the specific data that should be collected. Initial questions that the research team sought to answer at this stage are:

- What makes a region?
- What contribution do regions make at the national scale?
- What is the policy rationale for regional areas within a national development framework?

5.3. **Stage 2: Analytical structuring** This stage aims to set out the structure and requirement upon which key components of the data will later be developed and assessed. The objective of this stage is to define the principles to be used to guide the analysis and interpretation of the data. Consideration was given to:

- Interactive effects and thresholds
- Temporality
- Consistency and comparability
- Scale
- Results of web consultation integrated into data selection

5.4. **Stage 3: Identification of data** This stage involves the identification of a wide range of data to measure the issues identified in stages 1 and 2. Due to the polyvalence of policy concepts no single dataset can usually be found to adequately represent an issue, therefore proxy datasets are often used leading to imperfect data and the need to rigorously assess the value of data collected. Five basic criteria were considered:

- Data availability
- Geographical specification/scale
- Time-series prospects/age of data
- Operation and implementation/presentation of data
- Interpretation and relevance

5.5. **Stage 4: Weighting, clustering, and mapping of data** The fourth stage involved the analysis of the data and definition of regional boundaries. The analysis process ensured:

- Alternative weightings were considered and justified
- The seven well-being goals of the Well-being of Future Generations (Wales) Act 2015 were integrated into the analysis through the creation of goal themed maps
- Data was clustered through regionalization (see Section 5.10 for details on this approach)
- An analytical table summary of the data was written
- Boundary summaries and final map output
- Transparency of process
- The boundary selected was understandable and appropriate to purpose

- **Stage 5: Final boundary delineation and institutional suitability check** This last phase involves the selection of the final proposed boundaries for the NDF regions. Utilising all of the data collected for the Well-being Goal themed overlay maps developed in Stage 4, the full dataset was combined and regionalized. The importance of each Well-being Goal has

also been weighted based on the web stakeholder survey undertaken (see Section 6) and consideration was given to:

- Inclusion and exclusion of areas through identification of sub-regions to ensure certain regions were not overly privileged (for example regions composed entirely of the most prosperous areas to the detriment of less prosperous areas)
- Boundary definitions that partly cross into neighbouring Unitary Authority boundaries
- Relationship to Unitary Authority boundaries, and other institutional boundaries such as those proposed in the White Paper on Local Government Reform and existing/proposed city-deal regions
- Existing infrastructure networks and commuting flows
- Potential alternatives to the proposed regional boundaries
- An assessment of the suitability of existing WSP boundaries and those proposed through this research

5.6. The above approach considered both qualitative and quantitative data. These different data are now discussed.

Qualitative data

5.7. The conceptual stage as well as quantitative data collection, weighting, and final boundary selection have been influenced through qualitative analysis of relevant literature on regional/national interactions and potential strategic regional/national competences. In addition to the literature review there was a need to understand key stakeholders' perspectives of what they consider to be the role of regions within the NDF.

5.8. An online web survey was developed and administered to key policy makers across Wales. The web consultation assessed the conceptual considerations identified in Stage 1 of the methodological process and assisted in defining the principles used to guide the analysis, such as the spatial scale of the data to be collected, whether the data was future-orientated, and how different datasets might be weighted and compared. This also included questions on the differences between fuzzy and hard boundaries and the appropriateness of the WSP boundaries within a NDF context.

5.9. The survey explored potential weightings for the various datasets, allowing us to gauge the importance of particular elements (high, medium, low) when constructing NDF regional boundaries.

Quantitative data

5.10. Each Well-being Goal has been assigned a number of indicators at Middle Super Output Area (MSOA) level, a useful proxy for a large neighbourhood. Some indicators were not available at this scale and therefore needed to be manipulated, particularly those only collected at Unitary Authority level[2]. Indicators were weighted based on indicative comments from the survey. The weighted indicators were then statistically clustered to look for similarity through a process known as regionalization.

5.11. Regionalization is the name for a class of techniques for defining areas in a spatial dataset which are (1) spatially contiguous, (2) internally as similar as possible with respect to the data measured. Openshaw and Rao[3] used simulated annealing to achieve this on UK census

[2] Data only available at Unitary Authority level was assigned the same value to all MSOAs within that Unitary Authority.

[3] Openshaw, S, and L Rao. 1995. "Algorithms for Reengineering 1991 Census Geography." *Environment and Planning A* 27 (3): 425–46. doi:10.1068/a270425.

data for the 20 regions within Merseyside, however for the 410 MSOAs in Wales this technique (implemented in the Clusterpy package) proved to be infeasibly slow. A faster algorithm, SKATER, was proposed by Assunção et al.[4] and used on Sao Paulo, although software for this is outdated (Terraview) and/or does not allow weighting of variables which was necessary for this study (ArcGIS Grouping Analysis). Guo[5] further improved on SKATER with the REDCAP algorithm and validated the approach on United States census tracts.

5.12. This research took Guo's full-order constrained complete linkage clustering approach, which repeatedly merges the most similar available areas to define a spatially contiguous tree, then repeatedly partitions the tree to produce the most internally homogenous set of regions possible at each step. In order to make use of both the categorical and continuous data types identified in this project, and evaluate the quality of outputs, we implemented our own software to perform the regionalization. This was tested against Guo's REDCAP software and gave identical results for continuous data.

5.13. Categorical data (which at the time of writing is not handled by Guo's approach, though an implementation is understood to be forthcoming) was re-coded to a set of dummy variables which were then normalized by a pseudo standard deviation for the set:

$$pseudo\ sd = \sqrt{mean\left(\sum_{d \in D}(x_d - \bar{x}_d)^2\right)}$$

where x_d is the value of dummy variable d in the set D, and $\bar{x}_d$ is the mean value of the same over all MSOAs. The pseudo standard deviation measures the average contribution of the set representing the categorical variable, to the data distance between any two points. This parallels the common approach of normalizing continuous variables by their standard deviation.

5.14. Variables were weighted according to priorities identified by our stakeholder survey and other considerations developed by the research team, with values 1 = low importance, 2 = medium importance, 3 = high importance. Each Well-being theme was also weighted in the same manner, so for the combined output, variable weights were normalized per theme such that

$$final\ weight = \frac{variable\ weight}{total\ weight\ for\ theme} \times theme\ weight$$

5.15. The only exception to this is the existing Unitary Authority boundaries which were assigned a weight equal to 10% of the weight for each theme, and 10% of the overall weight in acknowledgement of the importance of such boundaries given the statutory nature of the NDF.

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[4] Assunção, R. M., M. C. Neves, G. Câmara, and C. Da Costa Freitas. 2006. "Efficient Regionalization Techniques for Socio-economic Geographical Units Using Minimum Spanning Trees." *International Journal of Geographical Information Science* 20 (7): 797–811. doi:10.1080/13658810600665111

[5] Guo, D. 2008. "Regionalization with Dynamically Constrained Agglomerative Clustering and Partitioning (REDCAP)." *International Journal of Geographical Information Science* 22 (7): 801–23.
Openshaw, S, and L Rao. 1995. "Algorithms for Reengineering 1991 Census Geography." *Environment and Planning A* 27 (3): 425–46. doi:10.1068/a270425.

5.16. The authors would like to thank Diansheng Guo for correspondence which helped shape our thoughts on the regionalization process, though responsibility for the final choice of approach rests with ourselves.

5.17. The regionalization process generated groupings of data for each Well-being Goal. Each dataset was analysed to identify two key points in the data where stable clusters formed. These represent two different points at which there is a marked change in heterogeneity, suggesting the existence of sub-regions. This point is unique to each dataset and therefore the number of clusters in each Well-being theme may differ depending on the pattern of the data. The sub-regions were important given that this approach analyses for patterns of similarity, yet when thinking more comprehensively about regions for the purposes of planning it is also important to consider the need to balance regions for purposes of equality.

5.18. The importance of each Well-being Goal has also been weighted based on the survey information. There was a strong emphasis on functional areas within the survey, therefore commuting flows have also been overlaid and analysed in relation to these maps.

5.19. The proposed regions for the NDF are then shown, of which there are 4. These four regions were selected based on balancing the sub-regional variation with wider regional patterns and institutional factors. Further detail of the datasets used and weightings applied are provided in Section 7.

6. Summary of web stakeholder consultation

6.1. The research included an online survey of key stakeholders. The survey extended and developed the conceptual consolidation component of the research and weightings to be assessed to the quantitative indicators. The survey also assisted in defining the principles that were used to guide data collection and analysis, and the conceptual considerations that informed the identification of regional areas.

6.2. The survey was made available online and distributed by email to over 200 stakeholders. The distribution list was supplied by Welsh Government and comprised individuals or organisations that had expressed interest in engagement in the preparation of the NDF. Some stakeholders also distributed the link to the survey to their own networks. The survey was available in English and Welsh.

6.3. The survey closed on Saturday 18th March 2017 and received a total of 49 responses. Around 52% of respondents worked in or represent local government. Other respondents included those in charitable organisations (10%), professional bodies (6%), academia (6%) and a range of other sectors, including interest organisations, business and consultancies. Subject areas well represented by participants include transport, housing, planning and the environment. Other sectors represented in the survey included energy, minerals, waste, water, language and heritage.

Key findings from the survey

6.4. A very clear majority of stakeholders support the inclusion of regional areas in the National Development Framework. A clear majority also support the identification of regional areas in the NDF for all parts of Wales rather than selectively for some parts of Wales.

6.5. The majority of stakeholders consider that the areas defined in the Wales Spatial Plan could provide a basis for exploring the identification of regional areas in the National Development Framework. The definitions of these areas nevertheless need to be revisited

to account for changes in patterns of activity and developments in policies and frameworks since the revision of the Wales Spatial Plan.

6.6. The majority of stakeholders support the identification of regional areas based on functional relationships between places. Stakeholders also recognised the importance of cultures and identities in defining regional areas. Stakeholders relayed mixed views on the role of administrative boundaries in defining regional areas. Physical features were not considered a sound basis for identifying regional areas.

6.7. Stakeholders identified markets – particularly labour and housing markets – and accessibility and connectivity as the key functional relationships in defining regional areas.

6.8. Stakeholders can readily identify existing 'regions' in Wales and state that these should be included in the National Development Framework. Stakeholders typically identified between 4 and 6 regions across Wales, depending on how many regions are recognised in north and mid Wales.

6.9. The majority of participants expressed a preference for general and indicative boundaries to any regional areas identified in the National Development Framework. The majority also supported the possibility of places being located in more than one regional area. A similar proportion of stakeholders also supported the idea of regional areas extending into England where functionally appropriate.

6.10. Stakeholders identified a series of nuanced interpretations of what criteria could be used to define the content of the NDF in relation to regional areas. It is important for there to be clarity on what determines whether something is addressed as part of a regional area within the NDF.

6.11. Stakeholders generally see the role of regional areas of the NDF as providing a framework for other tiers of plan-making – Strategic Development Plans and Local Development Plans - and for making decisions on Developments of National Significance. Stakeholders argue that there should be very close alignment between any regional areas identified in the NDF and Strategic Planning Areas identified for the preparation of Strategic Development Plans.

6.12. Stakeholders identified housing, retail and commercial development, landscape protection, waste, and environment as the highest rated 'very important' issues to be addressed for a regional area in the NDF.

Including regional areas in the NDF

6.13. There is very clear support from around 87% of participants for the inclusion of regional areas in the NDF. The very clear majority of all participants (68%) support the proposal that regional areas be provided for all parts of Wales, and that every place would be included in a regional area, while 19% supported regional areas for selected parts of Wales.

Potential roles of the regional areas in the NDF

6.14. Survey participants were presented with six potential roles of any regional areas included in the NDF and asked to rate these in terms of importance. The most highly rated role in terms of importance was that regional areas provide a basis for identifying Strategic Planning Areas and preparing Strategic Development Plans. This was closely followed in terms of importance by their role in providing a context for decisions on Developments of

National Significance. Regional areas providing a context for the preparation of Local Development Plans was also recognised as being of importance.

6.15. There was a more mixed response from participants on the potential role of the NDF's regional areas in providing a context for decisions on planning applications – 43% of participants thought this very important or important, while nearly 30% of participants thought it not a relevant role. Participants also generally thought that the role of regional areas of the NDF in impacting on service delivery and cross-border coordination with England were secondary.

6.16. In summary, regional areas of the NDF are generally seen as providing a framework for other tiers of plan-making, and for making decisions on Developments of National Significance.

Strategic Planning Areas and regional areas of the NDF

6.17. Participants identified that there should be very close alignment between any regional areas identified in the NDF and Strategic Planning Areas for the purpose of preparing Strategic Development Plans. Alignment and consistency were noted as especially important. This may potentially constrain the ability to reflect regional areas on a functional rather than administrative basis, if Strategic Planning Areas are based on local planning authority boundaries.

Wales Spatial Plan Areas

6.18. Participants responded to a series of questions on the areas identified previously in the Wales Spatial Plan. The majority of participants (57%) reported that the six areas identified in the Wales Spatial Plan continue to represent a meaningful interpretation of Wales' different areas, while 32% stated that they did not.

