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European Polycentricity and emerging Mega-City-Regions
– "one size fits all" policy?

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Abstract:

This paper provides a series of conclusions derived from a Special issue of *Built Environment* on the Polycentric Metropolis in Europe. Based on the results of the European POLYNET research program, the authors discuss the reality and forms of Mega-City-Regions in Europe before critically addressing some pressing issues related to city-regions development. The paper concludes on polycentricity as a fuzzy paradigm that needs to be more critically discussed.

Key words: Polycentricity, Mega City-Regions, Europe, Development

Polynet has examined an emergent new form of urban development in North-West Europe: the global *mega-city-region* (MCR), a cluster of towns and cities that is increasingly functionally interconnected across geographical space through virtual communications and travel'. A series of empirical studies has investigated the interrelationship between informational 'flows' and urban morphology in eight potential MCRs – Greater Dublin, South East England, the Paris metropolitan region, central Belgium, the Randstad, Rhine Main, RhineRuhr and Northern Switzerland - focusing on Advanced Producer Services (APS), identified as core activities in the global 'knowledge economy' (Friedmann 1986, 1995; Sassen 1991, 1994; Castells 1996; Beaverstock et al. 2001; Hoyler and Pain 2002; Taylor et al. 2002; 2003). The implications of MCR development for polycentricity and policy in each case, are assessed in the eight preceding articles of this Built Environment Special Issue.

Polynet has highlighted the realities and the limits of the polycentric MCR phenomenon in this highly developed urban European economic area. It is clear that the MCR hypothesis (see Editors Foreword, p.XX) does not refer to a static state of urbanisation but instead describes a multi-scalar urban *process* that is currently unfolding at two spatial levels.

First, at an international/European level, the Polynet empirical studies report increasing *functional linkages* between the core cities of each MCR. This results from the singular core city concentration of global skills and functions in all cases and the requirement for intensive communication between them. The critical importance of face-to-face contact in knowledge-intensive APS business, leads both to dense clustering of high-skilled transnational labour and firms in just one, highly specialised MCR core and to increasing travel between them. Developments in information and communication technology (ICT) have not reduced the importance of physical interaction in an economy which relies on relationships, trust and cooperation. APS activity is shown to produce significant knowledge-based flows and functional linkages between the MCR's, through their global cores, that are indicative of a *transnational polycentricity*.

Second, at a metropolitan/regional level, interdependencies between the highly globally connected MCR cores and their surrounding areas are evident and

increasing – though to differing degrees. A regional division of labour in APS is inducing functional linkages *within the MCRs* and to increasing criss-cross commuting and business travel. These processes are leading to a new form of *functional polycentricity* that is not evident from urban morphology. APS business networks that extend beyond the MCR core are also indicative of *inter-urban links* in the regional knowledge economy. Business interaction between offices outside the core cities was found to be most developed in South East England, whereas this was less evident in the Paris metropolitan region and particularly weak in Greater Dublin and the Randstad. The geographical area encompassed by intense functional linkages was also found to vary from case to case but everywhere it proved impossible to identify precise MCR boundaries. The dynamic nature of MCR emergence prevents their fixed delimitation, yet they should be recognised as a key concern for policy.

The reconfigurations of urban processes identified in Polynet, have policy implications that public actors at all levels should consider. The globalisation of APS activity is therefore leading to functional polycentricity, primarily at a *transnational scale*, but also increasingly, at an emergent *MCR scale* of interaction. The three introductory questions posed at the outset of this Special Issue (see Editors Foreword, p. XX) were intended to provide a framework for the assessment of policy responses to these developments across the MCR studies. Based on the eight regional articles and drawing on the extensive Polynet research resultsⁱⁱ, in this concluding, but – we hope – debate-prompting article, we attempt to answer these three questions.

MCR formation in question

What is policy-makers awareness regarding the increasing and yet very different realities of MCR formation in North West Europe?

