

# 'Ground truths' and scenarios: Examining and testing regional policy in North West Wales

Local Economy

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**Abstract**

This article describes how regional policy issues in North West Wales have been explored with local stakeholders, using scenario development to organise indigenous knowledge and elicit interpretations of the wider world. The context of scenario development, both in general and in its participatory form, is outlined, prior to an introduction to the study region and the policy framework which influences its development. In the latter part of the article, the process of construction and development of scenarios in combination with Delphi-like iterative questionnaires is described, showing how the gathering, organisation and interpretation of opinions, information and data from key stakeholders can illustrate a range of potential regional futures. The approach allows considerable broadening of stakeholder engagement at low cost. The four resulting scenario narratives and the policy insights they yield diverge considerably from top-down strategic planning perspectives and prescriptions. The article concludes by considering the general applicability of this guided method which draws on local knowledge of and involvement in policy decisions across different scales of impact, and provides more realistic and balanced perspectives, and demonstrates that enhanced quality and efficiency in decision making as well as opportunities for institutional learning can be achieved.

**Keywords**

regional economic policy, regional futures, scenarios, stakeholder engagement

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## Introduction

Contemporary economic development at regional and local level requires appreciation of the dynamics of transactions and interactions within and across boundaries, and of the specific environment in which they occur. New forms of strategic spatial planning practice in Europe have evolved in response to this conceptual shift in understanding of place and space (Healey, 2004). The direct insights that local stakeholders and decision makers can provide may be considered analogous to 'ground truthing' (Flowerdew, 1998), akin to the verification of remote satellite imagery by direct observation at ground level, and conceived of here as the collection of local, fine-grained information and experience in order to validate, analyse and interpret standardised regional data, and the output of empirical analysis and quantitative models, which together provide the evidence base for spatial plans at regional and local level (Carp, 2008).

In this article we describe application and results of such a 'ground truthing' exercise undertaken in North West Wales, a peripheral regional economy. The framework used to organise indigenous knowledge and elicit interpretations of the wider world is scenario analysis. Michel Godet (2000: 13) suggests that development of a number of diverse potential scenarios is particularly useful in a regional context, where they 'are used to structure and organize collective thinking. They actually facilitate communication, stimulate the imagination, and improve logical consistency'. In spatial planning, scenarios can bridge complexities involved in current decision making for uncertain future circumstances. They are necessarily reflexive, fostering an open attitude to interpretation of social phenomena, and provoke critical reflection on political

and ideological contexts (Alvesson and Sköldbberg, 2009).

High levels of stakeholder participation and extensive interaction between them, however, require such substantial resources that 'many civil society leaders consider scenario thinking in its multi-workshop, multi-month form a luxury they may not be able to afford' (Searce and Fulton, 2004: 74). Consequently, we have combined scenario analysis with Delphi-like inquiry (using group consultation through iterative questionnaires, with feedback) to promote efficient engagement (Geist, 2010). While most previous studies combining these two techniques (Nowack et al., 2011) used Delphi approaches to provide judgements on the credibility and objectivity of previously constructed scenarios, we have chosen to extend the focus of our inquiry to idea generation and consolidation, to support goals of widespread engagement and institutional learning.

The article is divided into four main sections. Next, scenario analysis and its adaptation to a participatory process for development of adaptive capacity are outlined. Then the case-study region context is summarised by describing its socio-economic profile and evaluating relevant plans and strategies. The penultimate section presents results, analysis and interpretation of the scenario development exercise applied to North West Wales, together with a subsequent follow-up review of participants to validate outcomes in the light of a change of government, and unfolding economic changes resulting from the UK recession. In concluding, the 'ground truths' of perceptions of, and policies for, the region and its future are compared and contrasted with prevailing orthodoxies, and generalised observations are made on refashioning of regional development strategies.

## Participatory scenario analysis

Storper (1997: 29) describes reflexivity as ‘the possibility for groups of actors in the various institutional spheres of modern capitalism ... to shape the course of economic evolution’. Scenario analysis, with scope for focusing attention on, and modifying, perceptions and actions, provides a route for achieving such empowerment. Scenarios emerging from the process are not predictions: rather, they are representations of the future as interpreted by the scenario builders, and offer the opportunity to improve current decision making on the basis of a better appreciation of possible changes that might occur in the future and the range of new circumstances with which decision makers might have to deal.

The origins of scenario analysis lie in a stream of futures-related research in the 1950s by the Rand Corporation (Bishop et al., 2007; Schoemaker, 1993). Its contemporary form consists of a spectrum of approaches, differentiated by the degree to which qualitative judgemental descriptions and interactions based on mathematical modelling procedures are combined (Bradfield et al., 2005).

The predominant objective of scenario analysis has been to develop foresight to enable organisations to visualise future systems and assess their implications for current policy- and decision-making (Miles, 2004). In contrast with methods that extrapolate historical observations of association between key quantitative variables, it is explicitly future-oriented. In general, scenarios can be predictive in nature (what will happen?), explorative (what can happen?) and normative (how can a target be reached?) (Börjeson et al., 2006). They can be developed deductively or inductively, for exploratory purposes, looking forward from the present to imagine future states,

or, vice versa, anticipating future normative states and developing an event chain linking them to the present. However, all approaches are linked by a common sequence of steps, which are: (1) establishment of a reference period; (2) identification of the factors governing the society or economic system under study and the driving forces that may affect it; (3) description of different combinations of states of driving forces to provide outlines for potential futures; (4) development of narrative accounts of scenarios; and (5) evaluation of appropriate planning options and alternative strategies (Porter et al., 2011: 178–182). Scenarios for strategic business management were popularised by Schwartz (1996), but they have been progressively adopted for policy studies (Ringland, 2002; Van Asselt et al., 2010). Territorial scenarios for Europe, including potential evolution of spatial structures and the challenges that future policies are likely to face, have recently been explored by Dammers (2010).