6.19. Positive or valuable aspects of the definition of the six areas included:

- Promotion of collaborative working across administrative boundaries
- Articulating the distinctive characteristics and a vision for the different areas of Wales
- The areas are identifiable ones that were developed through an inclusive engagement strategy
- Recognition that some issues need to be addressed through area working and above the level of a local authority
- The absence of hard boundaries in defining areas
- They align well with other boundaries, including economic zones and travel-to-work areas

6.20. Difficulties or problems with the areas included:

- The areas are outdated or need review in light of the emergence of city-regions, debates on Welsh local government reform, and changed patterns of daily activity
- North-south links were not articulated clearly
- Ideas of connectivity did not have much substance
- Challenges in reflecting the sub-areas of mid-Wales
- Failure to align with existing administrative boundaries or account for National Parks
- Detailed comments on whether places fall in one area or another
- Fuzzy boundaries and woolly definition of areas

- Lack of clarity on how the areas were identified

6.21. In summary, participants state that the Wales Spatial Plan areas provide a basis for exploring regions in the National Development Framework, yet there are important factors that require the definition of regions to be revisited to account for changes in patterns of activity and the policy landscape.

Defining regional areas

6.22. Participants identified that regional areas should principally be based on functional relationships – 54% of participants ranked functional relationships as the most important approach to defining regional areas. These functional relationships were noted as important in reflecting 'how a place works' and understanding these relationships was key to daily life and promoting successful interventions.

6.23. Cultures and identities of regions were noted as significant in defining regional areas, with 44% of participants noting this as the second most important factor in defining regional areas. Urban and rural cultures were noted by some participants as important, as was prevalence of the Welsh language. Cultures and identities were also noted as being fluid or flexible.

6.24. Participants were polarised on the importance of administrative boundaries, such as local authority boundaries, in defining regional areas. Almost 30% of participants identified administrative boundaries as the most important consideration, while 45% of participants identified administrative boundaries as the least important consideration. Promoters of the use of administrative boundaries noted that local authority areas are often used for data collection, are recognised by residents, link well to Local Development Plans, and are strongly linked to governance mechanisms. Some noted that administrative boundaries are open to change to align with other considerations.

6.25. Participants overall did not strongly support physical features as a basis for defining regional areas. Some noted positively that physical features and physical boundaries can lead to significant constraints that need to be addressed, yet that these often did not define an area.

6.26. In summary, participants' responses suggest that regional areas should be defined principally on functional relationships, supported by consideration of identity and culture.

Important functional relationships to consider

6.27. The most important functional relationships identified by survey participants to consider in defining regional areas are:

- Labour market areas and travel-to-work patterns
- Transport accessibility
- Housing markets
- Connectivity, including digital and other forms of communication
- Accessibility to key services (e.g. health services, educational provision)

6.28. Therefore market areas and accessibility are identified by stakeholders as critical to the definition of regional areas in Wales.

Existing 'regions' in Wales

6.29. Most participants were able to identify one or more areas of Wales that they considered to be 'regions'. These typically included the following:

- Participants who identified a four-fold classification of Welsh regions as south, south-west, mid and north Wales;
- Identification with the six areas identified in the Wales Spatial Plan
- Reference to the 'city-regions' of Wales – Swansea Bay and Cardiff Capital Region;
- Various interpretations of north Wales and whether this is a single region or made up of two separate regions;
- Separate identification of the south Wales Valleys area;
- Reference to former Shire County structures.

6.30. In summary, participants generally identify Wales as having 4-6 regions depending on the treatment of north Wales and mid Wales. City-regions are an important recent development that refines this general approach to understanding regions within Wales. Many participants (69%) felt that the regions that they could identify should be included in the National Development Framework. Only 2% felt that they should not be included. There is therefore significant support among participants for these regions being included in the Framework in some form.

Nature of regional boundaries

6.31. Almost two thirds of participants (64%) indicated that regional boundaries included in a NDF should be general and indicative; 36% indicated that boundaries in the NDF should be clear and precise.

6.32. Reasons given for preferring general and indicative boundaries included that functional relationships and networks do not respect boundaries, and that regional areas will overlap for different functions. General and indicative boundaries were also supported in cases where an area forms part of more than one functional area. Participants also argued that regions will develop and evolve and that general, indicative boundaries enable some flexibility to reflect this. 'Fuzzy' boundaries were also noted as useful in suggesting the varying strength of relationships between a core and a periphery.

6.33. Reasons given for preferring clear and precise boundaries included enabling more effective plan-making in Strategic Development Plans and Local Development Plans, ensuring that responsibilities for planning in an area are clear, and clarifying eligibility for grant aid and funding. Reference was also made to the development plan status of the NDF and this requiring clear boundaries to ensure that clarity is provided on the application of policies to an area. Some participants also noted that certainty is important for some stakeholders and is facilitated by clear and precise boundaries.

6.34. Participants also expressed views on whether a place should be capable of being located in more than one regional area – 58% of participants argued that this should be possible, while 31% argued that a place should be located in only one regional area.

6.35. In summary, the participants' support for defining regional areas on a functional basis is then reflected in their preference for (a) boundaries of regional areas being general and indicative, and (b) places being able to be included in more than one regional area. There

are nevertheless some important concerns that the NDF – as a development plan - should have clear and precise boundaries for policy purposes.

Regional boundaries and the England-Wales border

6.36. The survey asked participants if any regional areas identified in the NDF should extend into adjacent areas of England – 56% stated yes and 31% stated no. The majority of respondents therefore support the extension of NDF regional areas into adjacent areas of England.

6.37. The key reason identified by participants supporting the extension of regional areas beyond the Welsh border and into England was that this reflects how regional areas function and that this would recognise everyday life practices of work and travel, access to services such as health provision, and that some parts of the Welsh borders were very closely linked functionally to areas outside of Wales. Some cross-border infrastructure and other projects would also require coordination, including through the NDF. The NDF would also need to recognise the impacts on areas of Wales of plans and programmes in adjoining areas of England. It was also argued that the English-Welsh border itself is not a sound basis for defining regions.

6.38. Some participants noted that while there were important functional relationships with areas in England, and that these should be recognised in the NDF, the need for clarity on the application of policy means that identified regions should not extend beyond the Welsh border. The different planning regimes applying in England and Wales were also noted as problematic in considering regional areas extending beyond Wales' borders. Participants called for simplicity and clarity by regional areas being coterminous with the national boundary, and argued that the policies in the NDF could only apply in Welsh territory. Some also noted the different policy stances and emphases in relation to planning between the two countries, and that these could give rise to incompatibilities. A further perspective was also noted on political sensitivities of recognising or promoting linkages with England over or alongside internal linkages.

6.39. In summary, there is considerable support for any regional areas extending beyond the Welsh boundary into adjacent areas of England. This is linked closely to participants' support for a functional approach to defining regional areas. Those arguing against regional areas extending beyond Welsh territory noted the practical challenges of clarity in relation to policy, funding eligibility and decision-making, and that these would be best met by regional areas being confined to Welsh boundaries. The scope and format of the NDF itself will in part determine the appropriate extent of boundaries in relation to Wales and England. The issues raised in this section also support exploration of whether the NDF could include both functional regions with indicative boundaries and separate regions or demarcations with clear boundaries for policy purposes. This may introduce complexity into the document.

Criteria for determining issues addressed by regional areas in the NDF

6.40. Survey participants were invited to identify criteria that could be used to determine whether a particular issue is one to be included within a regional area in the NDF. Participants noted a variety of possibilities. The most common approach to defining 'regional issues' was that the issue cannot be dealt with by a single local planning authority (this was also provided as an example to illustrate the question). Various other suggestions

included: that the issue is a cross-boundary one; that the issue affects more than one local planning authority or is of 'larger than local' interest; that the issue is a common one that is cumulatively important across different local planning authorities; if there would be advantages to local planning authorities working together collectively on an issue; focusing only on 'major development proposals', linked to the size and scale of development (e.g. roads, rail), health services, large energy schemes; and the issue is a 'strategic' one.

6.41. The participants have therefore identified a series of nuanced interpretations of what criteria could be used to define the content of the NDF in relation to regional areas. It is clearly important for there to be clarity on what determines whether something is addressed as part of a regional area within the NDF.

6.42. Participants were also asked to identify what tasks would be best carried out by Welsh Government at regional scale within the NDF if applying a principle of subsidiarity. Subsidiarity was defined simply for the purposes of the survey as Welsh Government only performing tasks that local levels of government could not perform effectively. The key tasks or issues identified by participants included:

- Key infrastructure, including transport, communications and IT
- Housing, including housing requirements
- Economic development
- Large scale industrial, retail and energy developments
- Landscape protection
- Minerals and waste
- Water and sewerage
- Health services
- Marine planning

6.43. The next section reports on how participants rated these and other subjects in terms of defining regional areas.

Significance of key subjects in the NDF

6.44. Survey participants were presented with a series of subjects and asked to rate how important each was for inclusion in the NDF. This data is designed to support consideration of the datasets used in identifying regional areas and the weight to be given to them.

6.45. The five highest rated subjects as 'very important' for a regional area of the NDF to address are:

- Economic development
- Infrastructure
- Transport
- Energy
- Coastal planning

6.46. The five highest rated subjects as 'important' for a regional area of the NDF to address are:

- Housing
- Retail and commercial development
- Landscape protection

- Waste
- Environment

6.47. The five highest rated subjects as 'not important' or 'not relevant' for a regional area of the NDF to address are:

- Design and the built environment
- Historic built environment
- Wellbeing
- Welsh language
- Decarbonisation

6.48. Additional subjects identified by participants to be addressed by regional areas, but not presented for rating, included broadband, active travel, demography and water supply.

Summary

6.49. The majority of stakeholders' responses generally support the inclusion of regional areas in the National Development Framework that:

- are defined on a functional basis, supplemented by considerations of identity and culture;
- have general and indicative boundaries;
- are informed by, but do not follow, the areas defined in the Wales Spatial Plan;
- together cover the whole of Wales;
- align very closely with Strategic Planning Areas.

6.50. Stakeholders who did not support these points also raised some important considerations, particularly in relation to the nature of the boundaries of any regional areas.

7. Datasets and weightings

7.1. Drawing on previous research and the comments received from the web consultation a list of potential datasets was developed and evaluated for suitability based on the objectives of the project and criteria noted in Section 5.4 (see Appendix 3). These datasets include, where appropriate, indicators derived from the forty-six national indicators for Well-being. Each indicator was also assessed for availability, scale, and licensing terms, as well as indicatively weighted in terms of importance to regional boundary definition (1 = being least important to 3 = being highest importance). Each dataset has been indicatively assigned to a Well-being Goal.

7.2. In total 54 indicators were selected across all of the Well-being Goals. The availability and appropriateness of indicators means that some themes have fewer indicators than others. All themes include Unitary Authority boundaries as an indicator. Table 1 summarises the indicators and weightings applied. Please see Appendix 4 for a detailed list of indicators and data sources.

Table 1: Summary of indicators and weightings

Indicators by Well-being Theme	Weight
A Wales of Cohesive Communities (Figures 2 and 3)	
Percentage of Population 65 years or older	1

Percentage of Population <16 years old	1
Travel time from key regional population centres	3
Rural/Urban Classification	2
Police Boundaries	1
Percentage agree people in the local area from different backgrounds get on well together	3
Wales Index of Multiple Deprivation, 20% most deprived - Community Safety domain	2
A Wales of Vibrant Culture and Thriving Welsh Language (Figures 4 and 5)	
Percentage of people that have attended an arts event in Wales, by local authority	1
Percentage of people who speak Welsh daily and can speak more than just a few words	3
ONS Area Classification	3
Number of museums within 24km drive	2
A More Equal Wales (Figures 6 and 7)	
Population density	1
Broad Rental Market Areas	1
Wales Index of Multiple Deprivation, 20% most deprived - Income domain	3
Percentage of population employed in the private sector	1
Difference in average (median) full-time hourly earnings between males and females (resident based)	2
Wales Index of Multiple Deprivation, 20% most deprived - Education domain	1
Wales Index of Multiple Deprivation, 20% most deprived - Housing domain	3
Wales Index of Multiple Deprivation, 20% most deprived - Access to Services domain	3
A Globally Responsible Wales (Figures 8 and 9)	
Technical Advice Note 8: Planning For Renewable Energy - Strategic Search Areas	2
Location of current and proposed renewable energy	3
Percentage of Waste Reused/Recycled/Composted	2
Ecological Footprint of Wales	3
A Healthier Wales (Figures 10 and 11)	
Quantity of Accessible Natural Recreational Space near home (Short Drive)	1
Proportion Accessible Natural Recreational Space near home (Short Drive) that is High Quality	1
Welsh Primary Care Organisations Boundaries	3
Travel time to A&E	3
Percentage of people physically active for more than 150 minutes per week	2
Percentage of live single births with a birth weight of under 2,500g	2
A Prosperous Wales (Figures 12 and 13)	
Airports	2
City Deal boundaries	3
Workday population by industry Classification A, C, G, J, K, M, N, O, P, and R	1 per class
Regional Gross Value Added per Head	2
2011 Special Workplace Statistics (England and Wales)	3
2011 Special Migration Statistics UK	3
Household projections	1
Proposed Joint Governance Committee Areas	2
A Resilient Wales (Figures 14 and 15)	
Catchment Abstraction Management Strategy (CAMS) Boundaries	1
Water Framework Directive (WFD) Operational Catchments Cycle 2	2
National Parks	3
Areas of Outstanding Natural Beauty	2

