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CHANGING URBAN FORMS IN THE NEW KNOWLEDGE ECONOMY?

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THE RISE OF THE KNOWLEDGE ECONOMY

Contemporary economic activity is increasing dominated by so-called knowledge-based activities. Just as manufacturing displaced agriculture as the backbone of economic activity in the 19th century, since the 1970s, services have come to dominate the industrial structure. At the same time, since the mid-1940s, investments in ‘knowledge’ have become central to economic growth¹. In particular, the rise of knowledge-based services have been a key driver behind the emergence of the ‘knowledge economy’².

The increasing importance of knowledge raises a whole new set of planning challenges. Traditional urban planning was helped by the fact that, above a certain size, industrial agglomerations physically hinder each other, so-called ‘diseconomies of scale’. However, knowledge is much more intangible than land and machinery, and there does appear to be ‘increasing returns to scale’ for knowledge capital. This suggests that cities will increasingly have a limitless thirst for growth³. Indeed a number of ‘mega-cities’ - Paris, London, New York, Los Angeles and Tokyo – have emerged as highly competitive urban centres home to mutually reinforcing knowledge service industries.

The growth of mega-cities has challenged the traditional role of urban centres; many larger cities reinvented themselves as strong economies buoyed by globally-competitive niche service sectors⁴. More worrying has been the effects on smaller towns and cities, which might once have specialised in manufacturing or food processing. However, core cities’ attractive powers undermine the survival of strong and dynamic service industries outside mega-urban areas.

THE HOLY GRAIL OF URBAN AND REGIONAL PLANNING

The increasing pressures for urban concentration and growth creates a whole new set of problems for regional planners; knowledge-based urban growth generates wealth, but in parallel with massive congestion. Rapid urbanisation/ suburbanisation to house knowledge workers creates huge environmental sustainability and transport problems. Rapid house price inflation can drive less skilled and lower paid workers far from the city, or create intractable pockets of worklessness, deprivation and social exclusion.

Former regional service centres may become overrun by local services and commuter housing, further eroding demand for high quality public services. This can precipitate car dependence and access problems for poorer social groups, including the young and elder communities. This compounds affordable housing access problems in rural areas, breaking up kinship and friendship networks, significantly undermining the quality of life of rural residents, whilst falling populations of these groups undermines existing social and health services.

The 'holy grail' of planning in the knowledge economy is to create a strong urban core which simultaneously anchors and sustains dynamic outlying settlements, harnessing economic strength to address social exclusion and physical dereliction. The shifts from sectoral to indicative planning, and increasing emphasis on public/private partnerships addressing market failures, both associated with the rise of the deregulated knowledge economy, have limited planners' capacities to shape the new drivers of urbanisation.

In more fragile urban economies, planning through governance partnerships has frequently failed to address these knowledge economy challenges. Large manufacturing firms often dominated cities such as Detroit, shaping the planning system both directly as land users, but also through collective industrial voices such as chambers of trade and commerce. As manufacturing employment has tumbled, such business and sectors have increasingly restructured and rationalised, rather than stimulating new knowledge-based urban growth. More peripheral city-regions today lack powerful local actors able to revitalise moribund planning networks.

UNIVERSITIES AS CREATORS OF KNOWLEDGE CITIES

If firms cannot provide this stimulus, then who can? The answer is increasingly being found in the higher education sector⁵. Recent debates over universities' contribution to urban development have often focused 'universities as developers'⁶. In this article, we observe that universities are beginning to mobilise larger regional networks to meet their own needs. In one specific case, mobilising these networks has helped the region develop a necessary planning capacity vital to address its shortcomings in the 'knowledge economy'.

Universities are a significant economic sector across developed economies, contributing around one sixth of all R&D, educating up to one half of the population, and supporting industrial competitiveness⁷. In recent years, the higher education landscape has changed considerably, responding to increased demands from governments. Rising student numbers, marketisation, competition, rising accountability, and workforce ageing have forced universities to re-evaluate their missions. Financial shortfalls have made universities actively approach local partners as new funding sources, and urban development partnerships have offered important opportunities for universities to rebuild themselves in return for meeting their partners own demands⁸.

This creates both opportunities and challenges for urban planners. Universities clearly have significant resources to rebuild urban areas into 'knowledge cities', so attracting and embedding other key actors through this process. Science parks exemplify this approach, often developed by universities and urban authorities to attract and retain knowledge intensive businesses, using the universities' knowledge base. However, universities do not respond functionally to planners' demands, so planners face the dilemma of shaping without constraining, discouraging or displacing

universities' activities. To illustrate these tensions and practical responses, we explore one particular case, the University of Twente (UT), where a new planning tier emerged in the wake of UT's estate redevelopment.