There is much evidence from the Polynet analyses that, to some extent, official European and Member State documents, that provide the policy framework for the MCRs, mention the major underlying economic changes that contribute to MCR formation. The March 2000 *Lisbon Summit* established the

European Union goal of becoming the 'most competitive and dynamic knowledge-based economy in the world (...) by 2010' (European Council 2000). This objective – to be discussed further in this paper – emphasises aspects of economic change that are central to the MCR processes identified in the Polynet findings. Following Manuel Castells' influential insights into the emergence of a new economy characterised by the 'network enterprise', 'informationalism' and 'globalisation' (Rodrigues 2002, 2003), the thinking behind the *Lisbon Strategy* prioritises development of the knowledge economy and innovation thus reflecting current scientific understanding of major contemporary global economic changes. However an important question raised by all the articles in this Special Issue is the extent to which current MCR policy frameworks establish a link between development of the European knowledge economy and metropolitan economic and geographical organisation.

The Lisbon Strategy and related documents to be discussed in greater depth shortly, do not refer directly to spatial planning prioritiesⁱⁱⁱ however, the *European Spatial Development Perspective* (ESDP) numerously speaks of knowledge, education and infrastructure as being important factors for spatial development (European Commission (EC) 1999). Yet one of the ESDP's core strategies – "Polycentric and Balanced Spatial Development in the EU" (EC 1999: 24) – does not address the concentration impacts of the knowledge economy. The ESDP breathes the paradigm of balanced territorial development to be promoted through polycentricity, largely based on a strictly *morphological* view of spatial development. There is a recognition that: "To strengthen a balanced settlement structure, ways and procedures must be found to enable cities and regions to complement each other and co-operate" (EC 1999: 25), however the urban functional complementarities within and between MCRs, in which concentration has a crucial role, are not recognised.

The eight Polynet case studies indicate that neither European Union (EU) policy in the years 1999/2000 nor policy at regional and national levels in the year 2005, is based on an awareness of the importance and the magnitude of the occurrence of functional polycentricity. Then and now, there is little concern for the crucial connection between the changing requirements of knowledge intensive firms (networking *and* face-to-face contact) and urban change. The

Rhine-Ruhr article reports for example that a lack of interest amongst policy-makers in their polycentric region characterises what is for them a 'hidden' or 'unborn' MCR. The Rhine-Main article explains the failure to picture an MCR, in this case as a result of the intensity of political fragmentation. In South East England, policy-makers found the extent and geography of MCR functional inter-linkages revelatory and saw the lack of consideration of functional polycentricity in the ESDP as a serious weakness.

Needless to say an under-developed awareness of MCR formation processes at all policy scales is generally accompanied by a lack of understanding of the implementation dilemmas raised by these profound economic and spatial changes.

What are the consequences of emergent MCR functional perimeters on administrative and political geography at different scales?

Following from this finding, the lack of attention to the MCR in policy, results almost mechanically in a lack of institutional re-arrangements to adapt administrative and political perimeters to a prevalent soft and shifting functional geography. At a regional level for example, there are no instances of recently created political organisations to address MCR-related issues. The Zurich case study highlights how national and local/sub-regional political institutions are unaware of the challenges posed by MCR processes and thus resist a programme of political re-design. Policy makers in Switzerland remain preoccupied with small-scale territorial governance issues and do not manage to adapt the political framework to emerging issues that will be – and even are already – crucial for Swiss integration into the global economy. This lack of institutional reorganisation may not be a problem in itself. After all, the ever-changing soft functional perimeters of MCRs may prevent any attempt to adapt institutional geography via the creation of new and additional territorial authorities. However, the boundaries of existing institutional structures are more problematic with respect to their underlying incapacity to define and implement policies at the MCR scale. The fact that the 1994-1999 *Contrat de Plan*

Interregional du Bassin Parisien (CPIBP) was not prolonged in a successive period like all others *Regional Contrats de Plan* (2000-06), was a clear sign in the Paris region of the incapacity of various policy-makers (national and regional) to work hand-in-hand to develop coherent policies at the MCR scale. In the UK, while recent national government thinking now appreciates the 'fuzzy' nature of evolving city-region boundaries, the extent and significance of inter-urban functional linkages is not reflected in either spatial policy advice or institutional and administrative arrangements. As the South East England article demonstrates, the structures, powers and resources required to manage intensive MCR processes are currently lacking, resulting in an institutional 'thinness' in the area of urban interaction where significant changes are occurring.