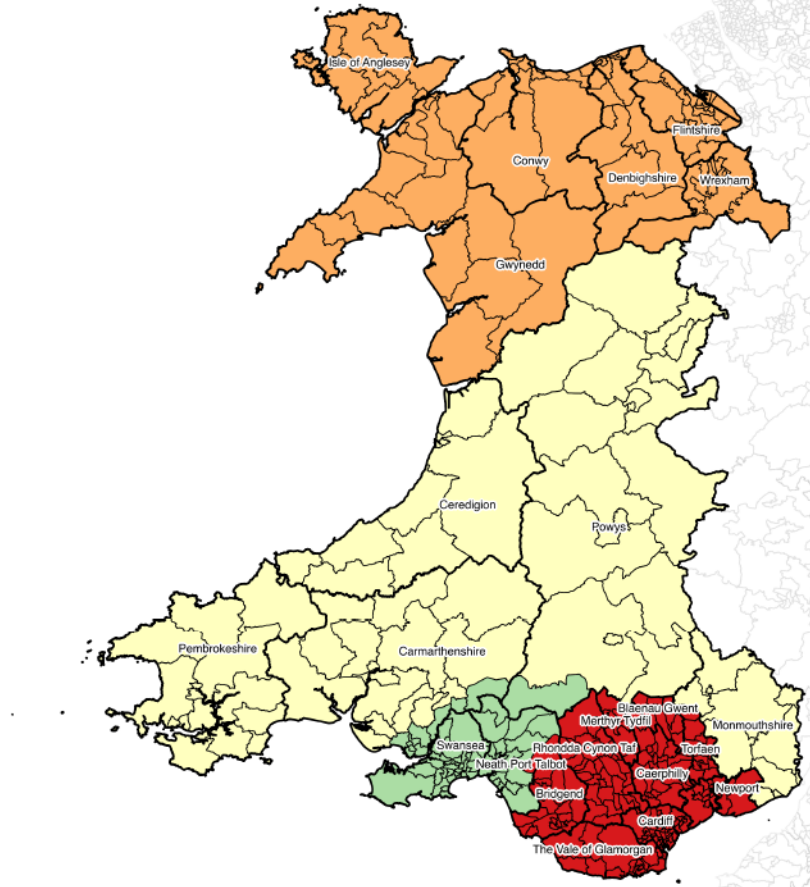
National Nature Reserves	2
Registered Landscapes Of Outstanding Historic Interest in Wales	1
Sites of Special Scientific Interest, larger than 4.25m	2
Special Protection Areas	2

7.3. The selection of indicators and the weighting attached to each is based on the web consultation and other considerations drawn from conversations with Welsh Government and amongst the research team. For example the role of housing markets was deemed to be of particular importance, as a result indicators on migration and commuting where included given that they are two key characteristics from which housing markets are traditionally derived.

8. Regions by Well-being Goals

8.1. Based on the weightings noted in Section 7, regionalization was applied to cluster regions with similar characteristics. For each Well-being Goal two maps are now presented. As noted in Section 5.17, these represent two different points at which there is a marked change in heterogeneity, suggesting the existence of new sub-regions. This point is unique to each dataset and therefore the number of regional clusters in each Well-being theme may differ depending on the pattern of the data.

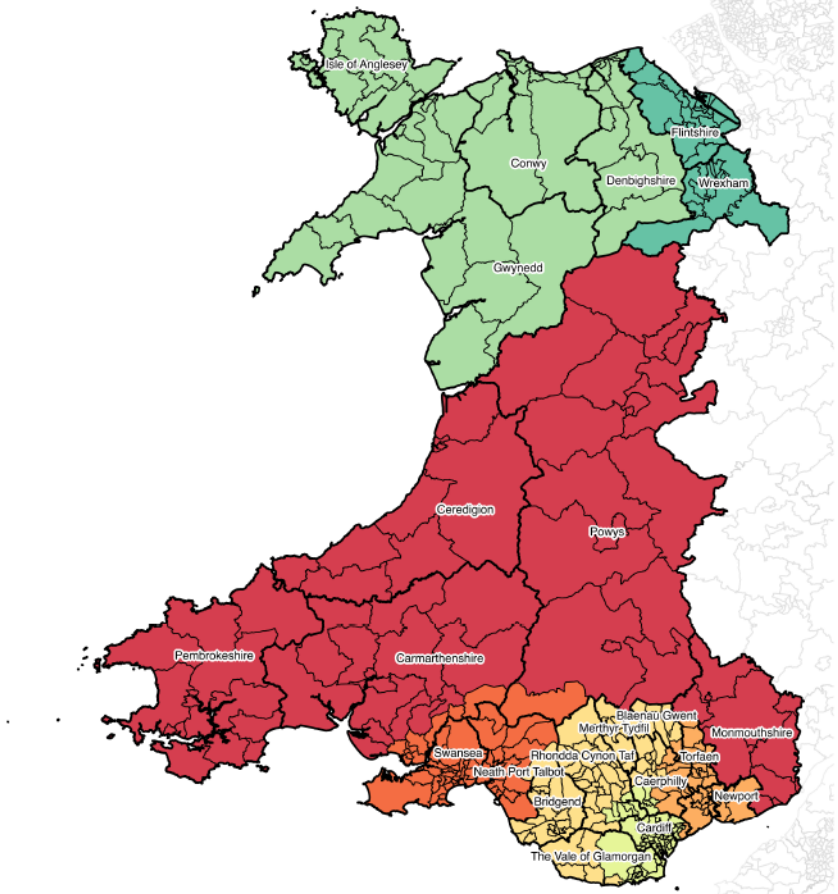
Figure 2: Wales of Cohesive Communities / 4 Regions



Unitary Authority Boundary
MSOA Boundary

Map uses data from UK Data Service Census Geography. Open Government License.
For complete source information for indicators used in the production of this map please see Appendix 4.

Figure 3: Wales of Cohesive Communities / 7 Regions



Unitary Authority Boundary
MSOA Boundary

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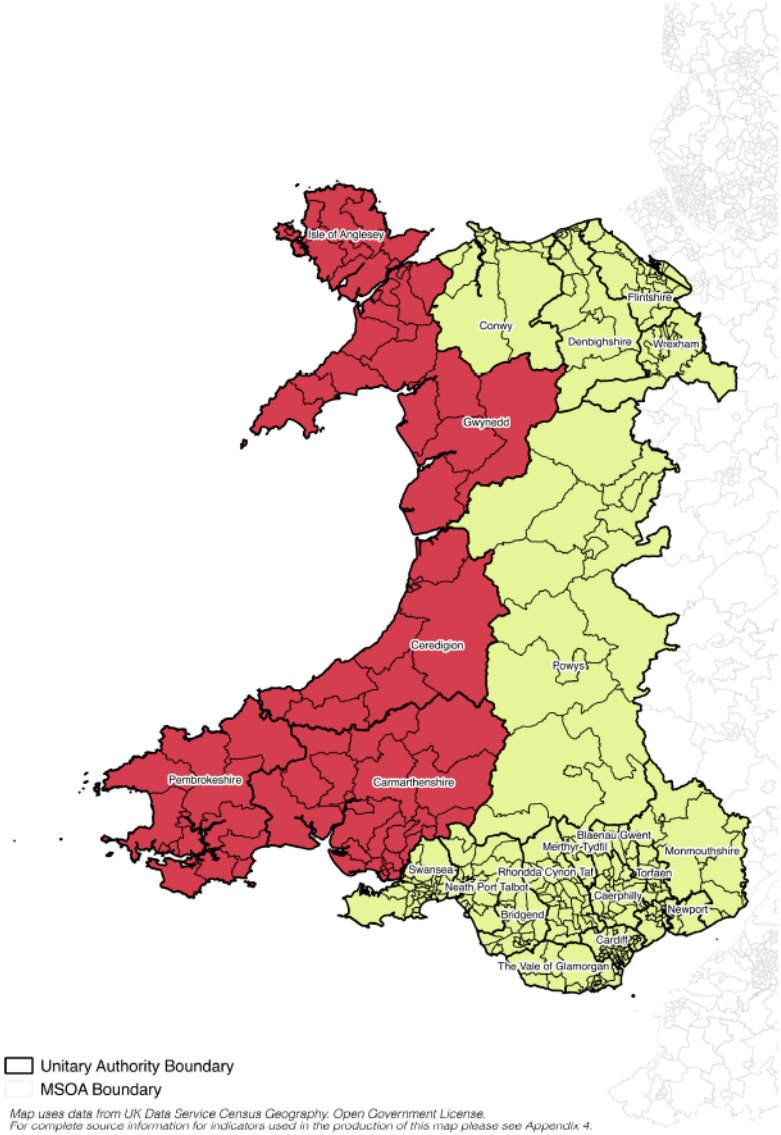
For complete source information for indicators used in the production of this map please see Appendix 4.

Figure 4: A Wales of Vibrant Culture and Thriving Welsh Language / 2 Regions



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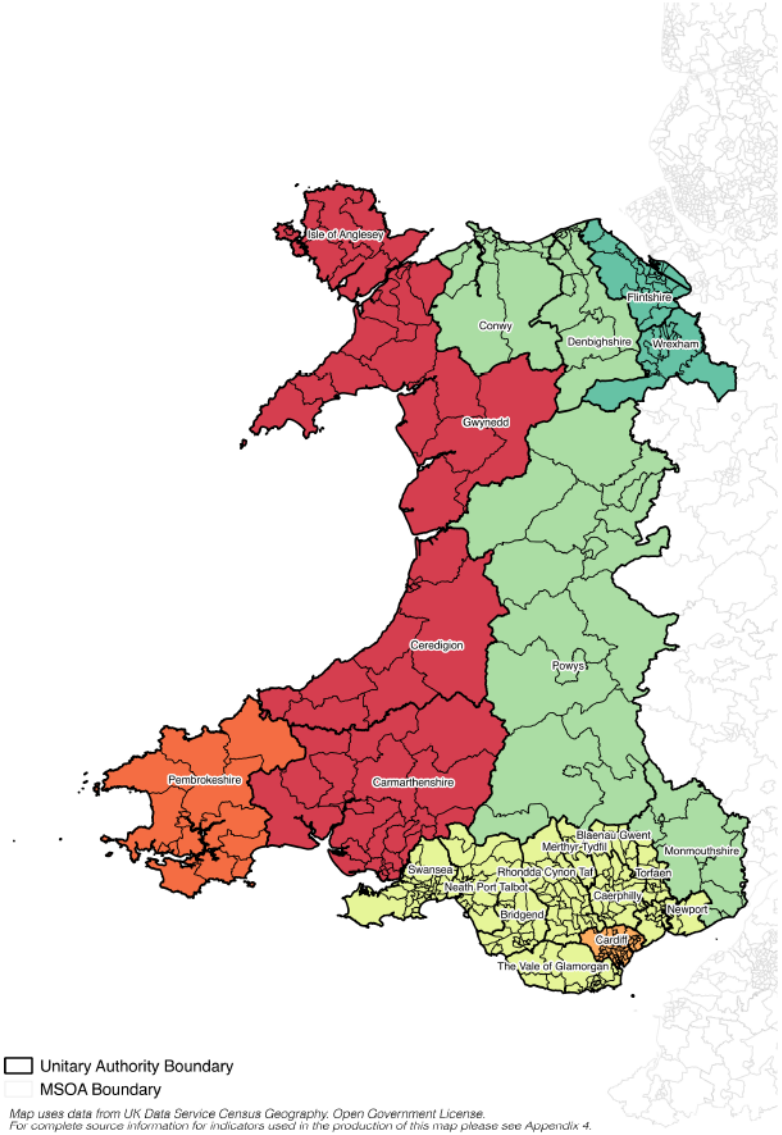
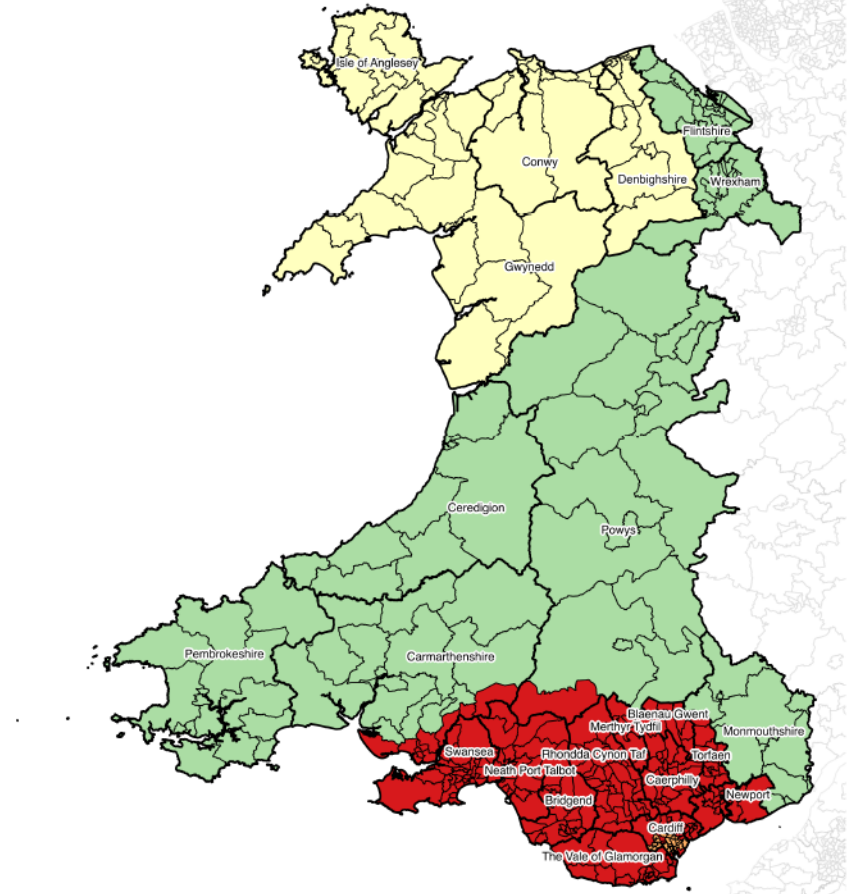
For complete source information for indicators used in the production of this map please see Appendix 4.