Unlike conventional forecasting, which tends to close down discussion, scenario analysis stimulates open reflection on overall systems function, interrelationships and their relation to processes of change, and provides a starting point for further thinking (Pahl-Wostl, 2002). In more recent applications, the focus has shifted from foresight enhancement to ‘recognition that the processes through which the scenarios are developed is as important as the scenario analysis tools themselves’ (Robinson, 2003: 853). While developing narratives that describe alternative possible futures remains important, engaging representatives of wider stakeholder communities in that process can foster dialogue, resulting in broader perspectives and practical understanding. The structural characteristics of scenario development, in a participatory

context, provide a form of social learning (Bandura, 1977), where the structured communication between individuals promotes appreciation of the key issues of uncertainty, complexity and interdependence, with particular focus on how current decisions affect the entire economic system under scrutiny and shape future outcomes. Organisational learning (Senge, 1990), as a specific form of social learning, explicitly promotes a systems perspective as a decision support mechanism, enabling effective management of change through harnessing different forms of expertise to develop a systemic, dynamic perspective. Additionally, engaging stakeholders in scenario development also provides an opportunity for researchers to examine their perspectives in greater depth, and to explore submerged viewpoints.

There are two main forms of stakeholder participation in scenario development: either they can be consulted, through in-depth interviews or citizen focus groups, on the driving forces and their interaction; or they can be directly engaged in co-construction of scenarios. Examples of the latter approach include many exploring environmental, resource and climate change management scenarios (for example, Kok et al., 2006a, 2006b; Pahl-Wostl, 2002; Robinson, 2003; Vervoort et al., 2012; Wood et al., 2007), while fewer specifically address relevant regional development and planning (but examples include Daconto and Sherpa, 2010; Fuller-Love et al., 2006a, 2006b; Lebel and Bennett, 2008; Volkery et al., 2008). Co-construction has a number of advantages, especially at local levels, where communication and cooperation across institutional barriers can improve coherence and integration of scenario elements and realism of scenarios themselves, because their evolution will partly depend on the interplay between local choices in the face of different hypothetical external influences. Co-construction can stimulate problem

solving for improved decision making and provide a reality check on perspectives and methods employed.

The selection of stakeholders can include policy makers, business representatives, citizens and experts (Andersen and Jaeger, 1999). However, a clear distinction is required between participatory forms of scenario development, which in some sense are representative of a wider public interest, and stakeholder forms, which do not need to be so (Welp et al., 2006). Public participation is most appropriate where the aim is to promote widespread involvement in governance. In contrast, stakeholders, whose interests can be more narrowly defined, and therefore need not necessarily be representative in any way, contribute more efficiently to organisational learning. There is most to be gained by involving and influencing key decision makers and the decision-affected. Such stakeholder engagement in scenario development not only provides the opportunity to 'ground truth' top-down, abstract strategic planning processes, but also offers an effective vehicle for finding common ground, identifying goals and cultivating ownership of the policy options which emerge from the process.

As noted in the introduction, combining scenario planning with key functions of the Delphi technique provides a promising means of widening the pool of stakeholder engagement. Of the 24 studies that Nowack et al. (2011) identified as authentic composites of scenario and Delphi approaches, most focused the latter component on evaluation and adaptation options of pre-conceived scenarios (see also Kinkel et al., 2006). Only one study (Eschenbach and Geistauts, 1985), focusing on economic futures for Alaska, deployed a mix of stakeholders to exercise such a judgemental function, but required substantial modification of the standard Delphi approach to fit the process. All of the other studies used experts solely, none others concerned regional

development, few engaged Delphi contributors in either scanning drivers or developing event chains, and only five used the iterative controlled feedback approach in all three elements of the process. Consequently, scope for development of a 'participatory policy analysis' at regional level (Johnston, 2001) remains extensive. The example described in this article has been designed to maximise stakeholder participation, and to economise on limited resources (especially because of the study region's sparse population and peripheral location) by adapting a Delphi style of engagement scenario development to achieve available efficiencies.

### **The regional context**

This section has two broad purposes: to provide a sketch of issues and problems affecting the North West Wales economy, and to outline the array of strategies and policy statements that have been proposed to address them. This is necessary and valuable since both the context and the strategy narratives are likely to influence perspectives of the ground-level actors engaged in the scenario development process.

#### *The North West Wales economy*

North West Wales, located on the far west coast of Britain, includes the unitary authorities of Anglesey, Conwy and Gwynedd. Its geographical relief is distinguished by three basic features: the Llŷn Peninsula, stretching into the Irish Sea, the island of Anglesey, connected to the mainland by road and rail bridges over the Menai Strait, and the Snowdonia massif in the east and south. Its landscape has high levels of statutory protection which contribute to retention of its profoundly rural status. Like many peripheral rural regions it has a demographically skewed population with proportionately few young people and

many elderly, which places pressure on public and social service provision, especially health and care services (Hartwell et al., 2007). In-migrants, attracted by lifestyle factors and associated economic opportunities (as in Cumbria: Kalantaridis and Bika, 2011) are more than offset by out-migration of younger people, driven by relatively high housing costs, the second-home syndrome (Day et al., 2008), generally lower wages, and lack of social infrastructure. The existence of a distinctive linguistic profile (Jones and Fowler, 2007) has positive and negative local economic effects: it provides some local wage premium for native speakers, but statutory bilingualism adds to administrative costs (Henley and Jones, 2005; Jones-Evans et al., 2011).