Whereas, one might have expected to find some differences in the level of awareness of MCR processes and the willingness to adopt a MCR policy strategy according to the organisational structure of a nation state – Unitarian vs. federalist, the eight articles do not suggest a differentiation of any kind on this basis. The history or path-dependent development of individual MCR cases seems to display a certain common level of *unawareness* about the magnitude of functional polycentricity, independent of Unitarian or federalist structures that is replicated in EU policy.

What strategies are needed to confront pressing MCR priorities for sustainable economic and spatial development?

A series of related issues – reflecting numerous contemporary scientific and political debates to which this paper is only a contribution – underlie this overarching question, and are further developed in the rest of the paper. Some of these are stressed by the EU Agenda developed during the Lisbon Summit and more recently amended. Indeed, the first objective of the European Union to become the "most competitive and dynamic knowledge-based economy in the world" is complemented with a second goal, which refers indirectly to sustainable development. The European Union competitive economy must be

"capable of sustainable economic growth with more and better jobs and greater social cohesion, and respect for the environment by 2010" (European Council 2000).

To stress this point, a European *Strategy for Sustainable Development* (SDS) – a term originally defined by the *Brundtland Report*: "to meet the needs of the present generation without compromising those of future generations" (WCED 1987) - was agreed by the European Council in Gothenburg in June 2001, adding an environmental dimension to the priorities for economic and social renewal emphasised at Lisbon (Commission of the European Communities (CEC) 2001; Göteborg European Council 2001; European Commission (EC) 2003). But, as will be seen, the Polynet findings suggest the objectives proposed in these and subsequent policy documents - economic growth, competitiveness, cohesion *and* sustainable development - are not necessarily mutually reinforcing.

In the context of enlargement, coupled with perceived increasing global economic competition, the European Commission mid-term *Lisbon Review* presented at the March 2005 Spring Summit, decided a renewed emphasis on objectives for growth, jobs and competitiveness was needed (Kok Report, 2004). The EU Parliament called for the "development of a credible regional policy for all Member States" to "allow the regions, and the cities, to contribute to the Lisbon process and make it more effective" (Hübner 2005a). 'National action plans' produced at Member State level were to be complemented by EU-wide 'integrated guidelines' introduced in April 2005 for economic and social reform (CEC 2005a). The subsequent *Community Lisbon Programme for growth and jobs to 2008*, has put forward 50 economic reform initiatives (CEC 2005b) however initial reactions suggest a lack of unified EU public support for proposed modernisation will be a major stumbling block in implementing an EU-wide strategy (EC 2006).

The strong Lisbon reform focus on growth and competitiveness and apparent lack of attention to social inclusion, the environment and the Gothenburg process has been controversial. Sustainable development is identified as an overarching principle of policy in the EU Treaty but sceptics point to the vagueness of the concept and its inherent inoperability (Institute for

European Environmental Policy 2005). In the February 2005 SDS 'Orientations for Review', the Commission admitted insufficient progress towards the Gothenburg Agenda had been accomplished (Hübner 2005b). A declaration on '*Guiding Principles for Sustainable Development*' adopted by the European Council in June 2005, was intended to complement the Lisbon economic emphasis. Most recently, the Commission's *European Sustainable Development Strategy 2005-2010: A Platform for Action*, December 2005, due for adoption by the European Council in June 2006 (CEC 2006), calls for Member States to produce national reports and for two-yearly Commission reports on progress from now on.