Figure 5: A Wales of Vibrant Culture and Thriving Welsh Language / 6 Regions



Map uses data from UK Data Service Census Geography. Open Government License.
For complete source information for indicators used in the production of this map please see Appendix 4.

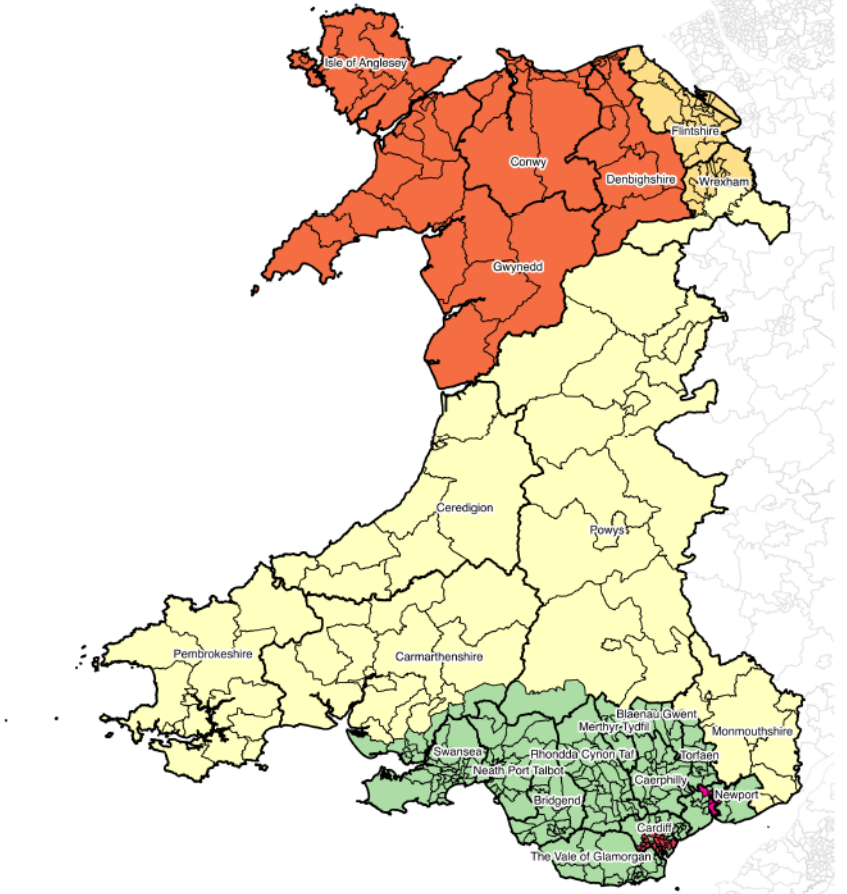
Figure 6: A More Equal Wales / 4 Regions



Unitary Authority Boundary
MSOA Boundary

Map uses data from UK Data Service Census Geography. Open Government License.
For complete source information for indicators used in the production of this map please see Appendix 4.

Figure 7: A More Equal Wales / 6 Regions



Unitary Authority Boundary
MSOA Boundary

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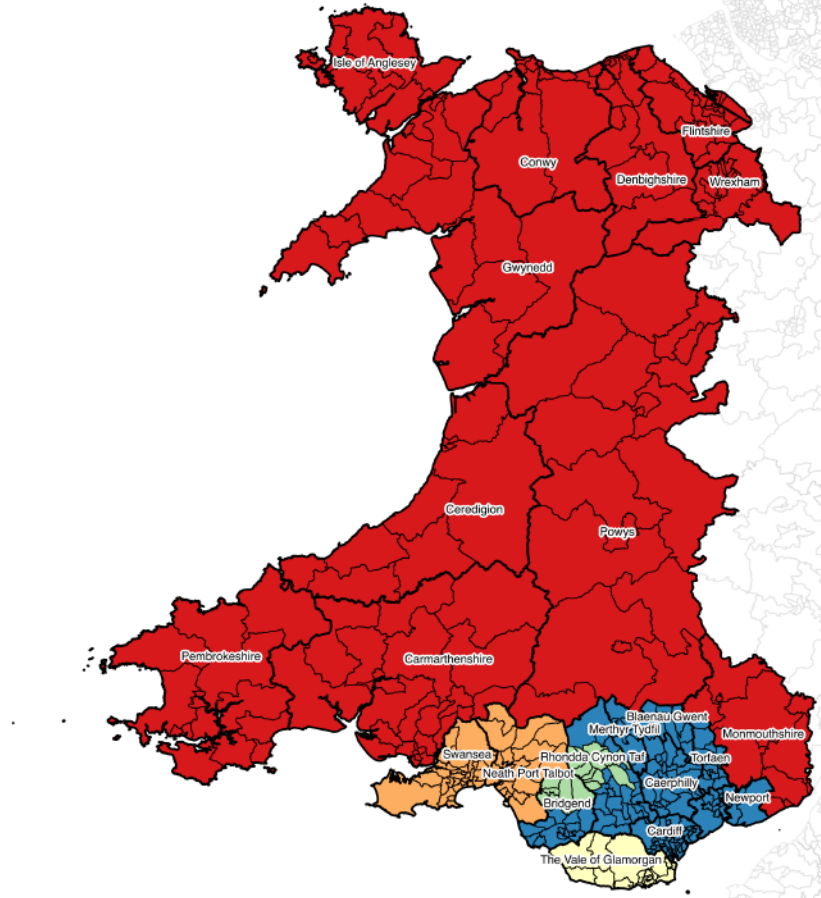
For complete source information for indicators used in the production of this map please see Appendix 4.

Figure 8: A Globally Responsible Wales / 5 Regions



Unitary Authority Boundary
MSOA Boundary

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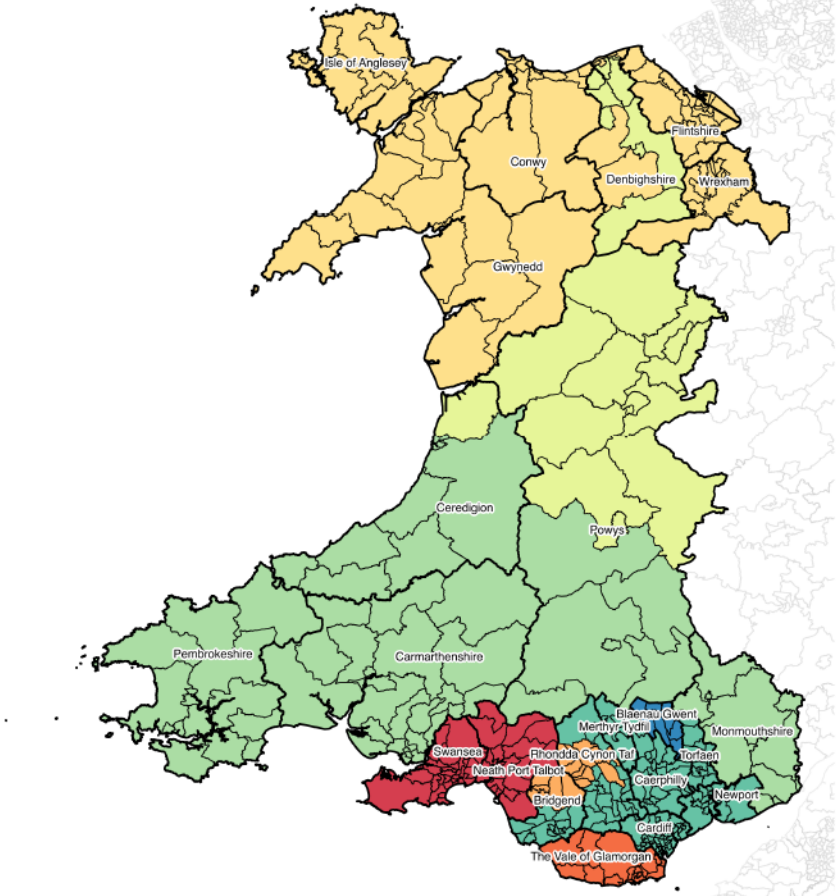
For complete source information for indicators used in the production of this map please see Appendix 4.

Figure 9: A Globally Responsible Wales / 8 Regions



Unitary Authority Boundary
MSOA Boundary

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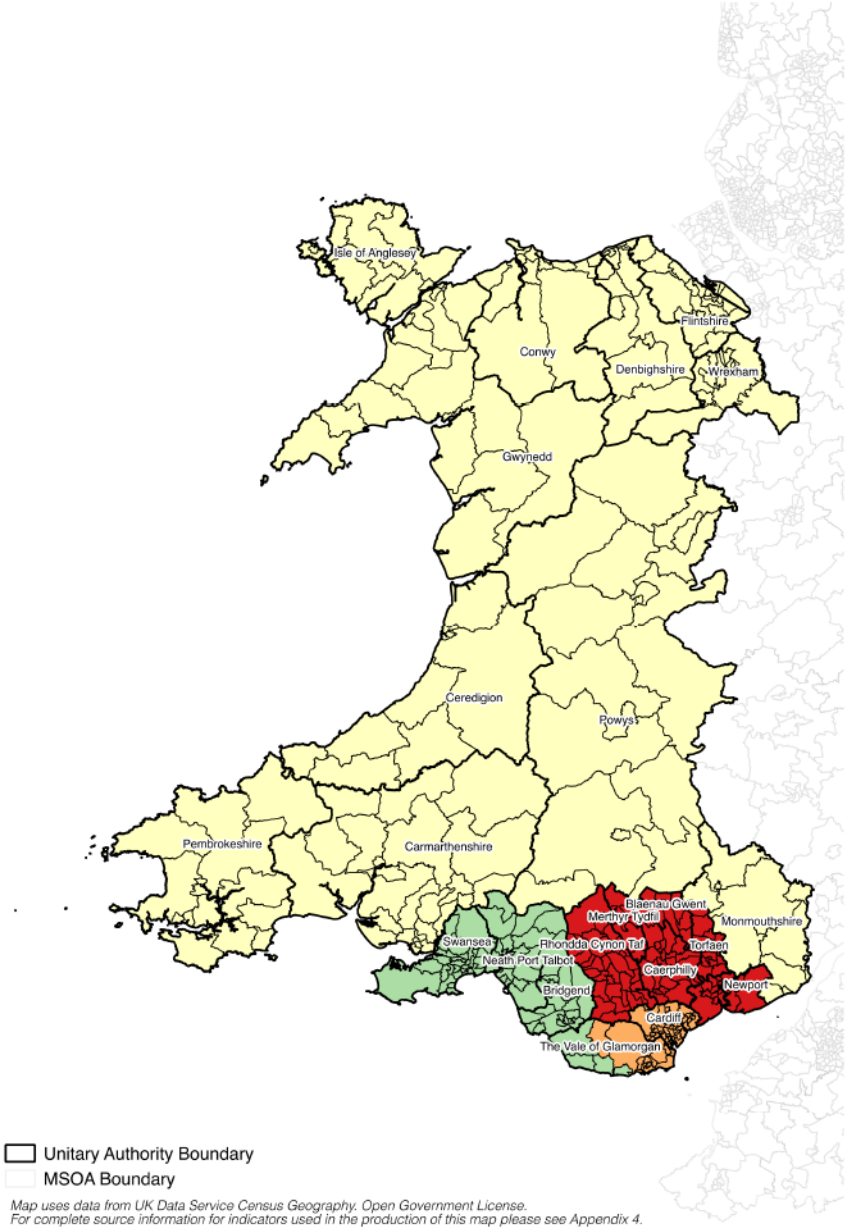
For complete source information for indicators used in the production of this map please see Appendix 4.

