

PROFESSOR PHILIP COOKE

Curriculum Vita (Since 1990)

Current Employment:

University Research Professor of Regional Development, Director, Centre for Advanced Studies, University of Wales, Cardiff; Editor, *European Planning Studies*

Date of Birth 19 04 46

Philip Cooke is University Research Professor in regional economic development, and founding director (1993) of the Centre for Advanced Studies, University of Wales, Cardiff. In 2002 the UK Economic & Social Research Council awarded core-funded UK Research Centre status to CESAGen, a partnership initiative on the *Social and Economic Analysis of Genomics* in which Prof. Cooke's Centre has 'flagship project' (Economics of Biotechnology Innovation) status. His research interests lie in studies of Biotechnology, Regional Innovation Systems, Knowledge Economies, Entrepreneurship, Clusters and Networks. He co-edited the first & second editions of *'Regional Innovation Systems'* (UCL Press & Routledge) in 1998 & 2004; co-authored *'The Associational Economy'* published in 1998, and *'The Governance of Innovation in Europe'* in 2000. He is Special Theme editor and contributor for two issues of *The Journal of Technology Transfer* focused on 'Regional Innovation Systems', 2002 & 2004/5. In 2003 he was Special Theme editor for the issue of *European Planning Studies* on 'Biotechnology Clusters & Beyond' that explored regional biotechnology systems. In 2002 he released a fast-selling 'clusters' book – *'Knowledge Economies'*, published by Routledge. In 2004 *Regional Economies as Knowledge Laboratories'* co-edited with Andrea Piccaluga is published by Edward Elgar Publishing Co. Prof. Cooke is a UK government advisor on innovation, and advises national & regional governments, the EU, OECD, World Bank and UNIDO on regional innovation systems. He is also Editor of 'European Planning Studies' a bi-monthly+4 journal devoted to European urban and regional governance, innovation and development issues. In 2003 he was elected Academician of the UK Academy of Social Sciences. In 2004 he was made Distinguished Research Fellow (PRIME) of the University of Ottawa School of Management. He is board member of the Canadian ISRN and Swedish CIND and CIRCLE research centres. In 2006 he was awarded an honorary PhD by the University of Lund, Sweden. In 2007 he is Member of the European Research Area (ERA) Review Committee of the European Commission and the Royal Society Task Force on Nanotechnology.

The **Centre for Advanced Studies** is a research institution of Cardiff University. Cardiff University was founded in 1883. The Centre was founded in 1993. It conducts research of an advanced nature in such fields as environmental analysis, bioscience and health studies, urban and regional governance, economic development, cultural industries and *services*, innovation systems, training and labour markets, business and policy networks and industry clusters. It has also constructed industry, health and environmental databases for private and public clients. These include UNIDO, World Bank, OECD, EU, UK and other national and regional governments, British Telecom, Agenda Media, PriceWaterhouseCoopers, and the research councils. Recent innovation system contracts have been won with the German, Swedish, Portuguese and Turkish governments. The Centre was selected by the UK Economic & Social Research Council as lead partner in the UK's first social scientific Genomics Research Centre (CESAGen). The Centre has been represented on three EU expert committees, most recently the Director, Professor Phil Cooke was appointed President of the Expert Committee on 'Constructed Advantage' 2005-2006. Subsequently, the Director sits on the EU ERA Rationales Committee. The Centre's Deputy Director, Prof. Dylan Jones-Evans manages the international Global Entrepreneurship Monitor (GEM) Study. Current research focuses on bioincubation and related bio-services, entrepreneurship, biotechnology and software clusters, multimedia technologies, and new economic development funding models. The Centre employs eleven personnel.

Research Contracts (since 1990):

1988-90-ESRC Franco-British *High Technology and Regional Development in Britain and France* project (k£41)

1991-93-ESRC Research Project, *Regional Innovation in Europe: Networking, Training and Technology Transfer in Wales and Baden-Württemberg* (k£47)

1994-96-ODA *Inward Investment and Regional Economic Development in Poland* (k£42)

1995-97-ESRC *Learning Society: Training for Multi-skilling in Britain and Germany* project (k£114)

1996-98-EU-TSER *Regional Innovation Systems: Designing for the Future* (k£560) (Co-ordinator)

1996-98-EU-TSER *Academic Entrepreneurship* (k£73)

1996-98-ACE-Phare *Baltic Cities: Economic Transformation through New Industries* (k£80)