Viewed individually, the renewed Lisbon-Gothenburg priorities appear to be incontrovertible but the Polynet findings on MCR emergence suggest that, in practice, a series of fundamental tensions underlies them. The Commission recognises the need for economic, social and environmental policy to be dealt with "in a mutually reinforcing way" (CEC 2005b: para 19) but, as highlighted in the South East England article, of more profound concern than a lack of co-ordination is the failure to address complex interdependencies between the economic, social and environmental dimensions of these key EU policy frameworks.

Policy fails to reflect one of the main challenges for implementing the global concept of sustainable development on any given sub-global scale. While the global system is relatively closed, MCR's are more or less open economic and ecological systems. In an age of globalisation, interrelationships and flows between Europe's cities are increasing (Cochrane, Pain 2000). The MCRs interact with each other - resource flows circulate as inter-connected inputs and outputs and form spatial systems of chains of value-added (Thierstein, Walser 1997). Policy measures undertaken in an individual MCR may or may not hinder or damage the development process of neighbouring MCR's or other countries. This idea of space corresponds to 'the full world' conception of Herman Daly (1992), while the dominant economic theory of an 'empty world' of distinct spatial containers is expiring. A region can be simultaneously distinguished as a 'clean' and 'sustainable' economy, at the expense of other regions, by for example,

exporting waste or importing energy intensive products or goods manufactured by cheap child labour.

The Community Lisbon Programme seems to adopt an ecological modernisation approach to policy for sustainable development. This directly aligns objectives for environmental protection with those for economic growth, stating that: "clear and stable objectives for sustainable development will present significant economic opportunities" (CEC 2005b: para 21). While technological innovation will undoubtedly play a key role in promoting environmental sustainability, the evidence on MCR formation processes identified in Polynet suggests there is a danger of over-simplifying the relationship between environmental, economic and social priorities.

The assumed alignment of economic growth with social equity and environmental protection in the concept of 'sustainable development' has long been regarded as an oxymoron by some commentators (Blowers, Pain 1999). The Polynet findings on MCR emergence illustrate some important contradictions implicit in the term. As already established, APS are an essential component of contemporary European growth and competitiveness in the global economy, and thus the Lisbon Agenda. But the specific requirements of the knowledge-based economy for face-to-face contact, bring emergent MCR economic development into direct conflict with SDS objectives for the environment. Furthermore, the Polynet findings call into question the causal relationship assumed in policy between growth and social equity since geographically balanced economic development is not found in *any* of the MCRs studied. A sophisticated spatial analysis – currently absent in the Lisbon-Gothenburg Strategy^{iv} – is needed to unravel the complexity of these potentially conflicting Lisbon/SDS objectives.

But EU-wide advice on spatial strategy, embodied in the ESDP, since 1999 is based on an assumption that an alignment between objectives for economic growth, competitiveness, cohesion and sustainable development, can be achieved through polycentric development. Polycentricity is seen as capable of promoting balance at both EU-wide and regional scales to counter existing uneven territorial development. Key findings on polycentricity from Polynet have been incorporated in the recent North West Europe Spatial Vision Study

(University of the West of England 2005) but, as will be demonstrated, their implications for policy and investment demand in-depth trans-national debate and further research that goes beyond the recommendations of that study.

Various cohesion policy financial instruments - mainly Structural Funds - currently contribute, directly or indirectly, to the Lisbon/Gothenburg Strategy - and are expected to continue to do so for the foreseeable future (CEC 2005b: 3,4). Structural Funds are allocated with regard to sustainable development indicators developed within ESPON that reflect ESDP priorities for polycentricity^v, hence at least four questions for future policy arise from the Polynet results on MCR polycentric spatial planning:

- *Economic development*: what is the importance of the MCR for a more competitive European economy?
- *Social inequities*: Can functionally polycentric MCRs counter socio-spatial fragmentation and if yes, on which spatial scale with what impact?
- *Environment sustainability*: Are the overall consequences of MCR formation processes harming or protecting the environment?
- *Territorial cohesion*: to what extent do MCR processes contribute to or limit European territorial cohesion?