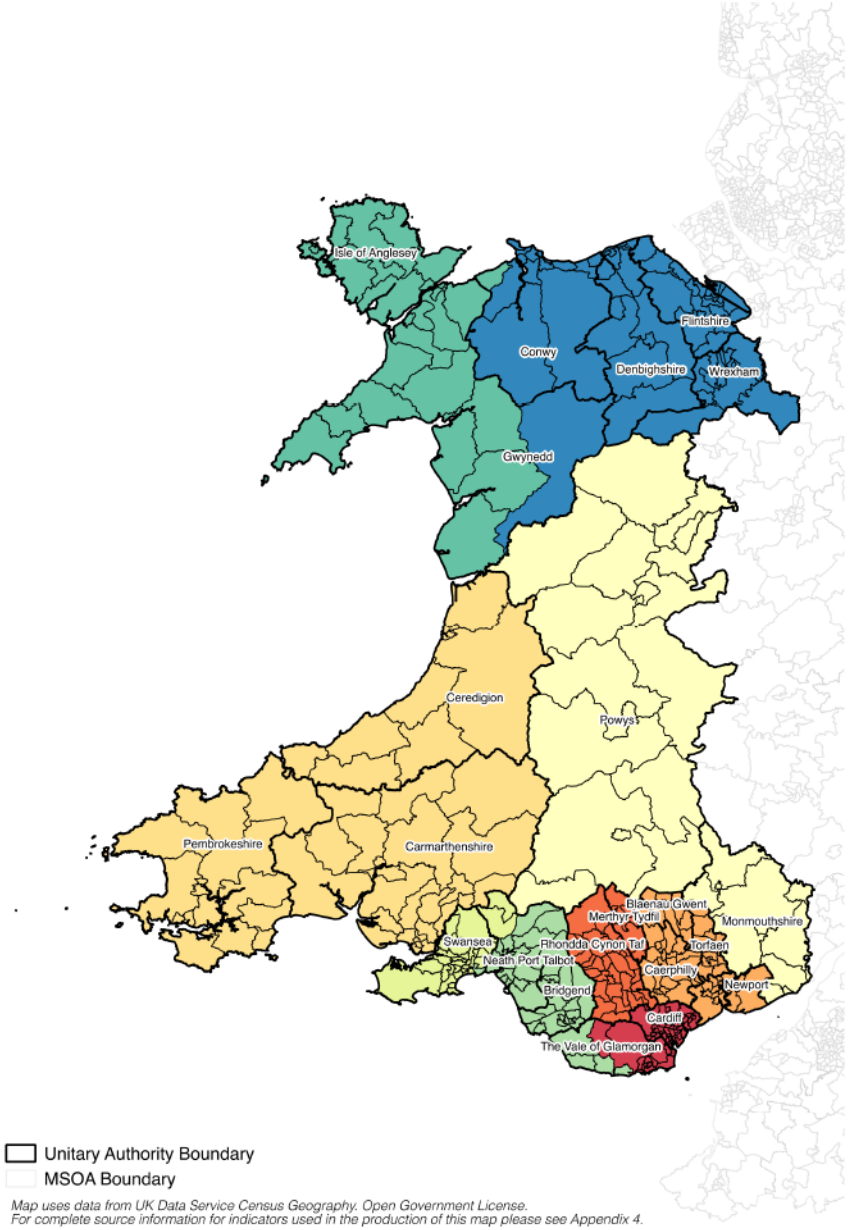
Figure 10: A Healthier Wales / 4 Regions



Unitary Authority Boundary
MSOA Boundary

Map uses data from UK Data Service Census Geography. Open Government License.
For complete source information for indicators used in the production of this map please see Appendix 4.

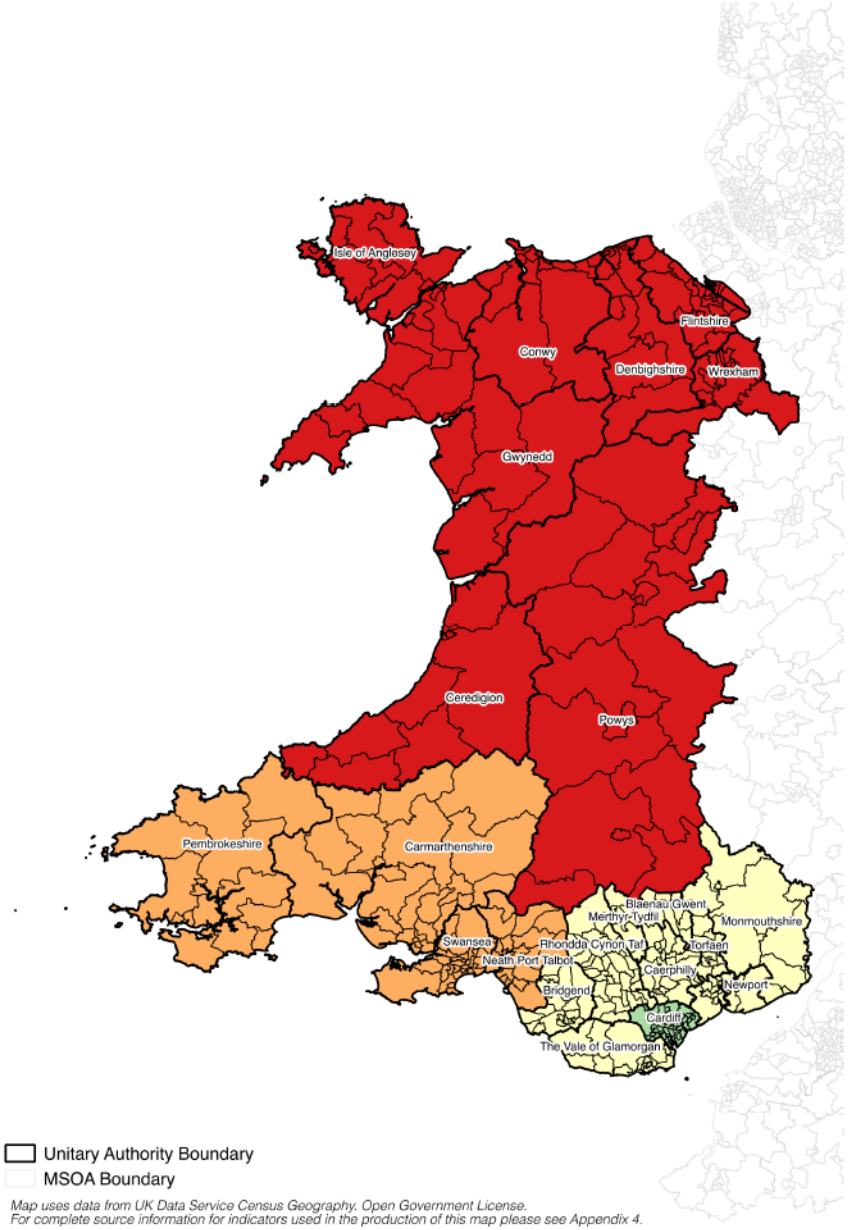
Figure 11: A Healthier Wales / 9 Regions



Unitary Authority Boundary
MSOA Boundary

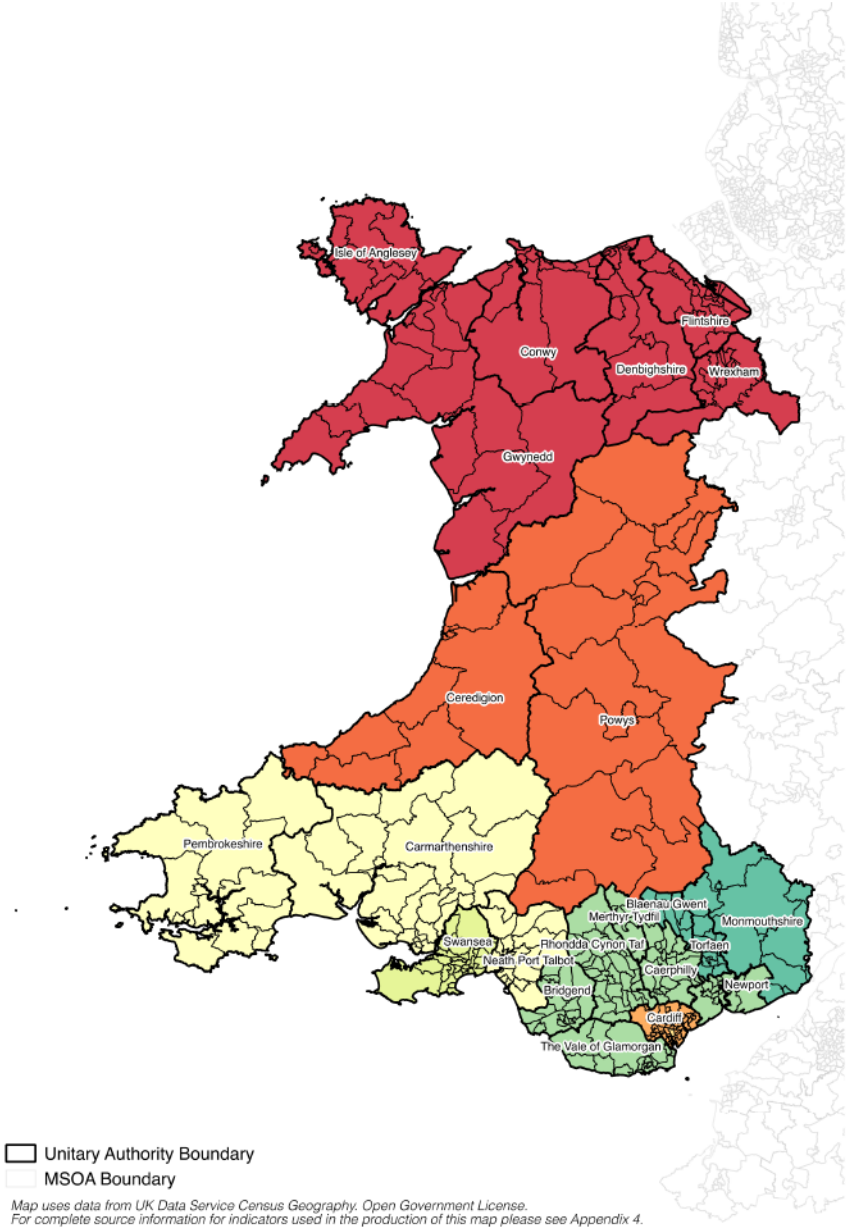
Map uses data from UK Data Service Census Geography. Open Government License.
For complete source information for indicators used in the production of this map please see Appendix 4.

Figure 12: A Prosperous Wales / 4 Regions



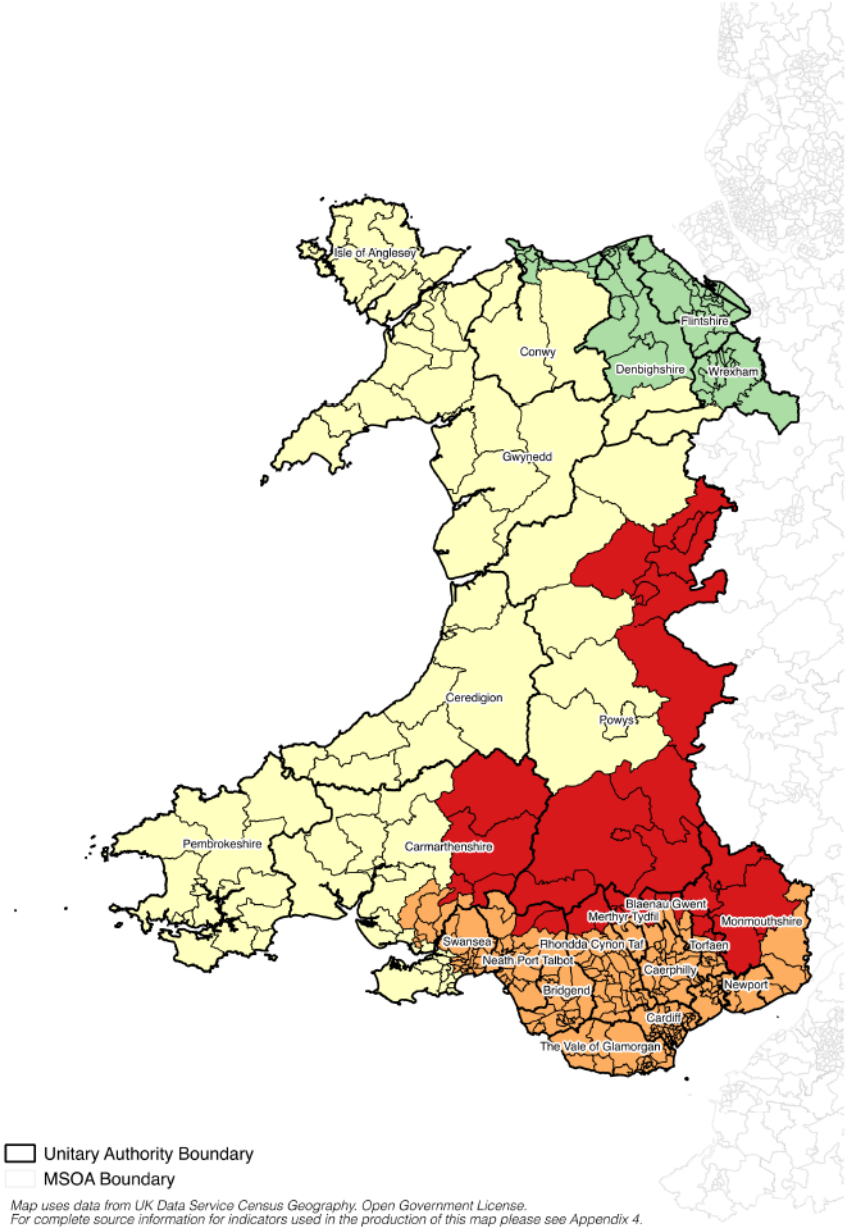
Map uses data from UK Data Service Census Geography. Open Government License.
For complete source information for indicators used in the production of this map please see Appendix 4.