1997-99-ESRC *Cities: Competitiveness and Cohesion programme; Urban Networks as Innovative Environments* project (k£120)

1999-02 Welsh Development Agency & Education & Learning Wales (ELWa) *Graduate Destinations from Universities in Wales* (£K165)

2000-02-ESRC *Social Capital and SME Performance* (k£103)

2001-02 Business Connect *A Website Directory for Wales* (£K65)

2001-2003 EU 5th Framework (IST) *Technology and Digital Economy in the Periphery* (£K800)

2002-2005 EU 5th Framework (IST) *Regional Information Societies and Social Inclusion* (£K120)

2002-2005 ESRC Devolution and Constitutional Change programme; *New Models of Development Funding in Northern Ireland, Scotland & Wales* (£K140)

2002-2007 ESRC Research Centre for the Study of the Economic & Social Aspects of Genomics (CESAGen) *Genomics, Economics & Innovation* theme (with Univ. of Wales College of Medicine, £K 1,702,)

2003-2005 EU 5th Framework (BioIncubators) *A Bio-Link Learning Network for Bio-incubation Companies* (£K120)

2003-2004 EU ERDF *Management Support for SME Innovation* (£K330 with W. Battle Ltd.)

2003-2005 ESRC *Collective Learning in Knowledge Economies* (£K120)

2004 Swedish Innovation Systems Development Agency (VINNOVA) *Global BioRegions: A Comparison*, Stockholm, VINNOVA

2004-2014 EU FP6 Network of Excellence 'DIME: Drivers of Innovation, Management and Enterprise' (€K 905)

2004-2009 EU FP6 STRP 'IKINET: International Knowledge & Innovation Transfer' (€K105)

2004-2006 EU FP6 Platform Foresight 'LOGOTECH: Perspectives on National and Regional Research and Innovation Systems' (£K 90)

2005-2008 ESRC 'Technology, Talent & Tolerance in European Cities' (£K138)

2005-2010 EU FP6 'EURODITE: Regional Trajectories to the Knowledge Economy: A Dynamic Model' (K€332)

2005-2008 EU FP6 'AFIBIO': *Access to Finance in the Biotechnology Sector* (€K 92,910)

2005 UNIDO: *Regional Innovation Systems as Public Goods*, Vienna, UNIDO

2005-2006 EU DG Research: *Constructing Regional Advantage*, Brussels, EU

2006 OECD: *Envisioning Regional Growth Futures*, Paris, OECD

2006 German Ministry of Science (BMBF): *A Comparison of German & British Biotechnology Clusters*, Berlin, BMBF

2006 2008 EU FP6 STRP: 'CURE: Corporate Culture & Regional Embeddedness' (£K144)

Recent Publications (Books):

Growth Cultures: The Global Bioeconomy and its Bioregions (2007) Routledge

Creative Regions (2007) Routledge (co-editor)

Regional Knowledge Economies (2007) Edward Elgar (co-author)

Creative Cities (2007) (co-editor; in press)

Regional Development in the Knowledge Economy (2006) Routledge (co-editor)

Clusters & Regional Development (2006) Routledge (co-editor)

Regional Innovation Systems as Public Goods (2006) UNIDO Policy Papers, Vienna

The Creative Industries in Wales (2006) Cardiff, Institute of Welsh Affairs

Regional Economies as Knowledge Laboratories (2004) Edward Elgar (co-editor)
Regional Innovation Systems (2004) Routledge (2nd Edition) (co-editor)
Strategies for Regional Innovation Systems: Learning, Transfer and Applications (2003) UNIDO Policy Papers, Vienna, UNIDO
Knowledge Economies (2002) Routledge
The Governance of Innovation in Europe (2000) (co-author) Pinter
The Associational Economy: Firms, Regions and Innovation (1998) (co-author) Oxford University Press;
Regional Innovation Systems (1998) (co-editor) UCL Press;
The Rise of the Rustbelt (1995) (ed.) UCL Press;
Towards Global Localisation (1992) (co-author) UCL Press.