Although it is clear that more in-depth studies are necessary, as will be shown in the rest of this paper, Polynet casts considerable light on these questions at EU and metropolitan levels by confronting what seems to be an EU policy paradigm between the polycentricity concept and the reality of contemporary MCR spatial formation processes.

Polycentricity: the fuzzy paradigm

According to existing European spatial documents - the ESDP and NWE Spatial Vision - polycentric spatial planning has all the virtues to meet the requirements of sustainable development. Applied both at European and regional levels, polycentricity is believed, without further demonstration, to enable economic competitiveness while reducing social inequities and relieving pressures

on the environment. Overall it is described as the best compromise to promote territorial cohesion.

However, before any assessment in the official documents of the theoretical and practical efficiency of the concept, one is struck by the lack of a clear definition. The Polynet study has tried to tackle this deficit by showing that polycentrism refers at least to two distinct dimensions. *Morphological* polycentricity which depicts the multi-polar distribution of cities and towns and *functional* polycentricity which, in contrast, describes information flows and the functional spatial division of business activity resulting from the business models of multiple respective network organisations.

But in the European Union documents one gets the impression that polycentricity is often understood in the purely morphological dimension. The ESPON study on Functional Urban Areas acknowledges that the “potentials for enhancing a polycentric urban tissue identified in this project are related to morphology - i.e. to the proximity and size of cities. If these potentials are to be exploited by local authorities, companies, agencies and institutions, co-operation, functional relations and a division of labour between the cities must be established” (ESPON 2004: 30). The final report concludes that their “analysis of urban areas as the nodes in the process of polycentric development requires data to be gathered at intra-regional scales (...) Data on flows at the intra-urban level is currently however practically non-existent. The availability of such data would have allowed us to integrate the network dimension in European polycentric development in a more systematic way” (ESPON 2004: 30).

This self-critique can obviously be partially explained by the extreme difficulties of observing business flows – a deficit that Polynet set out to address at a North West European MCR scale for the very first time. No official statistics have been able to allow for these flows so far yet, ironically, they are shown to be crucial by Castells whose theories helped to inspire the Lisbon Strategy. This morphological approach proves highly problematic when addressing issues related to MCR formation processes, and more generally, the functioning of the knowledge economy that is the focus of European Union economic policy. The Polynet study shows that knowledge-intensive firms adopt spatially selective

organisational strategies that interlock core cities into a functional North West European network¹. In this sense, neither regional nor European-wide *morphological* polycentricity fits adequately within this European MCR *space of flows*.

Result 1: To achieve the goal of greater economic competitiveness it is important to i) carefully differentiate morphological and functional polycentricity and ii) to give attention to MCRs and more specifically to the role played by their core cities.

Moreover, relationships between the two forms of polycentricity (morphological and functional) are complex. Too general a model is therefore suspicious. In the case of MCR emergence, morphological polycentricity does not systematically lead to functional polycentricity. In other words the distribution of population and workers among cities of a common regional system cannot be taken as evidence of intense intra-regional flows.

The Randstad case study in this Special Issue thus makes a strong point by underlining the importance of path-dependent development of MCRs and alternative routes towards polycentricity. The case study refers to Champion's typology (Champion 2001) with its clarifying distinction between three different modes of polycentric development: a centrifugal, an incorporation, and a fusion mode. Thus, there is no "one size fits all" concept of polycentricity. The Rhine-Ruhr and Randstad regions are the most morphologically polycentric of all eight Polynet case studies. Yet they do not show more intra-MCR business connectivity than apparently more monocentric regions such as the Paris metropolitan area or Greater Dublin. On the contrary, morphological monocentricity is not counter to functional polycentricity. London is considered by the North West Europe Spatial Vision as a strongly monocentric system but the concentration of global functions in the London core does not prevent a broader distribution of APS activities across a wide geographical area. Thus information flows to some cities of South East England, are in fact globally connected via the London hub.