The employment rate generally lags behind that of the rest of the UK, although self-employment is relatively higher, partly reflecting the significance of farming, but partly also indicating a strong micro-business sector and a home-grown entrepreneurship culture (Thompson et al., 2007). Small enterprises dominate the private sector, and many private sector jobs are of low productivity and relatively low paid (Jones and Sloane, 2007). Conversely, the public sector workforce has grown during years of increasing spending by the Welsh Assembly Government (WAG) (referred to as the Welsh Government since 2011), although scope for further expansion is now limited.

Location, landscape and natural resources support an active tourist industry, including traditional resort-based and diverse outdoor activities and pursuits (Hyde and Midmore, 2006). Tourism has combined extensively with agriculture, as many farmers diversify into tourism activities to compensate for declining agricultural incomes (Long and Woods, 2011). Most of the region possesses Less Favoured Status with the majority of the mainland designated as Severely

Disadvantaged. Land quality is generally, although not exclusively, poor, and chiefly utilized for livestock production.

Hydro-electric and nuclear energy have a long-standing and significant presence in the area. Significant job losses are anticipated from final decommissioning of the Wylfa nuclear plant on Anglesey, following that of the Trawsfynydd plant in southern Gwynedd, which began in the early 1990s. There is uncertainty regarding construction of a new generation nuclear power plant at the Anglesey site, and both Anglesey and Meirionnydd have been designated as priority areas for assistance by the Nuclear Decommissioning Authority (NDA, 2008). The planned major offshore wind farm in the Irish Sea to the north west of Anglesey is also a matter of uncertainty (and local controversy). Elsewhere in the region, recession has produced severe job losses (Bryan and Roche, 2011), including closure of Anglesey Aluminium's smelter in Holyhead affecting 500 workers. Nonetheless, Anglesey retains a strong manufacturing micro-business base, and a creative media cluster has developed on the coast of the northern mainland. Although household disposable income compares relatively favourably with that for Wales and the rest of the UK, the region's per capita GVA is some 60% of that of the UK. In consequence, the region forms part of the West Wales and the Valleys Convergence Operational Programme (WEFO, 2007a, 2007b).

Some minor municipal concentrations of population exist in seaside resorts, former slate quarrying towns, administrative centres and the port of Holyhead, but otherwise it is dispersed in a relatively sparse network of very small towns and village settlements, and consequently the region suffers from a mixture of real and perceived peripherality. Transport links are dominated by the east-to-west road and rail routes providing access, via Holyhead

port, to the Republic of Ireland (the A55 Expressway forms part of the E22 Trans-European Network Route). Otherwise, travel and logistics, both within the region and beyond, are challenging. Peninsular areas are particularly distant from major population and commercial centres, both physically and in time. This discourages establishment of high-growth sectors, limits inward investment opportunities and restricts market access for indigenous seller firms. Economic activity is consequently prone to external shocks, in agriculture, tourism and public funding that combine with potentially significant job losses due to overdependence on a small number of (relatively) large-scale employers to create economic fragility. Though rural parts of the region lack official recognition of high levels of deprivation (Noble et al., 2006), local perception is that poverty and attendant social and economic problems are underestimated, due to sporadic small pockets being distributed over a large area (OCSI, 2012).

### *Strategic and local planning*

These circumstances have attracted considerable policy effort. Since devolution, a clear shift in focus from the preceding, broadly aspatial approach of the Welsh Development Agency (WDA) has been apparent (Boland and Lovering, 2000; Cooke and Morgan, 1998; Lloyd and Peel, 2008). The clearest illustration has been the development of the Wales Spatial Plan (WSP) (Harris and Thomas, 2009; WAG, 2008), which has five underpinning themes (community cohesion, environmental conservation, access, diversity and promoting a sustainable economy) and identifies six, dissimilar but overlapping, Spatial Planning Areas (SPAs). The SPAs are conceived of as broad socio-economic regions, demarcated by 'fuzzy' boundaries, possessing a common development path, acting as

a framework for the development of regional perspectives on all areas of devolved responsibility. One or more economic hubs, identified as the largest, strategically placed settlements, are identified within each SPA to shape its economic development, suggesting that the strategic perspective has been influenced more by growth-pole theory than spatial economics (Clinch and O'Neill, 2009).

Spatial inequalities are addressed by specific targeted programmes which work through Strategic Regeneration Areas (SRAs) (WAG, 2010), created in seven selected locations in 2005. These designations use cross-cutting initiatives for economic development and regeneration in areas of high deprivation, and include enhancement of employability as well as physical and environmental improvements. While the SPAs are distinct from their component SRAs, the development of each SRA is important to the wider SPA, with SRA status providing additional spending not available for economic hubs in more prosperous SPAs.

In North West Wales the Eryri a Môn SPA incorporates the region's three local authorities, but its fuzzy boundaries involve parts of Conwy and Gwynedd being also included in adjacent SPAs (see Figure 1).

