

Biannual report from DRUID (Danish Research Unit for Industrial Dynamics) for 1999-2000

Introduction

The report covers activities for the period January 1 1999 – December 31 2000. The main emphasis is on presenting outcomes in terms of publications, Ph.D.-activities and communication and interaction with users. In six separate appendices some specific activities are documented:

Appendix 1: The DRUID Working Paper Series

Appendix 2: The DRUID-Conference programs 1999-2000

Appendix 3: Home page statistics for DRUID and download of Working Papers

Appendix 4: Citations to the work by senior DRUID scholars

Appendix 5: Reflections on the past and future of DRUID from the Research Manager.

Appendix 6: Research seminars

July 1 2001 the research manager since 1995, Bengt-Åke Lundvall, passed on this function to Peter Maskell. Appendix 5 summarises reflections addressed to the international advisory board meeting taking place in Skagen June 2001.

Coverage of the report – defining DRUID-participant

The core of the report presents an overview of activities and outputs covering *DRUID-participants*. They are divided into two groups: DRUID-staff and DRUID Ph.D.-students. In order to define who belongs to each of these groups we have used the following criteria:

Those who are included as 'staff' fulfil all the three criteria:

1. They have contributed to the realisation of the DRUID research programme with books, articles or working papers.
2. They have participated in at least one of the DRUID-conferences.
3. They have confirmed that they still regard themselves as 'druid-participants'.

Those who are included as Ph.D.-students fulfil all the following three criteria:

1. They have/have had a tutor among those registered as DRUID-staff.
2. They have worked on issues that fall within the DRUID research programme.
3. They have participated in at least one of the DRUID-conferences.

Some participants in DRUID have moved from the category 'Ph.D.-students' to becoming 'staff'. They will appear in the staff category but they will also appear in the schematic presentation of Ph.D.-students in the section on Ph.D.-training.

Visiting scholars belonging to the DRUID-network and publishing some of their work in the DRUID Working Paper series have *not* been included among the DRUID participants. Their contributions to the programme will be reflected exclusively through the list of working papers in appendix 1.

With these definitions there are 21 persons registered as staff, whose activities are reflected in the report, and 18 Ph.D.students are now (August 2001) connected to the research programme. Over the whole period 1995-2001 no less than 35 Ph. D.-students have been active in DRUID. Of these 16 have successfully defended their theses so far (see the table on page 17).

Copenhagen Business School

Staff:

Jens Frøslev Christensen, Professor, Department of Industrial Economics and Strategy
Nicolai Juul Foss, Professor, Department of Industrial Economics and Strategy
Kirsten Foss, Assistant professor, Department of Industrial Economics and Strategy¹
Mark Lorentzen, Assistant professor, Department of Industrial Economics and Strategy²
Keld Laursen, Associate professor, Department of Industrial Economics and Strategy³
Volker Mahnke, Assistant professor, Department of Industrial Economics and Strategy⁴
Peter Maskell, Professor, Department of Industrial Economics and Strategy
Finn Valentin, Associate professor, Department of Industrial Economics and Strategy
Per Vejrup-Hansen, Associate professor, Department of Industrial Economics and Strategy

Ph.D.-students:

Aage, Tine, Department of Industrial Economics and Strategy
Dahlgren, Henrich, Department of Industrial Economics and Strategy
Tina Brandt Husman, Department of Industrial Economics and Strategy
Jeppesen, Lars Bo, Department of Industrial Economics and Strategy
Jukka Kaisla, Department of Industrial Economics and Strategy
Måns Molin, Department of Industrial Economics and Strategy
Mikkel Thomassen, Department of Industrial Economics and Strategy
Jan Vagn Lauridsen, Department of Industrial Economics and Strategy

Aalborg University

Staff:

Esben Sloth Andersen, Associate professor, Department of Business Studies
Jesper L. Christensen, Assistant professor, Department of Business Studies
Bent Dalum, Associate professor, Department of Business Studies
Birgitte Gregersen, Associate professor, Department of Business Studies
Björn Johnson, Associate professor, Department of Business Studies
Reinhard Lund, Professor emeritus, Department of Business Studies
Bengt-Åke Lundvall, Professor, Department of Business Studies

¹ Finished her Ph.D. in connection with the CBS-DRUID-programme in 1996. Assistant professor at CBS since 1996.

² Finished his Ph. D. in connection with the CBS-DRUID-programme in April 1999. Assistant professor at CBS since 1999.

³ Finished his Ph.D. in connection with the AAU-DRUID programme in November 1998. Assistant professor at CBS since October 1998.