¹ Polynet did not study other major city-regions such as Madrid, Barcelona, Milan, etc. These cities along other are probably part of this European network.

It is not possible to draw a linear relationship between the two forms of polycentricity as if morphological polycentricity systematically induces quasi automatically functional polycentricity. Evidence from most papers of this Special Issue reflect, on the contrary, the diversity of resulting spatial configurations. Despite their comparable weight in their respective national systems and their identical initial monocentric geography, the two metropolitan regions of Paris and London have followed different routes: the first remains a functionally monocentric metropolitan area (at least at the large MCR scale) while the second has evolved into a much larger functionally polycentric system. Thus again, history matters and polycentricity develops out of alternative development paths.

Result 2: Despite the contemporary economic changes that favour the emergence of MCRs, historical specificities and local contexts are crucial to understand their regional functional geography. Implementing one model for all spaces can lead to unexpected consequences.

Polycentricity: an inadequate spatial planning tool?

The concept of polycentricity is not only fuzzy, it also proves very difficult to implement. The role of specific historical contexts apart, this is due to its tendency to be scale-dependent. Polycentric policies at a given scale may have very different effects on other spatial levels. The Paris case highlights how two polycentric policies at national and regional levels fuelled a bold political competition that prevented the emergence of an MCR at an intermediate scale.

Such competition is likely to prove counter-productive to the knowledge economy in which information and skills are transferred between offices, organisations *and* between cities. APS firms are not working at one single spatial level. On the contrary they 'network' across different scales exchanging information between global MCRs and within them. In the same day, a high-skilled worker can be in a meeting with his/her next door collaborator, have lunch with a client located on the other side of the MCR and have a phone call with the company's CEO attending a meeting in another international city-region. Therefore, conflicting scales resulting from multi-scalar, often simultaneous and

undifferentiated uses of polycentricity in spatial planning policies face the risk of not corresponding to effective business interactions that generate inter-urban economic complementarities. A contradiction appears between polycentric planning policies that are scale-dependent – and thus might contribute to the prejudicial fragmentation of public actions – and APS network flows that cross-cut political and administrative boundaries in what Castells describes as the 'space of places' (Castells 1996).

Polycentricity: how compatible with the Lisbon/Gothenburg agenda?

Polycentricity may yield unexpected results and even contradict original SDS objectives. It is time as the paper draws to its end to go back to the four initial questions for policy posed on pxx and attempt to see how polycentricity can possibly contribute to economic competitiveness, social equity, environmental preservation *and* territorial cohesion at MCR and European levels?

Within MCRs, polycentricity does not systematically produce a more efficient economic system – in so far as firms' organisational and locational strategies are a valid approximation of this. On the contrary, the Polynet study shows that the core city always plays the leading global gateway role for the entire region, thus limiting a perspective of a more balanced development. In other words, a geographically homogenous distribution of cities at the regional level may harm the competitiveness of the core city and by extension MCR economic development. Importantly, polycentricity is not shown to be the key to less uneven development. In all MCRs, some forms of socio-spatial imbalance remain whether this takes the form of a centre-periphery divide as in central Belgium or of an east-west opposition as in South East England. In addition, the ability of polycentric planning to preserve the regional environment may be more restricted than expected in official EU planning documents. Cross-cutting relations between the constituent cities of functionally polycentric MCRs by-pass radial hub-and-spoke public transport infrastructure and encourage the use of cars to allow regional development of the knowledge economy.

At a European scale, the dilemmas of polycentricity are strong at a European level too, especially when considering the goal of territorial cohesion proposed by the ESDP. In contrast to the normative rhetoric of balanced European development - where peripheral regions would benefit from strong growth in relation to the central Pentagon - the Polynet study suggests two alternative possible scenarios for future development of the European space under conditions of MCR reinforcement. The first prolongs potential conflicts between European Union policies for economic growth and social equity. In the context of MCR formation, the promotion of polycentricity at a regional level could signify the reinforcement, not of the peripheral and less developed regions, but of the Pentagon, thus reducing hopes for European-wide balance. The second scenario is that as the Single Market develops, major cities (cores) outside the Pentagon will be future sites of APS concentration and that the extension of markets, services and skills between Europe's capital cities will draw new Member States into the Pentagon 'global city network'. New city-regions or even MCRs will thus emerge and growing functional complementarities at a European scale will allow the export of benefits from European APS networks from North West Europe to eastern countries *through their cores*.