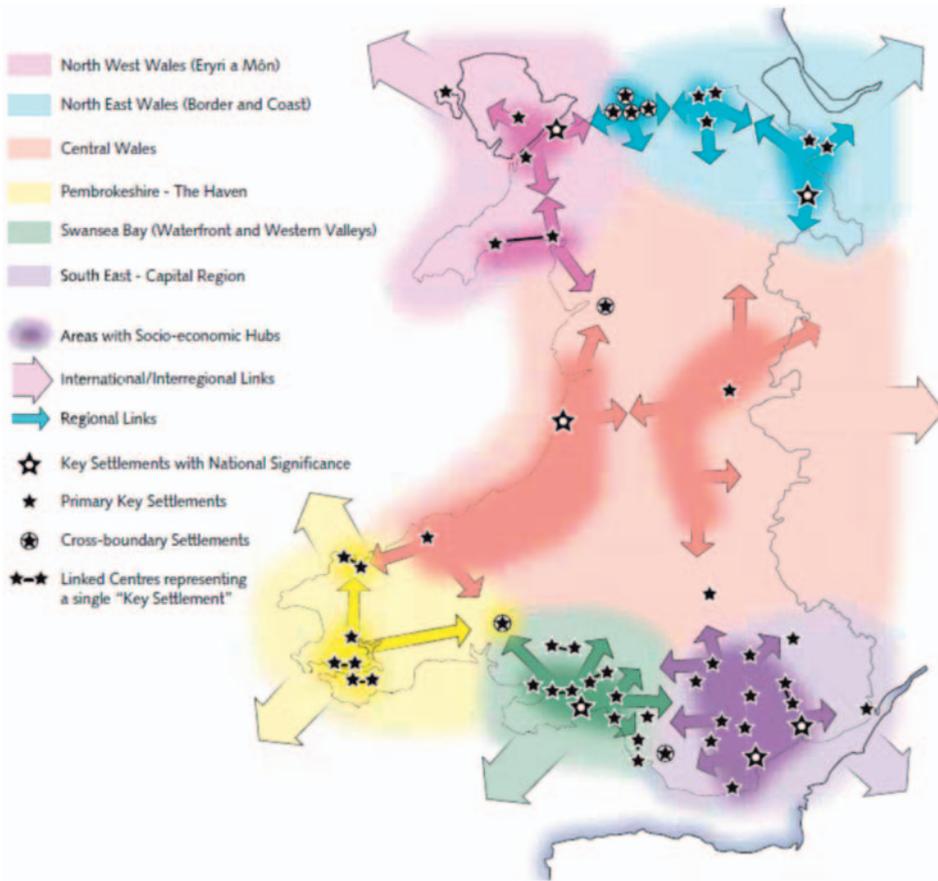
The vision for the Eryri a Môn SPA (WAG, 2008: 67) describes a 'high-quality natural and physical environment supporting a cultural and knowledge-based economy that will help the area to maintain and enhance its distinctive character, retain and attract back young people and sustain the Welsh language'. The Spatial Plan would achieve this by focusing local and central government investment on planned spatial development around the settlements clustered along the Menai Strait, prioritising key sectors of agriculture and manufacturing, promoting knowledge industry especially bio-sciences, geo-science, environmental goods and services, marine

science and renewable energy, exploiting opportunities offered by the main transportation corridor between the UK and Ireland, and expanding tourism based on natural and cultural heritage resources. However, the ambiguity of the SPA boundaries, which divide the WAG's North Wales Economic Region as well as cutting across a range of other specific strategies and initiatives embracing, both individually or collectively, the region's local authorities, potentially cause considerable spatial misfit and interplay between policies (Young, 2002).

This plethora of plans, strategies and analyses draws to a varying extent on evidence, and a number of common aspirations and themes recur. However, as a means to counter the spatially related problems of the region, this policy framework is inadequate. Interpretation and diagnosis of the socio-economic processes which influence its lagging economic performance are scant: there is no sense of chronology, nor little recognition of existing, or likely future, external influences, which might produce offsetting change. As such, the development of a more nuanced and reflective approach to spatial economic planning provides an opportunity to remedy some of these deficiencies.

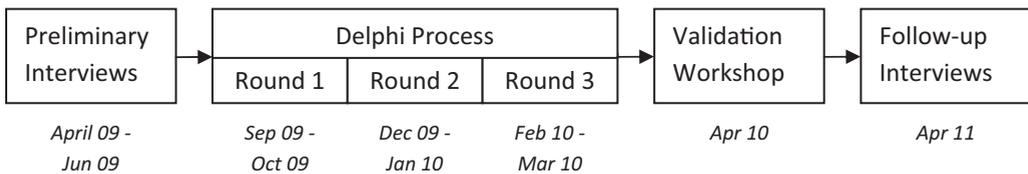
## **Scenario development for North West Wales**

Overall, the process of scenario development took 12 months to complete, and consisted of a preparatory round of in-depth interviews with key informants, three iterative rounds of online questionnaires with feedback, and a validation workshop (see Figure 2). It occurred at a time of considerable economic uncertainty, just in advance of the 2010 UK general election, so a round of follow-up interviews with a subset of original participants was conducted to test reliability of the perceptions underlying



**Figure 1.** Wales Spatial Planning Areas.

Source: WAG (2008: 20).



**Figure 2.** Outline of scenario development.

the core process. The main aim was to combine ground-level spatial and chronological insights with regional level understanding of circumstances and policy

direction. Consequently, the series of 40 semi-structured preliminary interviews were designed simply to draw out, rather than prioritise, views on three major sets

**Table 1.** Major themes from preliminary interviews.

<i>Drivers</i>	globalization; the degree of local multiplier effect; market demand; development policies; other policies including education, health, tax; wage-price spiralling; cumulative causation; peripherality, including 'thin' labour markets; inefficient knowledge spillovers; poverty and social exclusion; low inter-generational aspiration, rurality, poor internal transport links, east-west links; topography, terrain, environment; telecommunications; Welsh language and culture
<i>Opportunities</i>	high-value/low-volume activity; creative industries; entrepreneurialism; education and skills; knowledge economy; low-carbon energy
<i>Uncertainties</i>	shielding effect of Welsh language on the local economy; extent of linguistic multiplier; importance of agriculture; effect of rural informal economy on incomes; importance of town centre regeneration; relative value of internal or external communications developments; physical transport links and digital connectivity; effect of public spending austerity on local economy; whether the public sector crowds out, or supports, the local economy; likelihood of developing a significant knowledge economy; job creation outside the knowledge economy; level of economic inactivity; sustainability of construction jobs based on capital investment projects

of issues: the main driving forces affecting economic development processes, major economic opportunities, and the significant uncertainties which could affect future development. In summary form, these are described in Table 1.