Recent Publications (Articles/Chapters):

158 From seekers to squatters: the rise of knowledge entrepreneurship (2007), **CES-ifo Forum**, 8, 21-28
157 Social capital, embeddedness and regional innovation (2007), in M. Landabaso, A. Kuklinski & C. Román (Eds.) **Europe – Reflections on Social capital, Innovation & Regional Development**, Nowy Sacz, WSB-NLU
156 Schumpeter and varieties of innovation: lessons from the rise of regional innovation systems research (2007), in Hanusch, H. & Pyka, A. (eds.) **Elgar Companion to Neo-Schumpeterian Economics**, Cheltenham, Edward Elgar (co-author)
155 Regional innovation systems, asymmetric knowledge and the legacies of learning (2007) in R. Rutten & F. Boekema (eds.) **The Learning Region: Foundations, State of the Art, Future**, Cheltenham, Edward Elgar
154 Regional innovation, entrepreneurship and talent systems (2007) **International Journal of Entrepreneurship and Innovation Management**, 7, 5-27
153 Social capital, embeddedness & market interactions (2007) **Review of Social Economy** 65, 79-106
152 How benchmarking can lever cluster competitiveness (2007) **International Journal of Technology Management**, 38, 292-320
151 To construct regional advantage from innovation systems first build policy platforms (2007) **European Planning Studies**, 15, 124-146
150 Asymmetric knowledge, digital knowledge flows platforms and regional innovation systems (2006) in D. Assimakopoulos & E. Carayannis (eds.) **Knowledge Creation, Diffusion and Use in Innovation Networks and Clusters**, London, Macmillan
149 Biotechnology clusters as regional, sectoral innovation systems, in Z. Acs (ed.) (2006) **The Growth of Cities**, Cheltenham, Edward Elgar
148 Regional innovation systems: general findings and some new evidence from biotechnology (2006) in McKelvey, M. & Orsenigo, L. (eds.) **The Economics of Biotechnology**, Edward Elgar
147 Innovation and Wirtschaftspolitik in Wales, (2006) **Geographische Rundschau**, 58, 22-29
64. Global bioregions: knowledge domains, capabilities and innovation system networks (2006) **Industry & Innovation**, 13, 437-458
146 Global bioregional networks: a new economic geography of bioscientific knowledge (2006) **European Planning Studies**, 14, 1265-1285
145 Introduction: Regional asymmetries, knowledge categories and innovation intermediation, in P. Cooke & A. Piccaluga (eds.) (2006) **Regional Development in the Knowledge Economy**, London, Routledge
144 Digital knowledge flow platforms for regional innovation systems, in A. Anttiroiko & M. Mälikä (eds.) (2006) **Encyclopaedia of Digital Government**, London, Idea Group Reference
143 The Welsh Assembly & economic governance in Wales, in M. Tewdwr-Jones & P. Allmendinger (eds.) (2006) **Territory, Identity & Spatial Planning**, London, Routledge
142 The rise of the cluster concept in regional analysis and policy, in B. Asheim, P. Cooke & R. Martin (eds.) (2006) **Clusters & Regional Development**, London, Routledge
141 New media and new economy cluster dynamics, in L. Lievrouw & S. Livingstone (eds.) (2006) **The Handbook of New Media: Updated Student Edition**, London, Sage
140 Co-publishing and innovation: bioscience defies a 'one-size-fits-all' definition, in J. Sundbo et al. (eds.) (2006) **Contemporary Management of Innovation**, London, Palgrave Macmillan