⁴ Finished his Ph. D. in connection with the CBS-DRUID-programme in October 1999. Assistant professor at CBS since 1999.

Gert Villumsen, Research librarian, Aalborg University Library and Department of Business Studies

Ph.D.-students:

Ana Lisette Amaya-Lopez, Department of Business Studies
Pun-Arj Chairatana, Department of Business Studies
Michael Dahl, Department of Business Studies
Mario Lopez, Department of Business Studies
Anker Lund Vinding, Department of Business Studies
Christian Ø.R. Pedersen, Department of Business Studies
Toke Reichstein, Department of Business Studies

Ann-Kirstine Storgaard, Department of Business Studies
June Tolsby, Department of Business Studies
Leiner Vargas, Department of Business Studies

The Aarhus School of Business

Staff:

Poul Houman Andersen, Assistant professor, Department of international trade and business
Mette Præst, Assistant professor, Department and international trade and business⁵

Southern Denmark Business School

Staff:

Poul Rind Christensen, Professor, Department of Organisation and Entrepreneurship, Centre for Small Firm Research.
Kristian Philipsen, Associate professor, Department of Organisation and Entrepreneurship, Centre for Small Firm Research.

DRUID-Secretariat:

Annelise Klüwer, Department of Industrial Economics and Strategy, CBS
Dorte Køster, Department of Business Studies, AAU
Jonna Mejlstrup Jacobsen, Department of Business Studies, AAU

⁵ Ph.D.-student at AAU until 1998, since 1999 assistant professor at Aarhus Business School.

Summary of the report

Druid - an interdepartmental research unit with high international visibility

When DRUID was established the funding authorities emphasised that the evaluation of its activities would focus on three kinds of activities: scientific publications, Ph.D.-training and interaction with users. DRUID has been designed with these main objectives in mind. It has been built as an interdepartmental research unit with strong international network connections to high-quality researchers and research groups abroad.

The major method chosen to enhance productivity in terms of quantity and quality has been to create a supportive environment and infrastructure for senior scholars and Ph.D.-students. This is reflected in the allocation of finance. Only limited resources have been used to finance salary and specific research projects and much more to build infrastructure (to finance the Summer and Winter conferences, the data bases, the working paper series, the guest professorships, information infrastructure and administrative co-ordination, see appendices). DRUID has thus hosted and enhanced the quality and impact of several important specific research projects that have been financed mainly by other sources. The international connections have been crucial for the success of the unit. The strong links with leading scholars and research units abroad have stimulated productivity and enhanced the quality of the work.

In the period August 1995 –August 2000 the network was financed by a grant from Social Science Foundation and the Ministry of Trade and Industry of 2.2 millions dkr per year. August 2000-July 2001 the network survived on ad hoc grants corresponding to 820.000 dkr. The situation end of August 2001 is that the Druid Research programme can be expected to return to the activity level in the first 5-year period by means of three separate grants from respectively the Social Science Research Council, the Research Academy and the Ministry of Trade and Industry for a 3-year period.

DRUID original core competences and their development

When DRUID was established there were three core competences to build upon. One related to innovation theory and especially to the work on innovation as an interactive process and on innovation systems. It was located mainly in the Aalborg group (Andersen, Dalum, Johnson, Lundvall and others). Another one related to vertical integration and specialisation and especially to the spatial aspects of sub-contracting patterns. The main carriers of this competence were Poul Rind Christensen, Peter Maskell and Poul H. Andersen. The third core competence is represented by Nicolai Jul Foss, Frøslev Christensen and others at CBS and it relates to the theory of the firm and not least to systematic comparisons between different approaches in this field.

The DRUID research programme has been structured according to these three areas and they remain core competencies for DRUID. At the same time, there has been a certain renewal of the three areas reflecting the synergies obtained by combining them in one research unit. The theory of the firm has been brought into a dialogue with empirical analysis of organisational change and through the concept of national business systems it has been connected to the work on national innovation systems. The analysis of vertical relationships in the industrial system has also been connected to the innovation system approach. Finally the innovation system approach has developed empirical analyses that link changes at the level of the single firm to aggregate change at the system's level. This cross-fertilisation and renewal of the core competencies has been brought about by emphasising the importance of knowledge, learning and competence building as a common concern for the

research unit as a whole. As a result, new core competencies have been built around the nexus 'the learning economy', 'the learning region' and 'the competence based firm'.