An analysis of this material, combined with descriptive secondary data, provided the foundation for the subsequent scenario development process. The elements determined by the authors included setting of the reference period (from 2010 to 2025, to discourage over-focus on contemporary preoccupations), and the choice of contributors. The latter were selected for potential interest in the research process, and were drawn equally from local policy makers and representatives of the business community. The Delphi panel size of 100 included many of the preliminary interviewees, and was large enough to mitigate the common Delphi problem of attrition (Reid, 1988). Before the online process started, each contributor received a briefing document, explaining the scenario development method and objectives and procedures and, based on initial interviews and secondary data, providing an account of major influences affecting economic performance for their consideration.

Three successive online questionnaires, comprising ranking requests and free-text questions, were then distributed to potential respondents, at approximately six-weekly intervals. The level of engagement throughout the process is shown in Table 2. Lower levels of commitment achieved among business contributors, while disappointing, was still within the expected range based on general experience with acceptable Delphi drop-out rates (Mullen, 2000).

The ranking requests asked contributors to score issues in terms of their importance for the economy on a scale from 1 (low) to 10 (high). In the second and third rounds, where fewer than 80% of replies were within one standard deviation around the previous round's mean score, and fewer than 95% were within two standard deviations, contributors were informed of their score in comparison with the group average and standard deviation, and asked to re-rank these issues accordingly.

**Table 2.** Questionnaire response rates, by round.

Round	Overall sample (100 questionnaires)		Local policy makers (50 questionnaires)		Business representatives (50 questionnaires)	
	Responses	% of previous round	Responses	% of previous round	Responses	% of previous round
1	71		45		26	
2	42	59.2%	30	66.7%	12	46.2%
3	28	66.7%	23	76.7%	5	41.7%

In the first round of the online questionnaire, some issues emerged with both high scores and low standard deviations. In terms of drivers, market demand, especially for services, the movement of people and the prospects for establishment of manufacturing businesses, were all highly rated. Within the region, poor internal north-south transport links were rated as a more important driver than external communication links. Local public expenditure and procurement policies emerged as new issues, alongside insufficient inter-generational capital availability to engender new business activity. Weak local demand, rather than a lack of entrepreneurial capacity, was the main constraint on business development. Highly ranked opportunities included: knowledge economy developments, in conjunction with improved digital connectivity; the energy sector (renewable and low carbon sources, and carbon management in agriculture); creative industries; social enterprise; and branding of locally produced goods for niche marketing. The major uncertainties were central government decisions and EU Convergence funding after 2013, but in contrast, public sector austerity was regarded as highly likely and as having a pronounced negative impact on the region. A new uncertainty, noted as important by a small number of respondents, was the effect of exchange rate movements.

From prior free-text comments, inward investment, financial market conditions and rising food prices were introduced as new issues in the second round, and attracted high rankings with low standard deviations. Also, re-ranking of the less consensual elements in the first round produced some movement, in terms of ranking and consolidation of views. Welsh language and culture was revised upward, and the quality and extent of digital connectivity also moved up to become the greatest uncertainty facing the region.

To give an indication of the extent of changes in ranking, and the dispersion of views, Table 3 provides details of the most prominent issues which recurred over the three rounds. So, for example, assessment of the importance of the local multiplier, once re-examined in round 2, fell within the dispersion limits but with a reduced ranking; migration, in the same context, remained contentious, even though its ranking score rose from 3.88 in the first round to 3.42 in the third.

The second round also asked contributors to form a number of internally consistent event chains, from elements ranked highly in first round responses, drawn from a set of initial conditions. This provided an opportunity to build mini-scenarios, allowing contributors to gain insights into the structural issues to be considered and how situations emerge, and seek

**Table 3.** Mean and dispersion of response, by round.

	Round 1			Round 2			Round 3		
	Mean	% within:		Mean	% within:		Mean	% within:	
		±1SD	±2SD		±1SD	±2SD		±1SD	±2SD
Imports	5.46	58%	96%	4.96	90%	93%	4.5	88%	100%
Export demand	4.42	62%	81%	3.75	81%	98%	3.75	90%	95%
Migration	3.88	62%	96%	3.59	69%	89%	3.42	65%	98%
Local multiplier	3.73	65%	96%	4.98	90%	98%	-	-	-
Poor north-south transport links	3.19	73%	96%	5.30	70%	100%	4.08	90%	98%
Welsh language and culture	3.96	88%	92%	3.26	80%	90%	-	-	-

patterns over the scenario time-period. While the choices of contributors varied widely, certain event chains emerged very strongly (see Table 4).

The most popular chain included deepening global recession, further reductions in public expenditure, and consequent inability to capitalise on available opportunities, even with prioritisation of a knowledge-driven economy. However, variations included an optimistic perspective in which reduced public sector size provides more opportunities for entrepreneurs and a shift of graduate employment towards private firms, creating a more highly skilled knowledge-based economy in the region. The next most popular event chain involved gradual global economic recovery providing a catalyst for a broadening public investment in both vocational and academic skills, with consequent scope for attracting investment in green technology.