THE CASE OF THE UNIVERSITY OF TWENTE

The region of Twente, in Overijssel, the east of the Netherlands, is an old industrial region (see figure 1). The province was formed in 1825 with its capital located in the (then-dominant) western trading city of Zwolle. Rapid industrialisation from the 1830s, based on textiles and machinery, dramatically rebalanced the province's economic geography over the next 150 years⁹. There was a eastward shift of population, production and infrastructure, with new towns and cities emerging housing these new industries. By the 1930s, Twente had become the third industrial region of the Netherlands, although its governance and planning systems remaining firmly rooted in the 1820s¹⁰.

As a small country, the Netherlands' post-WWII reconstruction focused on rebuilding high-value added engineering industries and creating a highly-skilled workforce. From 1945, Twente's textiles industry entered a prolonged decline in the face of overseas competition. In 1950, the Government had created a new technical university in Eindhoven, which had been very successful, encouraging non-traditional learners into technical higher education, and supporting business innovation in North Brabant. In 1957, these successes persuaded the Government to create a third technical university, and after prolonged lobbying and expert advice, Enschede was chosen¹¹.

Enschede offered a site that was 'greenfield' in many ways. The municipality owned a nearby country estate, Drienerlo, confiscated from a wartime collaborator textile tycoon¹². The university was also created as a 'legal' greenfield, given significant latitude to experiment in staff recruitment, curriculum, student life and disciplinary trajectories. The Technical High-school Twente (THT) was created as the Netherlands' first campus university, inspired by 'Oxbridge' and Ivy League models from the UK and US. The campus permitted sequestering students away from the distractions of Enschede, nurturing them within student houses, to build a coherent intellectual community in a former working-class area.

The government hoped that THT would stimulate innovation in the local textiles industry, and reverse its decline.¹³ From its creation, THT immediately faced a series of crises. In the 1970s, Twente's declining textiles industry collapsed, and the government consequently began discussing THT's closure. However, under the leadership of Professor Harry van der Kroonenberg, THT slowly reinvented itself in the 1980s¹⁴, adopting a regional' mission of creating new high-technology industries with which to work, primarily by encouraging graduates to create new research-based businesses.

Building this regional mission involved remodelling the estate besides a change of name. In 1985, the university¹⁵ invested along with a Dutch Bank and an American computer company in a Business & Technology Centre (BTC), immediately to its south, across a main road on what was waste land adjacent to a canal¹⁶. Many spin-off companies from UT moved through the BTC as they grew, demanding larger premises. The university and municipality together developed the land around the BTC as a Business and Science Park (BSP), which now covers some 40 ha and has

around 4000 jobs (see figure 2). By the mid 1990s, BSP and UT together comprised a *de facto* high technology quarter for the city of Enschede.

However, the university remained extremely financially burdened by falling government grants; in 1991 the Government granted universities' ownership of their estates, just at the time that UT's 1960s campus estate reached the end of its usable life. The university responded by designing and replanning its campus in ways that further encouraged interaction and commercialisation between the university and commercial partners.

To alleviate financial pressures, the university enrolled external partners who could provide additional resources to fund estate redevelopment. The university created the Knowledge Park concept, because other partners were able to support that idea. The concept emerged in 1999 in discussions between the municipality and university and was subsequently adopted by a number of city-regional partnerships. Twente Knowledge Park focused on moving the centre of gravity of the BSP westwards, and redeveloping the university campus with more space for business users¹⁷. Whilst the BSP had been a resource for Enschede, Knowledge Park was envisaged as a regional resource, supporting firms across the region.

Twente lacked a formal city-regional governance structure, having 14 competing municipalities; many prior efforts to build co-operative partnership had failed¹⁸. Consequently two contemporary bodies, covering the main urban authorities (Netwerkstad Twente), and a regional body (Regio Twente) found it politically easier to support existing success stories rather than initiating their own activities. Twente Knowledge Park was therefore supported by these bodies. It also caught the attention of the Dutch Ministry of Economic Affairs who named it the "Science Park of National Strategic Significance". Thus, Knowledge Park became a conduit drawing national monies into the region whilst also strengthening city-regional governance.

THE PLANNER AS 'CHEERLEADER'?