Figure 13: A Prosperous Wales / 8 Regions



Map uses data from UK Data Service Census Geography. Open Government License.
For complete source information for indicators used in the production of this map please see Appendix 4.

Figure 14: A Resilient Wales / 4 Regions



Unitary Authority Boundary
MSOA Boundary

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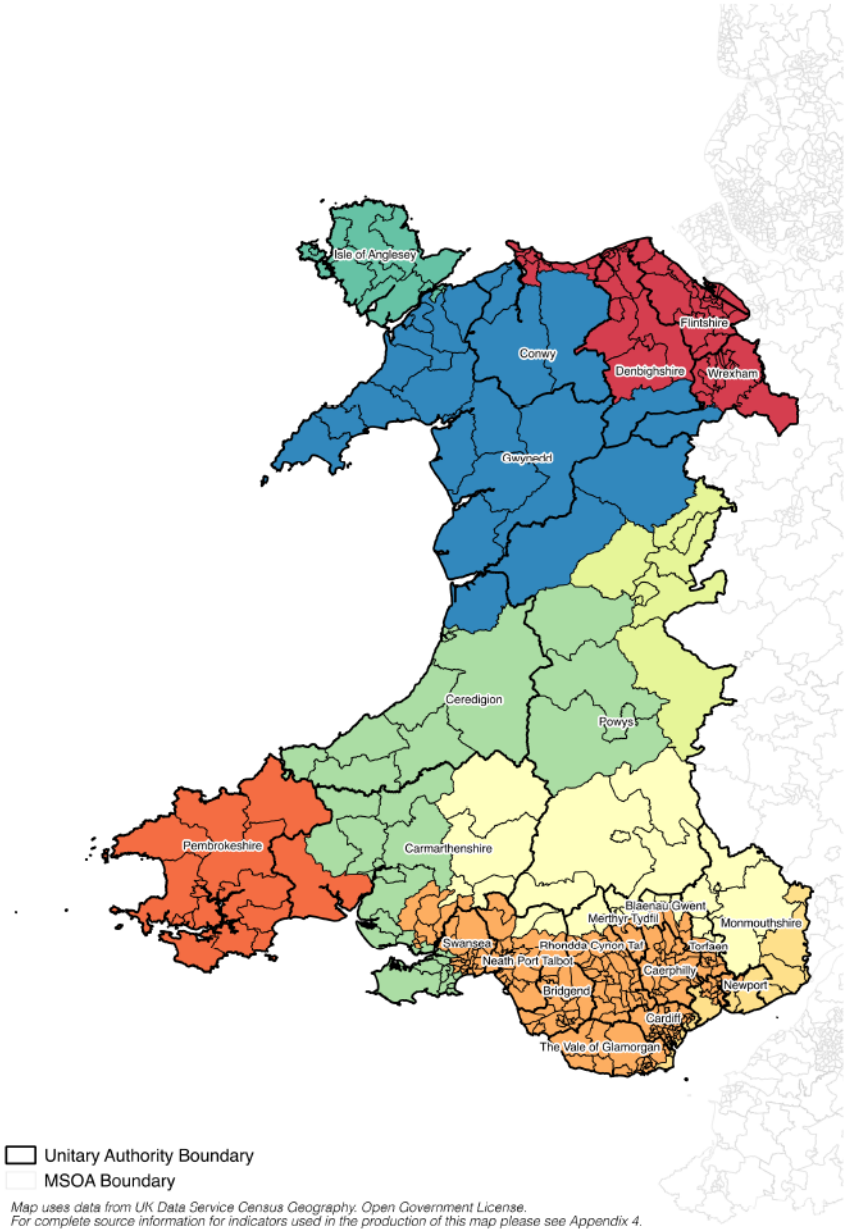
For complete source information for indicators used in the production of this map please see Appendix 4.

Figure 15: A Resilient Wales / 9 Regions



Unitary Authority Boundary
MSOA Boundary

Map uses data from UK Data Service Census Geography. Open Government License.
For complete source information for indicators used in the production of this map please see Appendix 4.

9. Final proposed regional boundaries

9.1. In order to determine the final proposed boundaries the results of each Well-being theme were combined and weighted (Figures 16 and 17). Weightings were derived from the areas of importance noted by the web consultation participants and research related to the standard measures for defining regions. The following weights were attached for regionalization analysis:

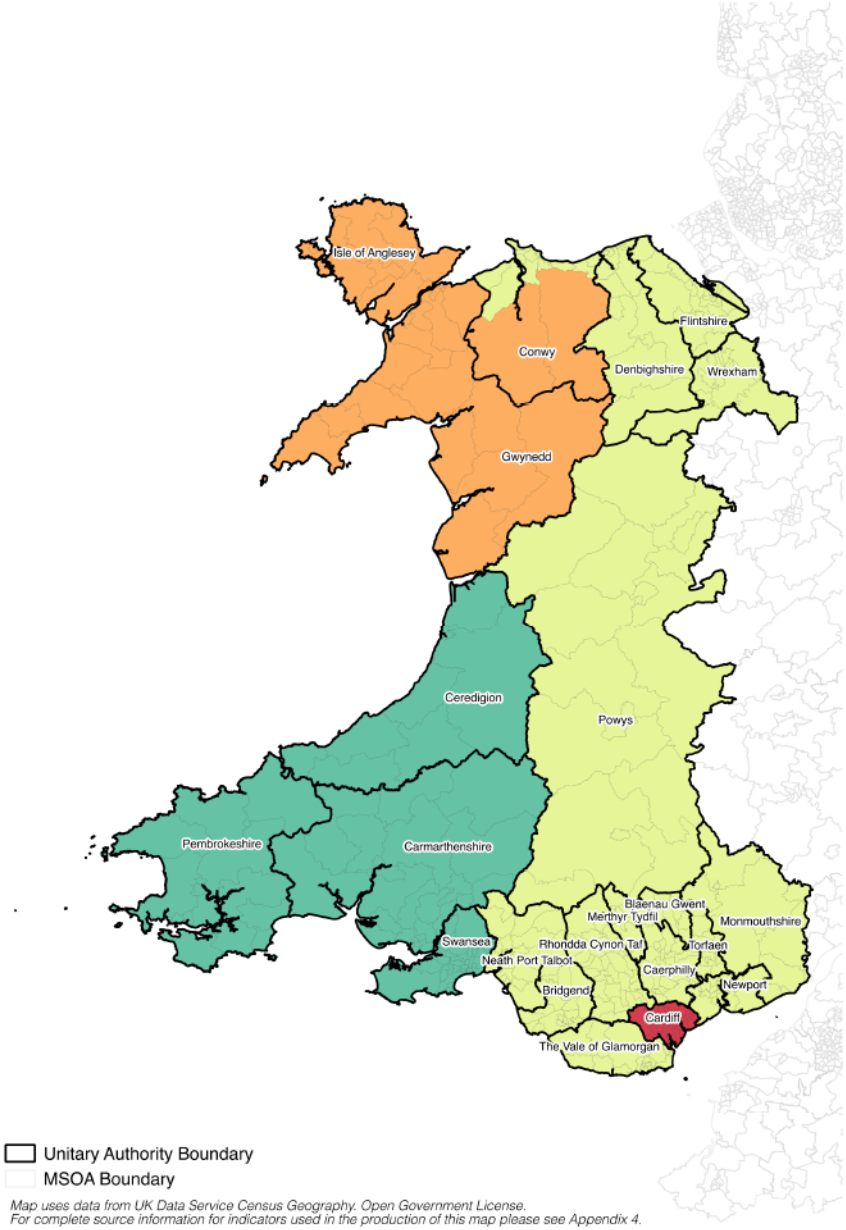
Table 2: Weights attached to combined Well-being theme map

Well-being Goal	Theme Weight	Proportion of Global Weight
A Wales of Cohesive Communities	2	14%
A Wales of Vibrant Culture and Thriving Welsh Language	2	14%
A More Equal Wales	2	14%
A Globally Responsible Wales	1	7%
A Healthier Wales	1	7%
A Prosperous Wales	3	21%
A Resilient Wales	3	21%

9.2. In determining the final proposed boundaries additional factors were considered, particularly existing infrastructure networks (roads, rail, airports), commuting flow patterns, existing institutional structures (such as City-Deals), and the statutory nature of the NDF which may require that regional boundaries align to existing Unitary Authority boundaries as well as the need to ensure balance between different sub-regions in the composition of regional areas.

9.3. Despite the potential need to align to existing Unitary Authority boundaries it is important to note key cross-boundary areas and recognise certain strong functional relationships, particularly on the edges of Powys and between Bridgend and Neath Port Talbot (Figures 18 and 19).

Figure 16: All Well-being Themes (Weighted) / 4 Regions



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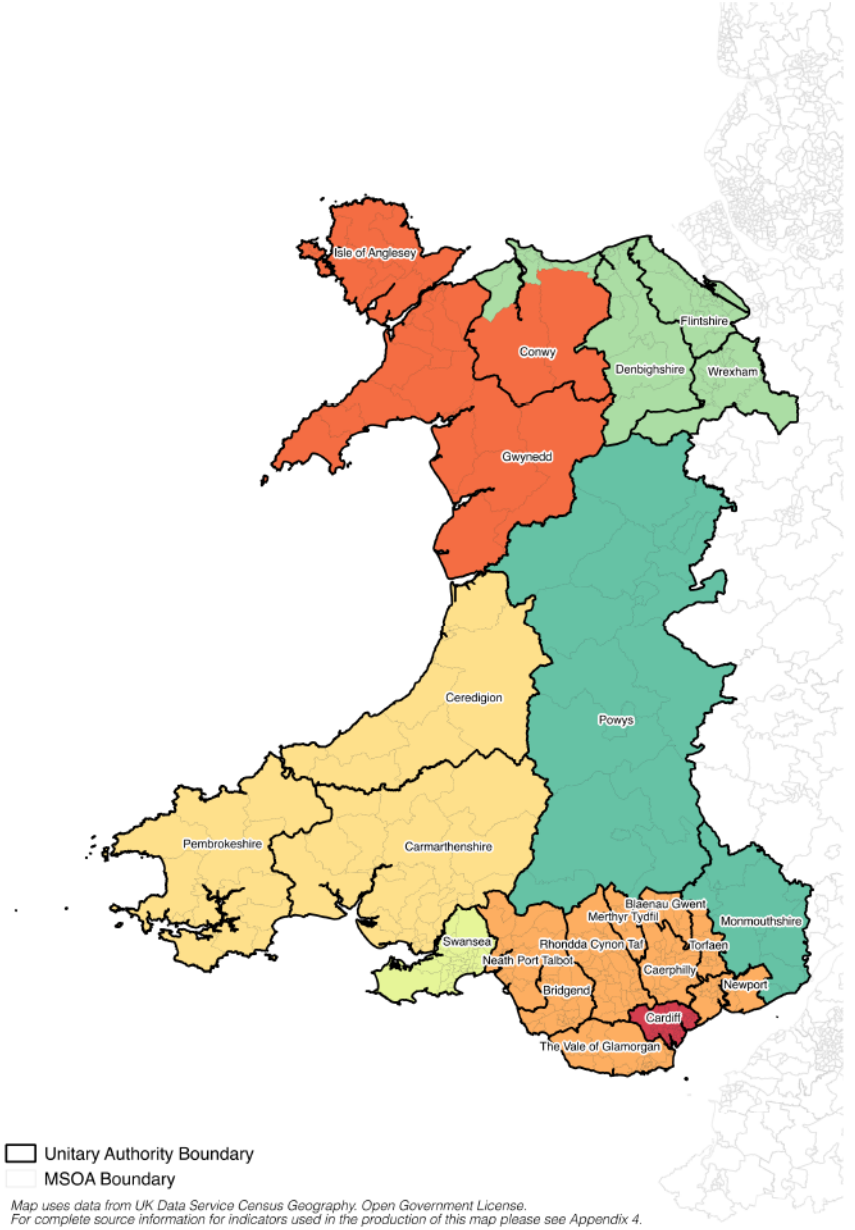
For complete source information for indicators used in the production of this map please see Appendix 4.

Figure 17: All Well-being Themes (Weighted) / 7 Regions



Map uses data from UK Data Service Census Geography. Open Government License.
For complete source information for indicators used in the production of this map please see Appendix 4.