A further strand of event chains focused on the impact of improved digital infrastructure. One variant emphasised the role of attracting and retaining skilled rural workers, creating a local multiplier effect and an increased role for innovation hubs linked with higher education, creating a critical mass of companies in similar sectors (for example, biotechnology) deepening specialised labour markets. In another, more pessimistic, variant increased online

shopping diverted expenditure through local retail outlets, with a consequent reduction in the local multiplier effect. However, many who suggested this event chain regarded improved connectivity as vital, as long as the effect of increased imports could be counteracted by the development of local products for export by utilising the same infrastructure. The remaining prominent event chains, promoted by several contributors, included major investment projects enhanced by support for local firms to tender collaboratively for subcontracts, with a consequent enhancement of relevant skills and further inward investment opportunities. In a further twist on this theme, global pressure for greenhouse gas reductions led to similar innovation within the skills and academic sector, particularly with regard to management of land for carbon sequestering.

Consideration of these event chains, with consolidation through addition and enhancement of certain aspects, and the combination and elimination of others, allowed the construction of a reduced number of four outline exploratory scenarios, developed through the third online questionnaire round (the sketch of each, presented to contributors, appears in Table 5). This final round also allowed contributors to assess and rank policy interventions that could improve economic and

**Table 4.** Common event chains.

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- (1) Global economy recovers strongly => high levels of public investment => education and building a high-quality digital network prioritised => research and development => inward investment => strong knowledge-driven economy
  - (2) Gradual global economic recovery => a broadening and upgrading of the local skills base by increasing public investment in higher education and skills => research in environmental sciences => business start-up and development supported => investment in new green technologies
  - (3) Public expenditure is cut => private sector grows to compensate => more opportunities for entrepreneurs and innovators => graduate employment base of the region shifts away from public sector towards private firms => higher skilled knowledge-based economy in the region.
  - (4) Imports impact on the rural economy => weakened local demand => weakness of sterling affects the value of regional exports => higher rate of unemployment in the retail sector => weakening of the local multiplier => inward investment deterred
  - (5) Global economy grows weakly => constraints on public expenditure => rising fuel prices having a negative effect on transport => decline in manufacturing, agriculture and rurality => significant investment in improving workforce skills and digital connectivity => weak knowledge-based economy
  - (6) Hi-tech infrastructure investment => skilled workers living and working rurally => increased role for higher education in linking with business => increased opportunities for employment in both skills provision and in an increased business workforce => development of innovation hubs with higher education => new companies attracted and created locally
  - (7) Multiple capital investment projects confirmed => local companies enabled to tender for work => local demand for skills => increased employment opportunities => higher GVA per capita and lower unemployment rate => inward investment attracted
  - (8) Global pressure for a low carbon economy => fiscal support for green innovation => innovation within the skills and academic sector => high-end manufacturing with low land-take => carbon sequestration-based land management => enhancement of natural resources and sustainable tourism => high-skill jobs and employment opportunities in the academic and vocational sectors for energy, green manufacturing and green agriculture
- 

social welfare outcomes in one or more specific scenarios.

The third Delphi round marked the limit of what could reasonably be achieved through an online interactive process. To develop more extensive and detailed versions of scenario narratives, and relevant policy interventions in each, a concluding validation workshop, facilitated by the authors, was held. Participants included Delphi contributors who had completed all three rounds, together with additional representatives of sectors that had emerged as important during the preceding stages. Using a combination of plenary discussion and small group activities, the four substantive parts of the workshop comprised a

review of drivers, opportunities and uncertainties; a reconsideration of event chains; a deductive process of expanding outline scenarios with narrative descriptions, identifying the underlying interacting causal processes that produced scenario outcomes; and following this, reassessing, testing, evaluating and prioritising alternative policy strategies. Participants were guided through procedures by a workbook, which, having space provided for reflective note taking, contributed additional qualitative data for the overall analysis.

The resulting narratives and, more importantly, the aids to policy perspective and implementation they engendered, constituted an expression of joint concerns and