The vague and ill-defined concept of polycentricity, as a morphological state, in current documents is hard for policy-makers to apply and, even if it were possible, this form of polycentricity at a regional scale has no association with increased economic competitiveness, environmental sustainability or territorial equity. Functional polycentricity between MCR cores at a transnational scale seems to be the most important objective.

Conclusion

A disjunction between ESDP, Lisbon and Gothenburg objectives combined with the restricted remit and powers of spatial planning, demonstrates the need for a better understanding of the interrelationship between the economy and geographical space - a spatial vision that encompasses the interdependencies between the space of flows and the space of places. But a more profound

question arises concerning the territorial social and environmental implications of changing economic processes and how to govern this relationship. The Lisbon, SDS and ESDP agendas lack alignment through their conflicting respective foci on economic competitiveness in the global knowledge economy, sustainable development and morphological polycentricity. On the one hand, knowledge-based functional polycentricity at the EU and, increasingly MCR scale, is shown to be necessary for sustainable jobs and employment in a globalising service-based economy. But this must respect the need for concentration in 'global' cities and for travel. Thus a tension arises between priorities for economic growth and environmental sustainability and, because MCR development is uneven in all cases - including the morphologically polycentric RhineRuhr and the Randstad - there is a further tension with territorially balanced development and social equity that is similarly replicated at an EU wide scale. Community concerns for territorial cohesion may be better addressed through more effectively coordinated sectoral policy than attempts to create an even morphological pattern of spatial development.

The final report of the Spatial Vision Study (UWE 2005) does not in the end seriously question the relevance of polycentric development for the Lisbon-Gothenburg Agenda. In fact, one of its recommended strategic sub-objectives for future cooperation "to support the improved global performance of the economy of the Community" is "to strengthen the polycentric structure within NWE in order to enhance its international economic competitiveness" (UWE 2005: 46). A main conclusion states that North West European concentration in "a strong core of dense urban development, global command functions and knowledge economy activities (...) presents great challenges for sustainable development" (UWE 2005: 3). Neither statement is shown to be so straightforward by empirical evidence from the Polynet study. ESDP priorities for polycentricity pre-date a conceptualisation of space that reflects new scientific understanding.

The numerous dilemmas and scientific uncertainties associated with polycentric-oriented spatial planning policies require an in-depth re-assessment of the concept. The Polynet project, alongside others, has started to scratch the surface and tried to contribute to this re-evaluation, by investigating MCR formation processes uniquely focusing on knowledge flows. Further light needs to

be shed on polycentricity – and this, before further costly public investments are undertaken at European and regional levels. There is so far no evidence that spatially undifferentiated (polycentricity at all scales) and uncoordinated polycentric policies, will support both Lisbon and Gothenburg objectives alike.

This does not mean that there are no urgent political issues to be tackled at the same time, especially in the context of MCR emergence. It is argued for instance that the growing importance of these large city-regions in the knowledge economy may have the counterproductive effect of encouraging territorial competition between places rather than promoting the urgent task of economic sustainability which may be strengthened more by institutional and political cooperation. The absence of governance, administrative structures, policy instruments, powers and resources at the MCR scale is an obstacle to coordinated action and thus to key Lisbon economic priorities. Joined-up approaches are needed to bridge jurisdictional and sectoral boundaries as argued in the Zurich and South East England papers. At the same time, processes of globalisation and the completion of the Single European Market are transforming business relationships between cities in North West Europe. Knowledge-based business flows between global 'gateway' cities have major implications for MCR economic development. Understanding the functional complementarities between cities and regions is urgent as inter-city and inter-regional functional relationships are shaping North West Europe development. Moreover, the liberalisation of European public services markets poses a challenge for the governance of flows which require cross-jurisdictional and cross-sectoral structures. Alongside MCR spatial and functional specificities, the lack of awareness of governance and of policy instruments at the MCR scale seem to present a democratic deficit.