- 139 Regional development in the knowledge-based economy: the construction of advantage (2006) **Journal of Technology Transfer**, 31, 5-15 (Special issue: co-editor)
- 138 The biosciences knowledge value chain and comparative incubation models (2006) **Journal of Technology Transfer**, 31, 115-129 (co-author)
- 137 Culture, clusters, districts and quarters: some reflections on the scale question (2005) **Sviluppo Locale**, 11, 7-30
- 136 Regional knowledge capabilities and open innovation: regional innovation systems and clusters in the asymmetric knowledge economy, in S. Breschi & F. Malerba (eds.) (2005) **Clusters, Networks & Innovation**, Oxford University Press
135. Social capital, firm embeddedness and regional development (2005) **Regional Studies**, 39, 1065-1078 (co-author)
- 134 Regionally asymmetric knowledge capabilities and open innovation: exploring 'Globalisation 2' – a new model of industry organisation (2005), **Research Policy**, 34, 1128-1149
- 133 Rational drug design, the knowledge value chain and bioscience megacentres (2005), **Cambridge Journal of Economics**, 29, 325-341
- 132 Visionary, precautionary and constrained 'varieties of devolution' in the economic governance of the devolved UK territories (2005), **Regional Studies**, 39, 437-451 (with N. Clifton)
- 131 Devolution and innovation: the financing of economic development (2005) **Scottish Affairs**, 50, 39-50
- 130 Knowledge, innovation and the competitiveness of cities (2005), in N. Buck, et al. (eds.) **Changing Cities** London, Palgrave (with J. Simmie)
- 129 The substitution of in-house bioscience R&D by knowledge value chain capabilities, in Johansson, I (ed.) (2005) **Uddevalla Symposium 2004 Proceedings**, Uddevalla, University of Trollhättan
- 128 Regional transformation and regional disequilibrium: new knowledge economies and their discontents (2005) in G. Fuchs & P. Shapira (eds.) **Rethinking Regional Innovation and Change**, Berlin, Springer
- 127 Bioregional innovation systems: global co-publishing among regional knowledge domains (2005) **Discussion Paper WS.EUF/1**, Fiesole, European University Institute, Robert Schuman Centre for Advanced Studies
126. Regional innovation systems – an evolutionary approach (2004) in P. Cooke et al. (eds.) **Regional Innovation Systems 2nd Edition**, London, Routledge
- 125 The regional innovation system in Wales: evolution or eclipse? (2004) in P. Cooke et al. (eds.) **Regional Innovation Systems** London, Routledge
- 124 The scale question in knowledge creation, capture and commercialisation (2004) in P. Cooke & A. Piccaluga (eds.) **Regional Economies as Knowledge Laboratories**, Cheltenham, Edward Elgar
- 123 Competitiveness as cohesion: social capital and the knowledge economy, in M. Boddy & M. Parkinson (eds.) (2004) **City Matters**, Bristol, Policy Press
- 122 Regional innovation system barriers and the rise of boundary-crossing institutions (2004), in R. Wink (ed.) **Academia-Business Links**, London, Palgrave
- 121 Regional knowledge capabilities, embeddedness of firms and industry organisation: bioscience megacentres and economic geography (2004), **European Planning Studies**, 12, 625-641
- 120 Life sciences clusters and regional science policy (2004) **Urban Studies**, 41, 1113-1131
- 119 The accelerating evolution of biotechnology clusters (2004) **European Planning Studies**, 12, 915-920
- 118 Spatial variation in social capital among UK small & medium-sized enterprises (2004) in P. Nijkamp et al. (eds.) **Entrepreneurship & Regional Economic Development**, Elgar (with N. Clifton)
- 117 Managing knowledge spillovers : the role of 'megacentres' in biosciences (2004) in C. Karlsson et al. (eds.) **Knowledge Spillovers & Knowledge Management**, Cheltenham, Edward Elgar
- 116 Biosciences and the rise of regional science policy (2004) **Science & Public Policy**, 31, 185-197
- 115 The role of research in regional innovation systems: new models meeting knowledge economy demands, **International Journal of Technology Management** (2004), 28, 507-533