Figure 18: All Well-being Themes (Weighted) with Commuting Flows / 7 Regions

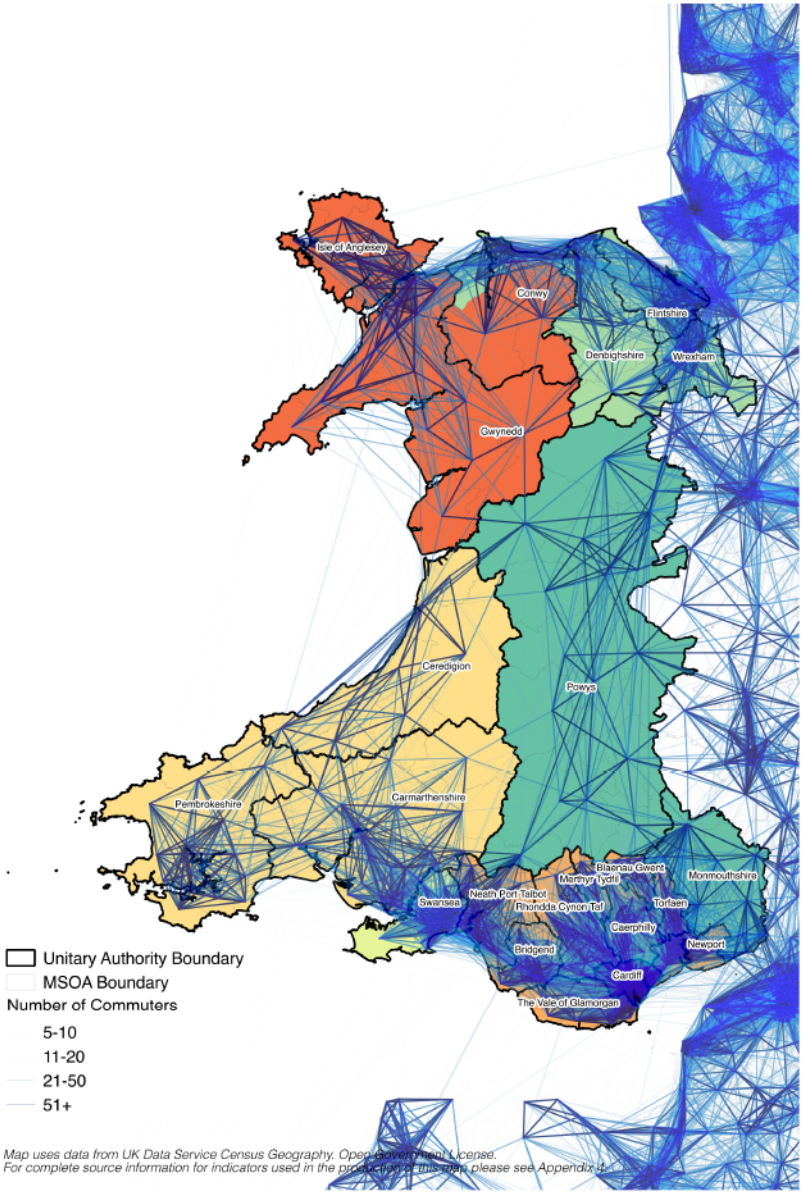


Figure 19: All Well-being Themes (Weighted) with Commuting Flows and Cross-boundary Areas / 7 Regions

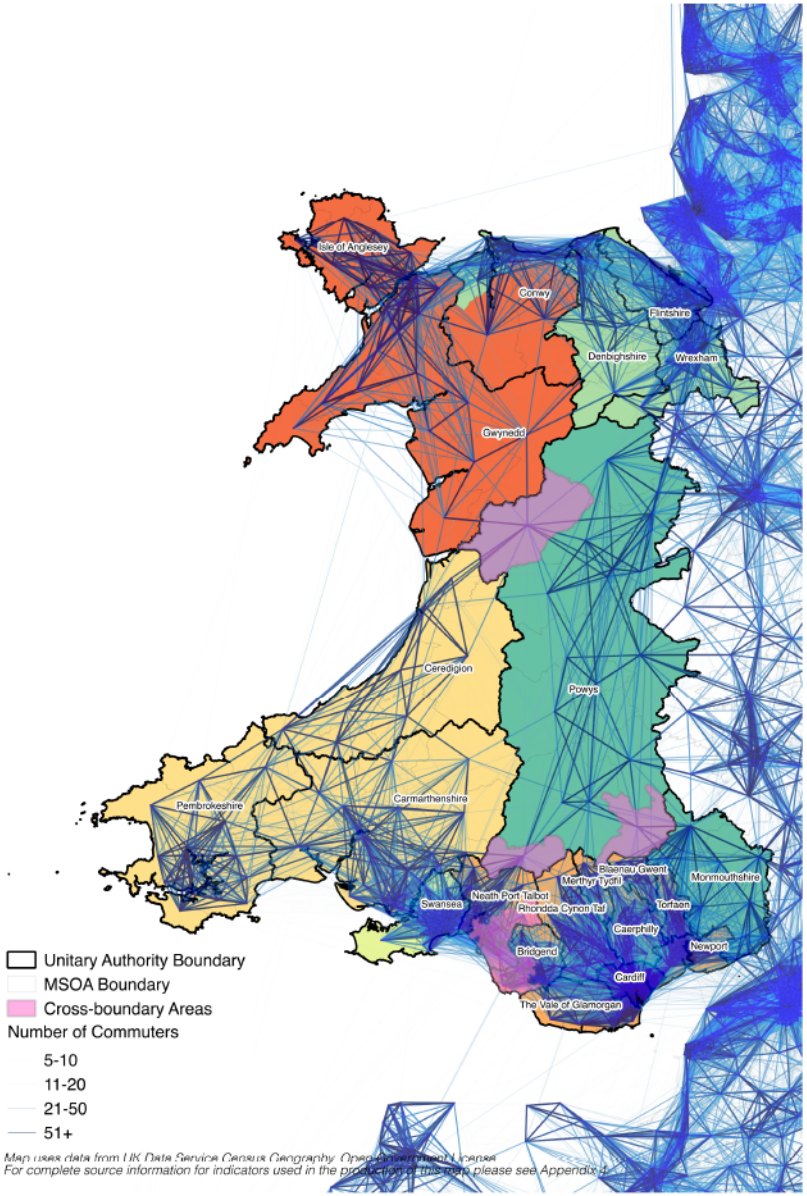


Figure 20: Proposed Regions / 4 Regions

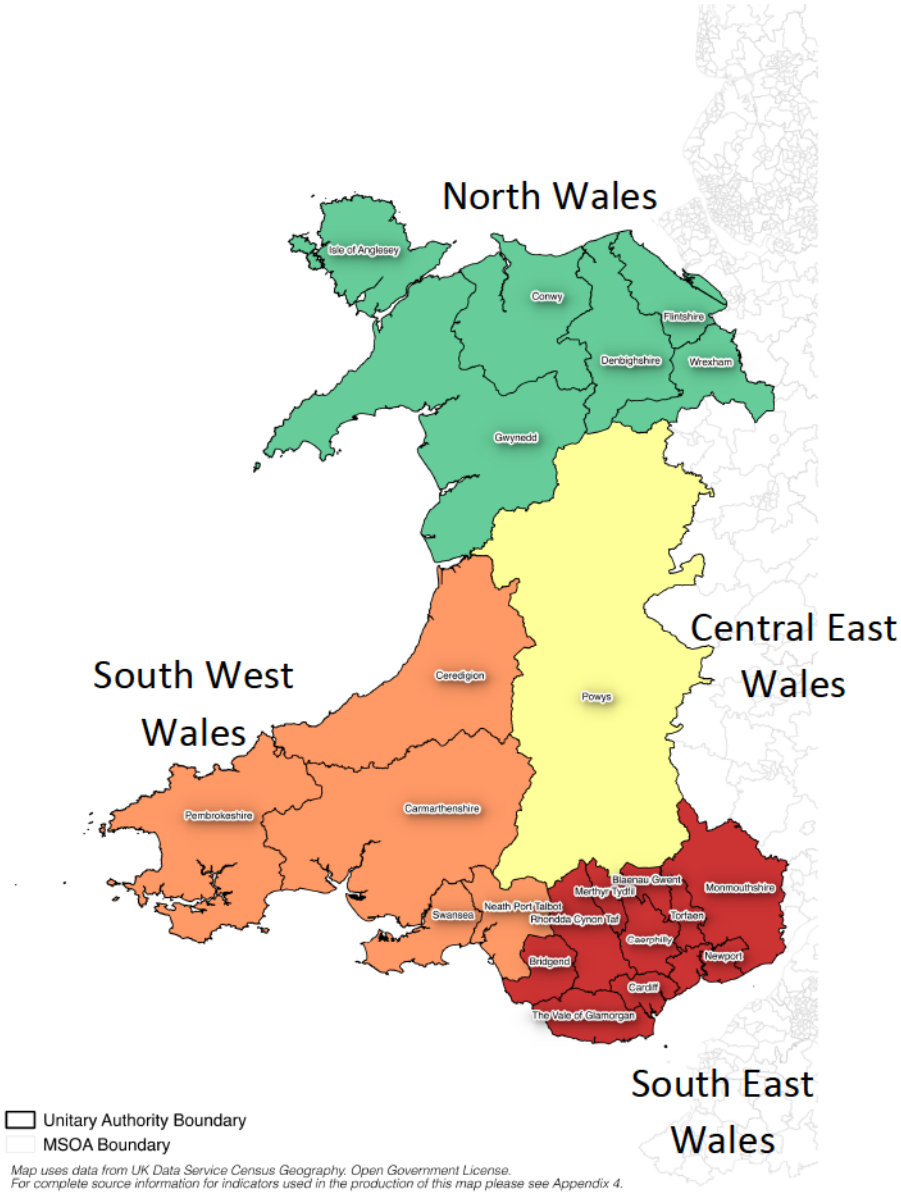


Figure 21: Proposed Regions with Commuting Flows / 4 Regions

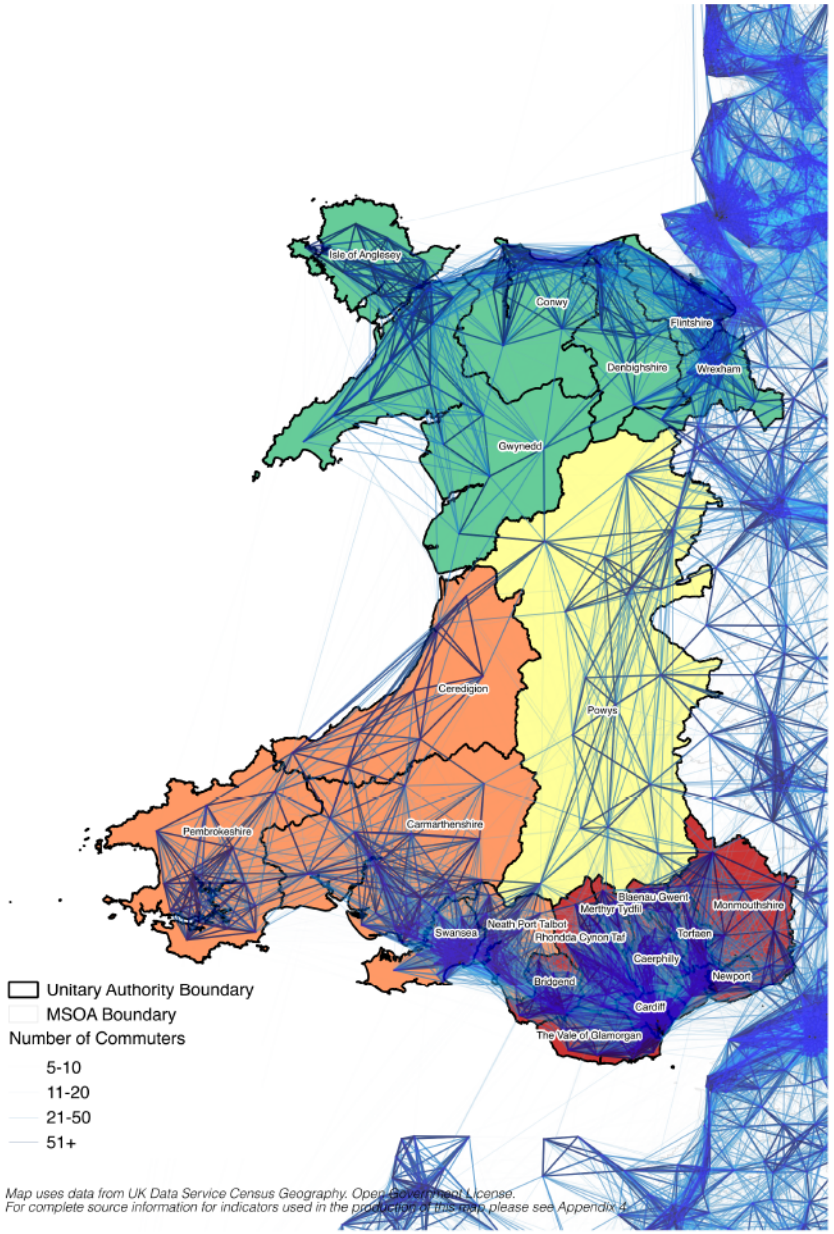


Figure 22: Proposed Regions with Commuting Flows and Cross-boundary Areas / 4 Regions