Active institutional networks are vital to manage a space of flows that bears little relation to geographical and administrative place-based boundaries. At the same time, an improved understanding of the interrelationship between MCR processes and the geography of economic, environmental and social equity is essential.

Towards a research agenda

At the end of the Polynet study, the need for further research to inform policy action in three specific areas was identified in a transnational research agenda.^{vi}

- First, *spatial and functional complementarities* - there is a need to extend and deepen understanding of the functional specialisation that operates across space in advanced business services. Which functions and sectoral clustering profiles can contribute most effectively to a sustainable, more balanced EU-wide regional knowledge economy?
- Second, *interrelationships between advanced business services and the wider economy* - how do the specialised, high-skilled services studied in POLYNET interrelate with other sectors of the economy and influence a broader spectrum of employment opportunities?
- Third, *intra- and inter-regional functional linkages* - how can spatial complementarities in the knowledge economy, including those between the MCR and other core cities and their surrounding regions, be enhanced? What demand, skills and infrastructure factors are critical to their development? A deeper understanding of the reasons behind present geographies of uneven development - the role of accessibility and the significance of historical development paths - is needed.

The findings on the relatively advanced development of MCR processes in the South East England case raises a final overarching question of importance for EU city-region development in a globalising advanced service economy. Is a new scale of *territorial capital* emerging through MCR functional development processes and can this contribute positively to social equity? If so, how can 'MCR capital' be enhanced by spatial and sectoral interventions at metropolitan, regional and Member State levels? An improved understanding of the relationship between space, the economy and society is urgently needed to inform co-ordinated action and to operationalise EU-wide sustainable economic, social and

environmental objectives through more effective spatial planning in an increasingly dynamic transnational space of flows.

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End notes:

ⁱ For more details see Editor Foreword in this Built Environment Special Issue as well as the Polynet website: <http://www.polynet.org.uk/> and Polynet-related publications: Hall, Pain 2006 and a forthcoming Special Issue in *Regional Studies*

ⁱⁱ For the research results on policy, see Stafford et al 2005; Hall and Pain 2005a,b; Halbert 2005; Aujean et al 2005; Lambregts et al 2005; Hoyler et al 2005; Knapp et al 2005; Thierstein et al 2005

ⁱⁱⁱ A statement by Danuta Hübner, Commissioner for Regional Policy, acknowledges the link between Cohesion Policy and the concept of polycentricity: “The search for better territorial balance in Europe reflects the “polycentric” ambitions set out in the European Spatial Development Perspective (ESDP), which was adopted by Member States in 1999. The entry into force of the Constitution would strengthen this aspect (articles I.3 and III.20) because it foresees the introduction of the concept of territorial cohesion.”

http://europa.eu.int/comm/employment_social/emplweb/news/news_en.cfm?id=10 accessed January 2006.

^{iv} See also the Final Report of the Spatial Vision Working Group (UWE 2005: 3)

^v ESPON ‘disparity indicators’ and the development of a *European Territorial Cohesion Index* (ETCI) in ESPON Project 3.2 – *Spatial Scenarios and Orientations in relation to the ESDP and Cohesion Policy* - are aimed to assist the promotion of balanced spatial development, in line with ESDP, Lisbon Strategy and sustainable development priorities, through Cohesion Policy (http://www.espon.lu/online/documentation/projects/cross_thematic/1375/tor_3.2.doc).

^{vi} The research agenda was developed in the ‘Mega-Net’ project proposal submitted in the INTERREG IIIB North-West Europe Programme in November 2005 but has yet to be pursued