- 114 The molecular biology revolution and the rise of bioscience megacentres in North America and Europe (2004), **Environment & Planning C: Government & Policy**, 22, 161-177
- 113 A tale of two clusters: high technology industries in Cambridge (2004), **International Journal of Networking & Virtual Organisations**, 3, 1-22
- 112 The evolution of biotechnology in three continents: Schumpeterian or Penrosian? (2003) **European Planning Studies**, 11, 757-764
111. Business Processes in Regional Innovation Systems in the EU, in Z. Acs. (ed.) (2003) **Regional Innovation, Knowledge & Global Change** (2nd Edition), London, Thomson
110. Regional Science Policy? The Rationale from Biosciences (2003), in D. Wolfe (ed.) **Clusters Old & New**, Montreal, McGill-Queens University Press
109. Economic globalisation and its future challenges for regional development (2003), **International Journal of Technology Management**, 26, 401-420
108. High Technology Clustering in Cambridge (2003), in F. Sforzi (ed.) **The Institutions of Local Development**, Aldershot, Ashgate (co-author)
- 107 Regional Innovation & Learning Systems, Clusters, & Local and Global Value Chains (2003), in J. Bröcker, D. Dohse & R. Soltwedel (eds.) **Innovation Clusters & Interregional Competition**, Berlin, Springer
106. Geographic Clustering in the UK Biotechnology Sector (2003) in G. Fuchs (ed.) **Biotechnology in Comparative Perspective**, London, Routledge
105. 'The Golden Thread of Innovation' & Northern Ireland's evolving regional innovation system (2003), **Regional Studies**, 37, 320-337 (co-author)
104. Biotechnology Clusters, 'Big Pharma' and the Knowledge-driven Economy, (2003) **International Journal of Technology Management**, 25, 65-81
103. Rational Drug Design and Bioscience Megacentres (2003) in B. Asheim & Å. Mariussen (eds.) **Innovation, Regions & Projects**, Stockholm, Nordregio
102. Estrategias de revitalización regional y local en Gales: la Nueva Ola (2003) **Lan Harremanak/Revista De Relaciones Laborales**, 6, 181-194
101. The evolution of biotechnology in three continents: Schumpeterian or Penrosian? (2003) **European Planning Studies**, 11, 757-764
100. Biotechnology clusters as regional, sectoral innovation systems (2002) **International Regional Science Review**, 25, 8-37
99. Technology Transfer in European Regions (2002), **Journal of Technology Transfer**, 27, 5-13, (Special Issue co-editor)
98. New Media and New Economy Cluster Dynamics (2002) in L. Lievrouw & S. Livingstone (eds.) **The Handbook of New Media**, London, Sage
97. Regional innovation systems: general findings and some new evidence from biotechnology clusters (2002) **Journal of Technology Transfer**, 27, 133-145
96. Innovation advantages of cities: from knowledge to equity in five basic steps (2002) **European Planning Studies**, 10, 233-250 (co-author)
95. Urban Networks and the New Economy: the Impact of Clusters on Planning for Growth (2002) in I. Begg (ed.) **Urban Competitiveness**, Policy Press (co-author)
94. New economy innovation systems: biotechnology in Europe and the USA (2001) **Industry & Innovation**, 8, 267-289
93. Regional innovation systems, clusters and the knowledge economy (2001) **Industrial & Corporate Change**, 10, 945-974
92. From technopoles to regional innovation systems: the evolution of localised technology policy (2001) **Canadian Journal of Regional Science**, 24, 21-40
91. Biotechnology clusters in the UK (2001) **Small Business Economics**, 17, 43-59
90. Structural competitiveness and learning regions, **Enterprise & Innovation Management Studies**, (2000) 1, 265-280 (co-author)
89. Small firms, social capital and the enhancement of business performance through innovation programmes, **Small Business Economics**, (1999) 13, 219-234 (co-author)
88. **The German Biotechnology Sector: Assessment of Regional Clustering Policy**, Report to Dept. of Trade & Industry, Biotechnology Directorate (1999)
87. Local Learning & Interactive Innovation Networks in a Global Economy (1999) in E. Malecki & P. Oinas (eds.) **Making Connections**, Aldershot, Ashgate
86. Regional systems of innovation: an evolutionary perspective, **Environment and Planning A**, (1998) 30, 1563-1584 (co-author)