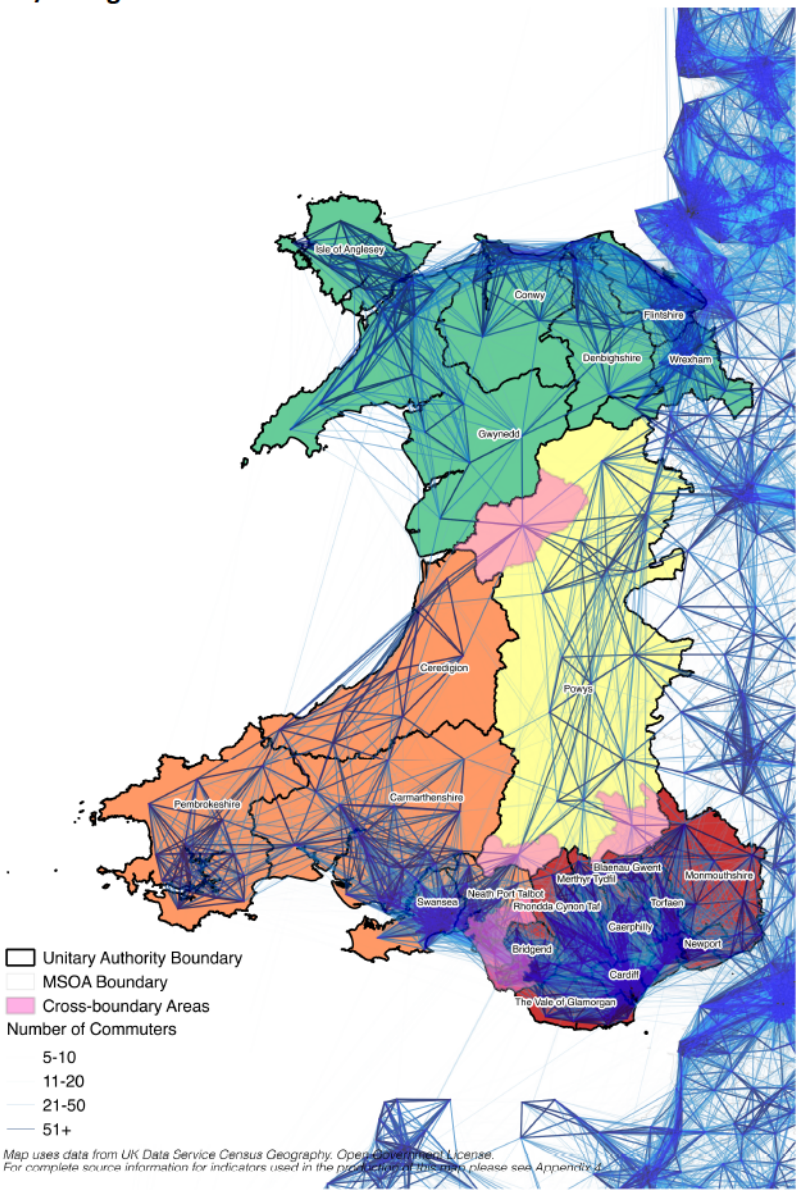
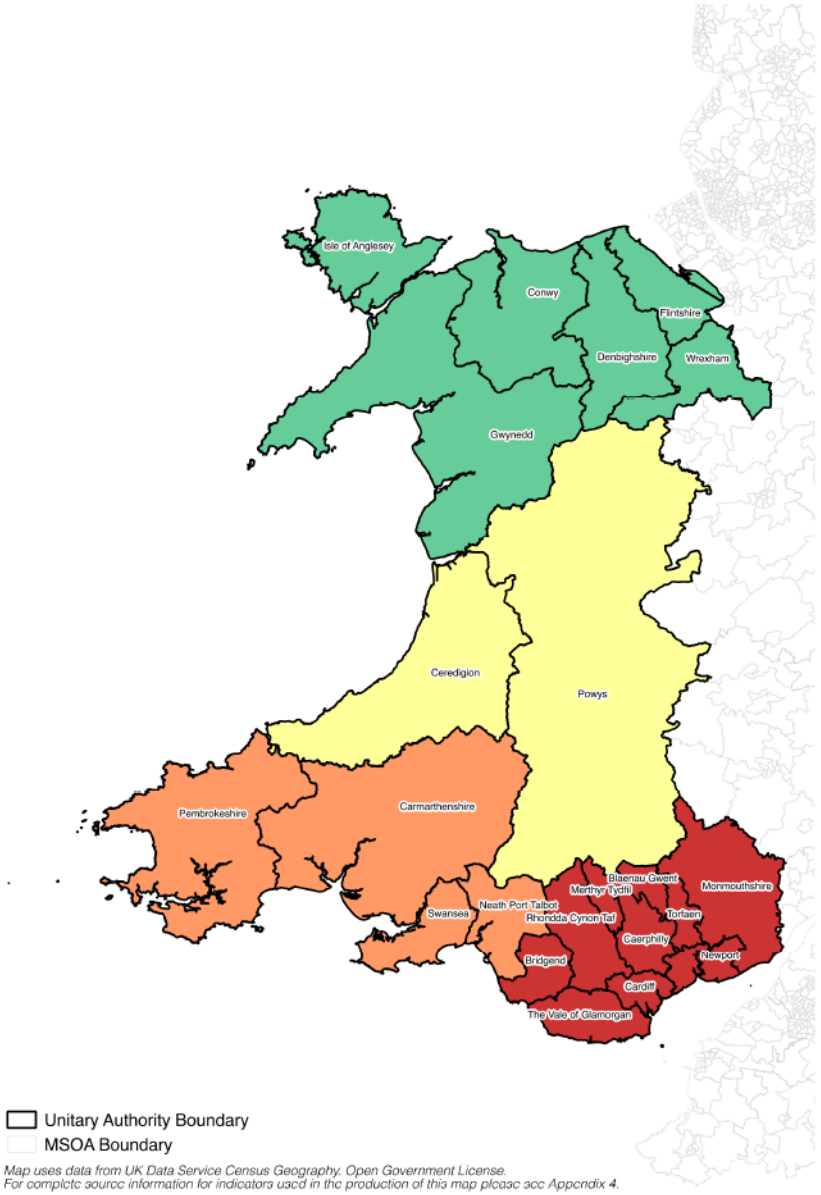


Figure 23: Proposed Alternative Regions / 4 Regions



9.4. Four regions are ultimately proposed (Figure 20):

Table 3: Proposed regions by Unitary Authority

North Wales Isle of Anglesey Gwynedd Conwy Denbighshire Flintshire Wrexham	**Central East Wales** Powys
South West Wales Ceredigion Pembrokeshire Carmarthenshire Swansea Neath Port Talbot	**South East Wales** Bridgend The Vale of Glamorgan Cardiff Rhondda Cynon Taf Caerphilly Blaenau Gwent Torfaen Monmouthshire Newport Merthyr Tydfil

9.5. The four proposed regions were selected based on balancing the sub-regional variation with wider regional patterns, equity considerations, and institutional factors. In contrast to the existing Swansea-Bay City Region and the proposed Joint Governance Committee Areas, Ceredigion has been identified as being associated with South-West Wales. In most sets of regionalization analysis the linkage between Ceredigion, Carmarthenshire, and Pembrokeshire is quite consistent as are the general patterns of commuting flows (Figures 21 and 22). Powys therefore stands as a single region in this proposal.

9.6. If however there is a determination within Welsh Government that no single authority should constitute a region, it is suggested that consideration could also be given to a region composed of Ceredigion and Powys, given the existence of some northern linkages that exist between the two Unitary Authorities and some of the regionalization analysis (Figure 23). However the data suggests this is not particularly ideal and that the two Unitary Authorities are relatively heterogeneous. It could however be suggested that such a linkage may be worthwhile within a NDF if one of the goals were to be to develop East-West linkages between Ceredigion to Powys and the West Midlands in England.

10. Assessment

10.1. The Wales Spatial Plan identified six regions (Figure 24) within Wales. It has been 13 years since it was first published in 2004 and subsequently revised in 2008. This research now suggests that larger regions in Wales are perhaps more appropriate as a result of broader transformations to the spatial structure of the country along with a range of institutional changes, such as the introduction of City-Deals, the opportunity to identify Strategic Planning Areas, and the White Paper on Local Government Reform. When sub-regions are however identified through the regionalization process, some similarities can be seen between the previous WSP boundaries and key sub-regional geographies noted in the research (Figure 25).

Figure 24: Regional Areas within the Wales Spatial Plan and the Proposed Regional Areas

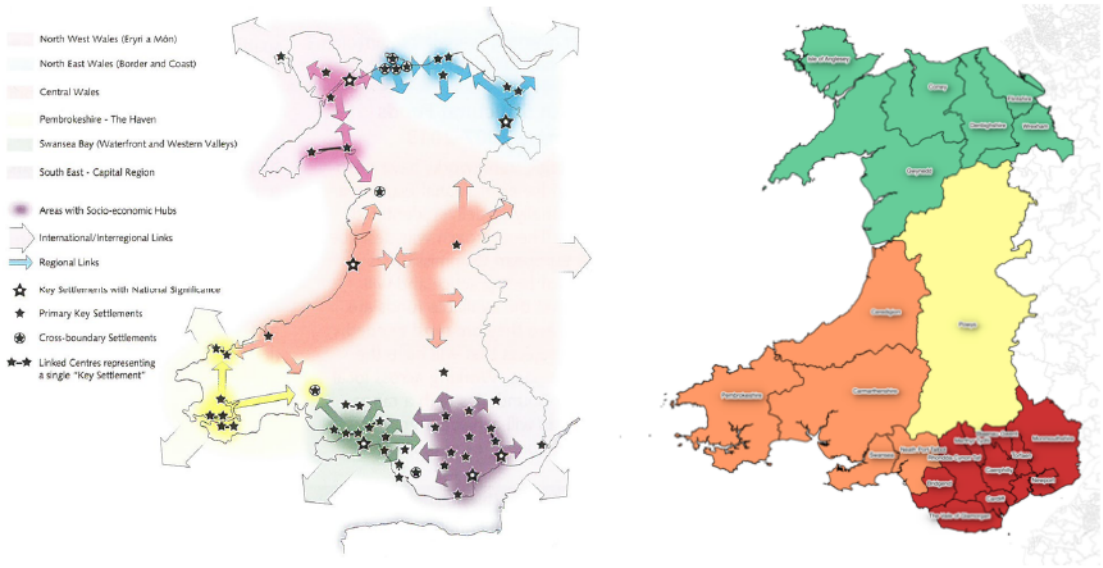
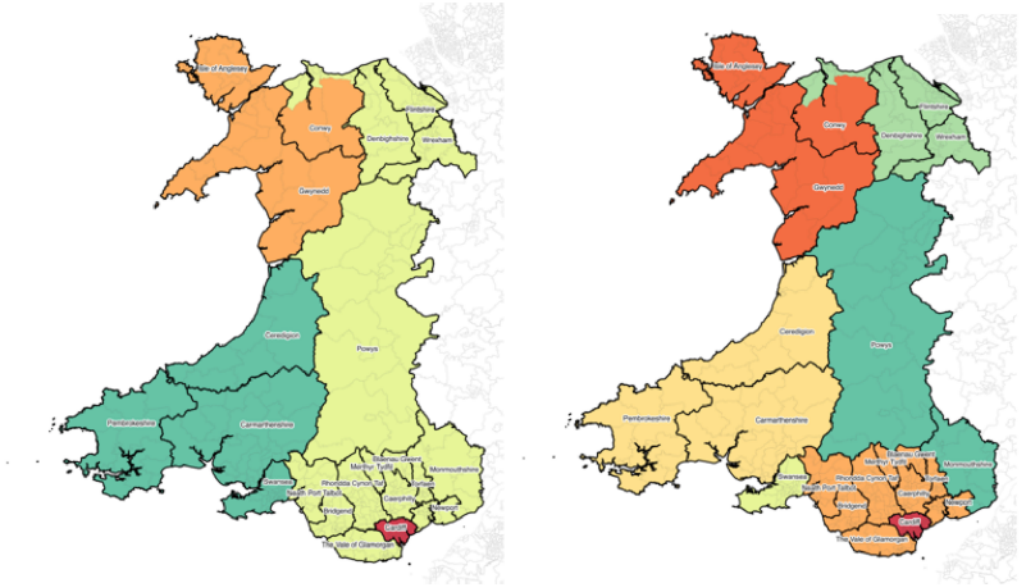


Figure 25: The 4 and 7 Region Combined Well-being Maps



10.2. This research has identified four regions of Wales that differ from those identified in the Wales Spatial Plan with the exception of South East Wales. The seven sub-regional combined and weighted Well-being maps composed of all the indicators utilised in this research have some similarity with certain areas of the previous WSP boundaries, particularly around Swansea Bay and North East Wales. It differs however in relation to Pembrokeshire, Monmouthshire, Central Wales, and North West Wales. It also identifies Cardiff and Swansea as separate sub-regions compared to surrounding Unitary Authorities.

10.3. Based on this research, it is difficult to justify such a large Central Wales region as identified in the WSP, particularly to the North and South. As previously noted, the connection between Ceredigion and Powys is not consistently strong. Pembrokeshire as a separate region would also be difficult to justify, as no regional maps produced for this research and only one sub-regional map suggest Pembrokeshire as a separate region.

Appendix 1: Stakeholder Consultation Report (English with all responses)
Appendix 2: Stakeholder Consultation Report (Welsh with all responses)
Appendix 3: Potential Datasets and Weightings
Appendix 4: Datasets, Sources, and Weightings Used