**Table 5.** Sketches of the final scenarios.

Scenario 1 – The Perfect Storm	Scenario 2 – The Investment Spin-Out
<ul style="list-style-type: none"> <li>● further severe cuts in all areas of public expenditure for 2014–2019 and beyond               <ul style="list-style-type: none"> <li>○ weak sterling                   <ul style="list-style-type: none"> <li>■ weak export demand</li> </ul> </li> <li>○ weak private sector                   <ul style="list-style-type: none"> <li>■ low employment                       <ul style="list-style-type: none"> <li>● weak local demand</li> </ul> </li> </ul> </li> <li>○ lack of educational improvement                   <ul style="list-style-type: none"> <li>■ stalling of innovation and HE/FE spin-outs</li> </ul> </li> <li>○ no significant capital investment projects                   <ul style="list-style-type: none"> <li>■ lack of investment spin-out project</li> </ul> </li> </ul> </li> <li>● complete loss of manufacturing base</li> <li>● job losses</li> <li>● loss of rurality in countryside</li> <li>● high level out-migration</li> </ul>	<ul style="list-style-type: none"> <li>● focus on capital investment projects               <ul style="list-style-type: none"> <li>○ more concentration of labour – towns</li> <li>○ investment in education                   <ul style="list-style-type: none"> <li>■ inward investment</li> </ul> </li> </ul> </li> <li>● demand for green energy               <ul style="list-style-type: none"> <li>○ green energy resources exploited                   <ul style="list-style-type: none"> <li>■ green energy spin-offs</li> <li>■ creation of employment                       <ul style="list-style-type: none"> <li>● entrepreneurialism kick-started</li> </ul> </li> </ul> </li> </ul> </li> <li>● loss of rurality in countryside               <ul style="list-style-type: none"> <li>○ decline of agriculture</li> </ul> </li> <li>● population growth but low level out-migration</li> </ul>
Scenario 3 – The Knowledge Hub	Scenario 4 – The Dormitory Region
<ul style="list-style-type: none"> <li>● cluster creation targeted               <ul style="list-style-type: none"> <li>○ investment in education</li> <li>○ digital infrastructure investment                   <ul style="list-style-type: none"> <li>■ innovation hubs</li> <li>■ increased business workforce                       <ul style="list-style-type: none"> <li>● cultural innovation supported</li> <li>● employment in skills provision</li> </ul> </li> </ul> </li> <li>○ development of local services and niche goods                   <ul style="list-style-type: none"> <li>■ job creation</li> </ul> </li> <li>○ urbanisation with small rural pockets                   <ul style="list-style-type: none"> <li>■ towns and ‘satellite’ villages</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● investment in tourism               <ul style="list-style-type: none"> <li>○ digital networking</li> <li>○ infrastructure investment                   <ul style="list-style-type: none"> <li>■ creation of dormitory region</li> </ul> </li> </ul> </li> <li>● demand for services               <ul style="list-style-type: none"> <li>○ service sector skills                   <ul style="list-style-type: none"> <li>■ job creation</li> </ul> </li> <li>○ improved marketing of tourism                   <ul style="list-style-type: none"> <li>■ focus on Welsh language and culture</li> </ul> </li> </ul> </li> </ul>

aspirations of the workshop participants. It emerged that participants were not only concerned with maximising positive aspects of individual scenarios, but also sought to identify policy actions that would redress the spatial economic imbalances that, in divergent ways, would be implied by each. They noted that prospects for growth of one or more sectors, or development of certain areas and not others resulted in significant improvements for some, perhaps the majority, of the local population. However, it was appreciated that such changes could, concurrently, either reinforce or worsen social disadvantage for others. This led to recognition of interdependence of economic

development and socio-cultural agendas, and wide-ranging discussion covering housing policy, community development, land use and urban planning, as natural extensions of regional economic policy.

### *Scenario policy issues*

The so-called *Perfect Storm* scenario, with its public sector cuts and sluggish private sector, was felt to be a continuation of present trends and arising from existing planned austerity. Policy concern was for prioritisation of appropriate mitigation, safeguarding that part of quality-of-life in the region that currently depended solely

on the public sector. Suggestions included targeting of limited public expenditure at growth sectors, joint-working and rationalisation in public services, and, given limited options, strengthening community cohesion, particularly to support tourism development and diversification.

The *Investment Spin-Out* scenario was characterised by the briefest of policy prescriptions, since it almost entirely depended on external influences. While emphasis on higher availability of graduate level skills in engineering and science was viewed as important, overspecialisation was recognised as hazardous if it led to geographic domination. Consequently, faster transport links to major cities outside the region were noted as important in attracting further and more diverse investment.

The opportunities recognised in *The Knowledge Hub* scenario, including an active services sector, also required policies to steer the economy towards more evenly distributed growth spatially, through public sector involvement in the direction of private enterprise. This scenario involved the most extensive policy prescription. It included incentives for blue-sky research (such as in the hydrogen economy and nuclear physics), the need for a region-wide world-class fibre-optic network, satellite village promotion for professional settlement, with accompanying transport link improvements with main centres to reverse urban in-migration in key sections of the population, and improved business links with further education.

The *Dormitory Region* scenario, acknowledged as feasible if not wholly desirable, was one in which spatially balanced development could only occur if a detailed prescription of policies was carefully applied. These included the utilisation of local knowledge and enthusiasm, better use of local cultural and historical features, and more indoor attractions to enhance tourism marketing. Of course, the

dormitory function itself could not develop without considerable improvement of east-west intercity rail links and roads, but if this was to be the momentum of economic development, it could be further supported by express bus services and improved road links to the larger towns that do not have rail links. Services in demand from a predominantly dormitory population, in finance, retailing and other professional areas, would also need development. For agriculture and food, branding and marketing local produce rather than subsidies and diversification would result in a better structured and managed industry.

Despite the distinctiveness of each of these scenarios, common prescriptions emerged across all four, none of which envisaged free-spending public sector expansion that characterised the early years of this century. Support for community development was proposed as a means of offsetting declining local and central government provision, and focused on maintenance of environmental quality, integration of housing and transport planning, acquisition and retention of skills, development of successful, collaborative networks of SMEs, and promoting social enterprise to restore community buildings for business purposes. The need to improve demographic imbalance could be addressed through appropriate housing provision and attractive community infrastructure, capitalising on local rootedness, educational provision and promotion of a wider range of career paths. Developing higher education research links and further education training links with business was highlighted, particularly in provision of management and marketing training for local businesses, with additional scope for collaboration with universities and further education institutions in neighbouring regions. Efficiency gains in service delivery were envisaged from mutual aid between private, voluntary and public sector institutions, including joint working,

from easy migration through to active sharing of staff, infrastructure and buildings. Responsibility for promoting entrepreneurship in the region, funding support and training, and development of local supply-chains aiding local procurement, should become universally shared objectives.

However, 'making most of what we have' emerged as a central theme, with the Welsh Government supporting, rather than managing, regional development. It was generally felt that the benefit of mutual reinforcement between ICT infrastructure, inter-regional transport links, tourism marketing expertise, and linguistic heritage in arts and media could be better exploited. On a specific issue there was a clear view that, as well as providing the basis for its appeal to tourists, the region's geographic features could also create enhanced conditions for further exploitation of renewable energy.