UT has been an active partner in building stronger city-regional governance structures with capacity to argue *nationally* that a strong university, and Knowledge Park, has regional and national value. Regional partners realised that the campus's spaciousness and rurality made it a perfect new urban development exemplar. UT has actively driven this, reshaping itself to meet global needs, whilst working with regional partners to simultaneously rebuild its host region.

The case illustrates a range of issues which arise in meeting the challenges of the new knowledge economy. The planning area with which the university is concerned is functional rather than purely municipal – the boundaries of the 'region' as a knowledge economy has been redefined to cover those places which can benefit from university co-operation. The university has worked with other actors across the region to maximise its regional impact, including a business incubation project deep in the rural hinterland of the adjacent Gelderland province. Yet a focus on urban success - stressing above all creativity and innovation - limited rural actors' visibility in decision-making processes. New structures are clearly needed to ensure the presence and representation of peripheral stakeholders.

Even within Twente's core urban area, UT's impacts are limited, not addressing problems of social exclusion or physical remoteness, or the interplay of the two. A key role for urban authorities remains ensuring that economic growth promotes social and community development. Further physical development (infrastructure) is

necessary to support improved accessibility, in particular for providing access to work for geographically remote and socially-excluded communities, so that universities multiplier benefits are more fairly distributed.

Universities do offer new opportunities for planners to address perennial urban problems, particularly in old industrial regions facing industrial decline. But paradoxically, universities are - in their own way - very fragile, and need nurturing if they are to thrive and drive their host regions forward. Universities have the capacity to enrol local networks to create impressive new physical spaces such as BSP or Kennispark. These new spaces in turn can attract external investors' attention, particularly governments who are increasingly investing in impressive success rather than compensating failure.

But that implies a change in regional governance from 'planners as regulators' to planners (almost) as cheerleaders. Creating local planning systems able to preserve this delicate balance, creating locally enabling environments where eye-catching developments can take place, is arguably *the* coming challenge for planning for the knowledge economy.

¹ For a review see Temple, J. (1998) "The new growth evidence" *Journal of Economic Literature*, 37 (1) pp. 112-156.

² Wood, P. (2002) 'Innovation and the growth of business consultancy: parallel but associated trends' in P. Wood (ed) *Consultancy and Innovation: the business service revolution in Europe* London: Routledge

³ Romer, P. M. 1994 The origins of endogenous growth *Journal of Economic Perspectives* 8: 3-22

⁴ Smith, R. G. (2003) "World city actor-networks" *Progress in Human Geography* 27 (1) pp 25-44

⁵ Boekema, F., Kuypers, E., & Rutten, R. (2003) *The economic geography of higher education: knowledge infrastructures and learning regions*, London: Routledge

⁶ Boucher, G., Conway, C. & Van der Meer, E. (2003) "Tiers of Engagement by Universities in their Region's Development", *Regional Studies*, 37 (9) pp 887-897

⁷ OECD (2005) *OECD Science, Technology and Industry Scoreboard 2005 - Towards a knowledge-based economy*, Paris: Organisation for Economic Co-operation and Development.

⁸ Charles, D. R. & Benneworth, P. S. (2001) *The regional contribution of higher education*, London: HEFCE/ Universities UK

⁹ Stuijvenberg, J.H van (Ed) (1979) *De Economische Geschiedenis van Nederland*. Wolters-Noordhoff: Groningen

¹⁰ Hospers, G.J. (2004) *Twente: een regio tussen trend en traditie*, Lelystad (NL): Actuele Onderwerpen.

¹¹ Sorgdrager, W. (1981) *Een Experiment in het Bos: De Eerste Jaren van de Technische Hogeschool Twente 1961-1972*. Samson, Alphen aan den Rijn.

¹² Gellekink, A. (2001) “Drienerlo, van landgoed tot campusuniversiteit” in B. Groenman (ed) “Van landgoed tot kenniscampus 1961-2001”, Enschede: UT Press

¹³ Bruijn, de H. (1962), Textielindustrie en wetenschap, *Jaarboek Twente 1963*, **2**, 22-24.

¹⁴ Groenman, B (2001) “Op meisjes was de campus niet toegerust” in B. Groenman (ed) “Van landgoed tot kenniscampus 1961-2001”, Enschede: UT Press

¹⁵ By now renamed the “University of Twente (the entrepreneurial university)” at the behest of Professor Van den Kroonenberg.