85. Localised innovation networks in a global economy (1998) in **Comparative Social Research**, 17, 199-240 (with B. Asheim)
84. Regional innovation systems: institutional and organisational dimensions, **Research Policy** (1997), 26, 475-491 (co-author)
83. Regions in a global market (1997) **Review of International Political Economy**, 4, 348-379
82. Institutional Reflexivity and the Rise of the Region State (1997) in G. Benko & U. Strohmayr (eds.) **Space & Social Theory**, Oxford, Blackwell
81. Regional Economic Policy and a Europe of the Regions (1997) in M. Rhodes, P. Heywood & V. Wright (eds.) **Developments in West European Politics**, London, Macmillan
80. Policy Networks, Innovation Networks & Regional Policy (1996) in H. Heinelt & R. Smith (eds.) **Policy Networks & European Structural Funds**, Aldershot, Avebury
79. The Contested Terrain of Locality Studies (1996) in J. Agnew (ed.) **Human Geography: an Essential Anthology**, Oxford, Blackwell
78. Building a 21st century regional economy in Emilia-Romagna (1996) **European Planning Studies**, 4, 53-62
77. The New Wave of Regional Innovation Networks: Analysis, Characteristics and Strategy, **Small Business Economics**, 8:1-13 (1996);
76. Planet Europa: Network Approaches to Regional Innovation and Technology Management, **Technology Management** (1995), 2:18-30;
75. Regulating Regional Economies (1995) in M. Rhodes (ed.) **The Regions & the New Europe**, Manchester University Press
74. The regional innovation system in Baden-Württemberg (1994) **International Journal of Technology Management**, 9, 394-320
73. Innovation Networks & Regional Development (1994) in W. Krumbain(ed) **Ökonomische und Politische Netzwerke in der Region**, Hamburg, LIT Verlag
72. Growth Regions Under Duress (1994) in A. Amin & N. Thrift (eds.) **Globalisation, Institutions & Regional Development**, Oxford University Press (co-author)
69. The Creative Milieu: a Regional Perspective on Innovation (1994) in M. Dodgson & R. Rothwell (eds.) **The Handbook of Industrial Innovation**, Cheltenham, Edward Elgar (co-author)
68. Some spatial aspects of regulatory and technological change in telecommunications industries (1993) **Environment & Planning A**, 24, 683-703
68. The network paradigm: new departures in corporate & regional development, **Environment & Planning D: Society & Space**, 11, 543-564 (co-author)
67. Regional innovation networks: an evaluation of six European cases, (1993) **Topos**, 6, 1-30
66. Regional innovation systems: competitive regulation in the new Europe (1992) **Geoforum**, 23, 365-382
65. Uneasy alliances: the spatial development of computing and communications markets (1991) **Regional Studies**, 25, 345-354 (co-author)
64. The geography of international strategic alliances in the telecommunications industry (1991) **Environment & Planning A**, 23, 87-106 (co-author)
63. Modern Urban Theory in Question (1990) **Transactions of the Institute of British Geographers**, 15, 331-343

Advisory Activities/Honours

- 2007 Member EU European Research Area Review Committee
- 2007 Member IRI 'Collegio Docenti' Advisory Board, Scuola Superiore Sant'Anna, Pisa, Italy
- 2007 Adviser to UNIDO on Restructuring of the Serbian Economy
- 2006 Adviser, OECD, *Envisioning Regional Growth Futures*
- 2006 Awarded Honorary Doctorate (DPhil) by University of Lund, Sweden
- 2006 Adviser to UNIDO on Economic Diversification in Saudi Arabia
- 2006-2012 Adjunct Professor, Aalborg University, School of Planning
- 2006 Adviser, Nordic Council of Ministers
- 2006-External Fellow, *Centre for Innovation, Knowledge and Development*, Open University
- 2006 Evaluator, *Innovation in the Öresund Region Programme*, ? forsk, Denmark
- 2006 Evaluator, *Vinväxt Programme*, VINNOVA, Sweden
- 2005-6 Adviser to Scottish Executive: *Scotland's Regional Innovation System*
- 2005 UNIDO Advisor & Report Contributor: *Global Public Goods for Economic Development*

2005 EU DG Regio, Expert Adviser: *New Strategic Delivery of Structural Funds*
2005 EU DG Research, President, Expert Committee: *Constructing Regional Advantage*
2004 EU DG Research, Adviser & Rapporteur: *Universities & Regional Development*
2003 DTI/OST/Treasury *Innovation Review* Academic Panel Member
2003 HM Treasury *Lambert Review of Innovation in the UK* Correspondent
2002 OECD *Global Knowledge Flows*, Mission Team Member
2002 EU Expert Panel Member, *Regional Foresight*, DG Research
2002- Economic Adviser (Clusters) to Welsh Development Agency
2001-United Nations Industrial Development Organization (UNIDO), Industry Policy & Research
2001- Adviser to VINNOVA (Swedish Innovation Systems Agency)
2001- 2003 British Telecom Wales Advisory Board
2001- Agenda TV On-line Broadcasting Adviser
2000-2001 Northern Ireland Economic Council, 'Regional Innovation Strategy'
2000-2001 Adviser to Welsh Assembly Economic Development Secretary 'Future Studies' Group
2000 Special Adviser, Select Committee on Welsh Affairs, *Structural Funds* Inquiry
1999-2000 Member, DTI Cluster Policy Steering Group, chaired by Lord Sainsbury
1999 Member, OST/DTI Biotechnology Clusters Task Force led by Lord Sainsbury
1998-99 Member, *Technology Foresight* Integrated Supply Chains Panel
1996-1999 Member, Advisory Panel, *Enterprise Development: 2000*, Government of Norway.
1995-1997 Adviser to the National Economic and Social Council, Republic of Ireland, *Networking for Competitive Advantage*