### *Follow-up interviews*

This entire process of scenario development occurred at a time of economic uncertainty, just in advance of the 2010 change of UK government. Each stage of the process was overshadowed by imminent potential policy changes, especially greater public sector austerity, which quite evidently affected participants' expectations and perspectives regarding scenario development. Camagni and Capello (2011: 1) describe the construction of 'after-crisis scenarios' for regions as especially complex, 'when structural, long-term and supply policies have to cope and integrate with short-term, demand policies, and when an overall scarcity of public resources must be complemented by private resources'. Therefore, follow-up interviews with a subset of participants were undertaken a year later. Guided by the same protocol as the original interviews, this provided opportunities to gauge whether shifts or variations in the spectrum of their opinions had occurred, and provided further analysis

of the robustness and sensitivity of the scenario approach.

The most striking impression to emerge was that, in contrast to questionnaire returns and workshop discussion, most respondents seemed to accept that they had little control over the pace of changes, and perhaps less influence than they originally thought. Alongside impending impacts of public expenditure restraint (in Wales this process had been delayed by a year), there had also been substantial closures of larger employers in Anglesey. Respondents had general concerns about crude oil price levels and uncertainty over future nuclear electricity generation policies. Conversely, in the climate of recession, agriculture and tourism were performing better than expected. However, the original focal issues of innovation, the energy economy (including renewables), knowledge-based services and the digital economy were barely mentioned. Since most of this anticipated development of technical infrastructure was affected by a moratorium on major discretionary capital spending commitments this was unsurprising, but does indicate the limited time-horizon which affects long-term planning perceptions. Of themes which had occurred previously, increasing efficiency in the private sector and joint delivery and centralisation of services at an overall North Wales basis did feature in discussions. Concern arose, though, about potential losses of higher grades of staff from the region, and consequent diminished local consumption demand, since planned and proposed changes in management location and centralisation of service delivery predominantly involved eastward shifts.

Despite these changes in attitude and a few new concerns, opinion on the economy's future remained remarkably consistent. The process had allowed participants to step back and consider a more abstract future, understanding scenarios as a

structured set of possible futures, rather than predictions. While initial appraisals and policy recommendations from the validation workshop had focused greater emphasis on the *Knowledge Hub* and *Investment Spin-Out* scenarios, later interviews suggested a shift in interpretation in which all four scenarios were fully considered. The greater certainty attached to policy changes had not substantially altered perceptions, beyond reassessment of some of the possible opportunities, and overall the scenarios and policy suggestions remained relevant.

### **'Ground truths' versus the prevailing orthodoxy**

This article has reported on a structured process of engagement of ground-level, flesh-and-blood actors, utilising local knowledge and experience, to explore implications of strategic planning policies in the specific context of North West Wales. This exercise is important in its own right, by shedding light on the particular issues that arise in a sparsely populated region in which employment overwhelmingly depends on small and micro businesses, and where closures of one or more of the very few large employers causes tremendous economic volatility.

Those associated with the process were, not unsurprisingly, preoccupied by themes emerging from WAG policy statements, such as renewable energy, climate change, development of a knowledge economy, innovation and digital infrastructures, as well as more traditional concerns about transport networks and tourism. However, different emphases and different combinations of policies were evident among ground-level actors, since they could draw on local knowledge of, and involvement in, a cascade of policy decisions across different scales of impact. Equally, this provided

scope for identifying the best combinations and timescales to fit piecemeal solutions into an overall policy framework, allowing conception, not only of wider social and spatial consequences, but also of the interaction between both. The emphasis on community development and on lessening spatially polarising consequences of development provided a more realistic and balanced perspective, compared with strategic policy making that implicitly assumes that the consequences of economic development objectives will be exclusively positive.

The successful implementation of this form of engagement in the North West Wales context suggests that it could be usefully deployed more generally, as a structured framework to encourage exploration of the key external drivers of a local economy, including the influences stemming from regional planning. It introduces policy implementers, and policy recipients, to a less reductionist conception of their local economy, and guides their thinking in terms of complex interaction and interdependency, allowing direct insights into causal processes to identify, and possibly avoid, unintended consequences. Enhanced quality and efficiency in decision making as well as opportunities for institutional learning can be achieved, together with a shared understanding to promote more flexible thinking about economic regeneration opportunities.

More specifically, the framework of successive questionnaires with iterative feedback allows stakeholder participation to be greatly extended and sustained. Local government administrative boundaries usually cut across a larger region sharing common characteristics and problems (Karlsson and Olsson, 2006), and their collective, formally independent but functionally interdependent interests could be better coordinated through the strong common narrative developed by the process (Meijers and Romein, 2003).

However, the Delphi convention of anonymity precludes networking from developing, and this only became possible when the scenario development moved into the physical, face-to-face workshop stage. There is also a further, more substantial disadvantage, which is that although the process of engagement should optimally be two-way, frequently the lessons available from ground-level perspectives 'have been lost or ignored, and governments continue to operate in a top-down manner rather than engaging in a more meaningful dialogue between those who design and those who deliver and use public services' (Cairney 2012: 355). It is possible that such potential polycentric governance offers too severe a challenge to conventional structures of regional strategic planning. With increasingly restricted freedom of manoeuvre for public intervention, recognition of mutual interdependence of viewpoints and establishment of two-way information channels between the ground level and upwards, appear to be urgent priorities for more effective and resource-efficient regional policies.

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