¹⁶ Benneworth, P. S. (2005) “Bringing Cambridge to Consett? Building university-centred entrepreneurial networks in peripheral regions” *Case Study Report 2: Twente, the Netherlands*, Newcastle-upon-Tyne: CURDS

¹⁷ Gemeente Enschede (2005) *Notitie ontwikkelingslocaties Kennispark Twente* (Policy for the development zone ‘Twente Knowledge Park’): Enschede: Gemeente Enschede

¹⁸ Hospers, G.-J. & Van Lochem, M. (2003) “Tussen draagvlak en daadkracht: De Twentse samenwerkingsparadox” [Between deadweight and dynamic power: the Twente collaboration paradox *Geografie* 11 (2) pp. 30-32

Figure 1: the location of the Twente region within Europe

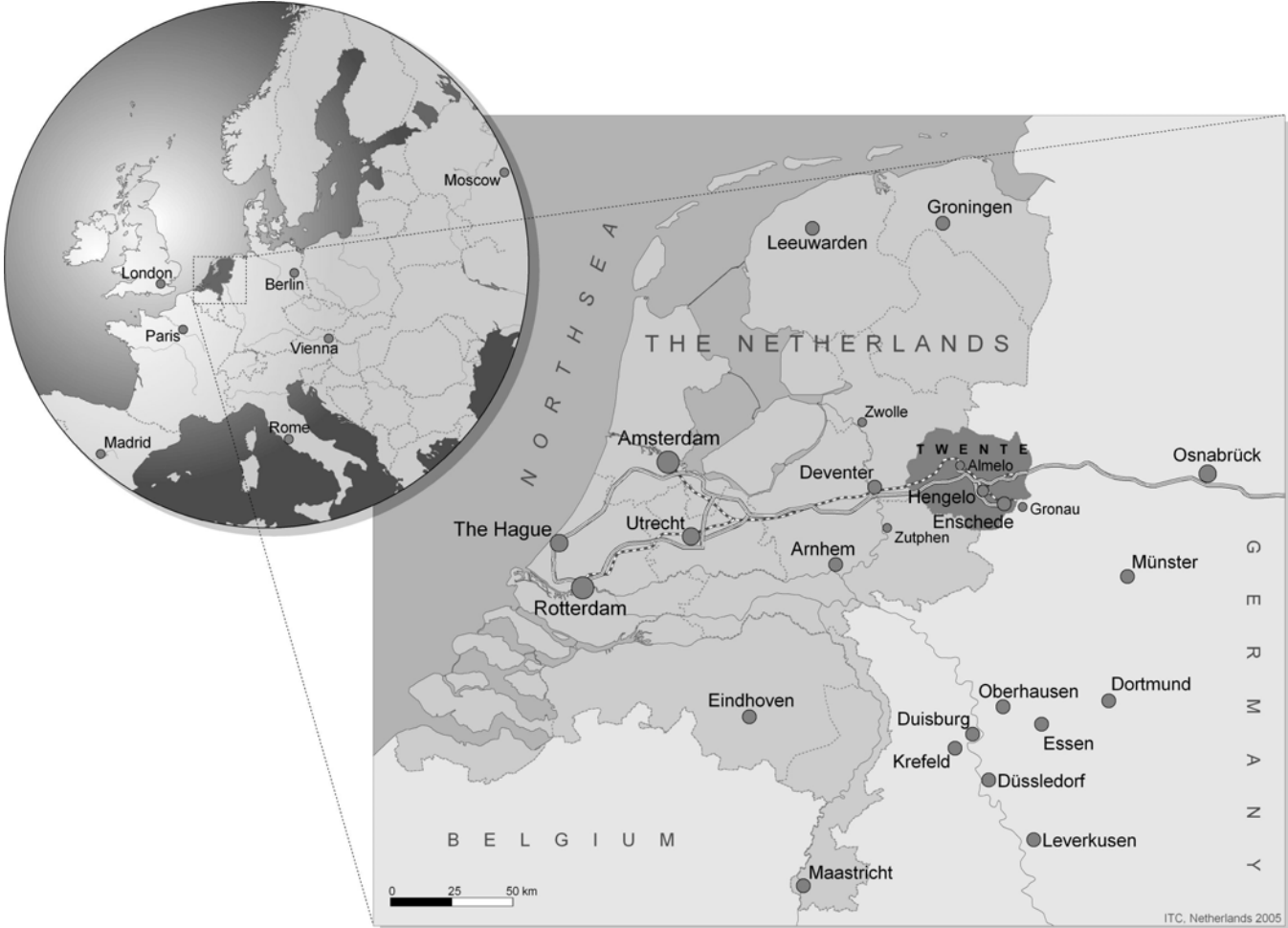


Figure 2: the location of the BSP and Twente University