New directions of research have been stimulated, for instance through introducing new themes at the annual Summer Conferences (see Appendix 2 for the programmes of the 1999 and 2000 DRUID Summer and Winter conferences). The themes of the five summer conferences have been:

- 1996 Economics of Knowledge
- 1997 Competition and Industrial Dynamics
- 1998 Concurring Approaches to the Theory of the Firm
- 1999 Innovation Systems
- 2000 The Learning Economy: Firms, Regions and Nation Specific Institutions

Gradually these conferences have become more ambitious in terms of volume, quality and publication. Some of the input to the 1998 conference is reflected in Foss and Mahnke (2000). There will be two special issues of journals produced on the basis of the 1999 conference – Industry and Innovation and Research Policy. The 2000 Summer conference will result in a thematic issue of Industry and Innovation and in an edited volume for Elgar Publishers.

Output measures

The positive interest for contributing to the DRUID-research program has remained strong, the activity level of the researchers involved is high, and the output in terms of publications has been growing over time. The pattern of publication has changed so that more and more of the research output ends up in refereed journals rather than in working papers and reports. 1999 was an extreme year in terms of productivity – close to three refereed publications per senior scholar while the level was more normal in 2000 perhaps reflecting the reduced funding and the use of researchers' time on fundraising for a new generation of DRUID (see Table 1 on page 61).

The strategy has also worked well in attracting highly motivated and active Ph.D.-students. The fact that more than 35 Ph.D.-students have chosen to link themselves to DRUID is quite impressive taking into account that DRUID, as such, only has financed one single Ph.D. (Jukka Kaisla). The fact that they, twice a year (at the DRUID Winter and Summer conferences), have been exposed to the leading international expertise in their own field of research has been crucial for their training. This has resulted in that almost all Ph.D.-theses are published in English and that many of the Ph.D.-students produce articles for refereed journals while they are still Ph.D.-students. Almost all of them spend at least 6 months abroad as part of their training. There were seven druids who defended their thesis in 1999 and two in 2000.

DRUID-scholars are strongly and increasingly involved in an interaction with users of research in the private and the public sector, in Denmark, as well as abroad. DRUID has initiated several important events that have brought its scholars together with lead users. The DISKO-project hosted by DRUID was finished with a major conference in September 1999 and the final report from the project has been accepted for publication by Elgar Publishers. But generally the interaction with users is specialised and built through a longer period of collaboration. Different DRUID-scholars thus have different user interfaces (e.g. while Jens Frøslev Christensen has a good network connection to R&D-managers in major Danish firms, Bent Dalum has extensive contacts with the electronics industry and the regional cluster of electronic firms in Northern Jutland, Peter Maskell interacts with the transport and construction industry and with the Copenhagen region and Poul Rind Christensen with the Kolding region and with producers of stainfree steel. My own and Jesper

Lindgaard's contacts go to national as well as international organisations such as UNCTAD, OECD and EU). The major function of the research unit has been to serve as a quality control for the interaction with users and to share contacts.

Future plans in relation to the three areas

In the field of publication an attempt will be made to get some of the DRUID research published in the major economic journals. One idea would be to combine the unique data sets (combining labour market with innovation data) with advanced methods of analysis. Another would be to produce survey articles in areas where the network has unique competence (innovation systems for instance).

DRUID-academy has now been accepted as a research training site by the Danish Research Academy. The plans are to organise course activities in areas where we see specific needs for DRUID Ph. Ds and to strengthen further the international links – not least with the US-network CCC.

In the interaction with users it is planned to follow up on the Summer conferences with a workshop that engages druids and the international invitees in user relevant issues related to management and policy issues. This will take place for the first time in connection with the 2002 Summer conference on 'the new economy' and here the idea will be to use the workshop also as a preparation of the Danish Presidency of EU.

International visibility and impact

One set of indicators of productivity and quality refers to the publication pattern of DRUID-scholars. Another set refers to the *impact* of publications and registers the interest of users for the publications. We have added two indicators to illuminate this aspect. In Appendix 3 we bring the statistics on visitors to the DRUID-homepage as well as the statistics for downloading of the DRUID-working papers. In Appendix 4 we have gathered data on citations for 9 senior scholars belonging to the Unit for the period 1990-2000.

The homepage statistics show a steep increase in the international interest for what is going on in DRUID 1996-2000. It also documents that most issues in the DRUID working paper series now have quite a big circulation (an average of more than one thousand prints per paper).

Appendix 4 is based on an analysis of the social science citation index referring exclusively to scientific journals and mainly to those in English language. It shows that there has been a strong growth in citations for the group of DRUID senior scholars since the establishment of the DRUID. While the aggregate number per year for the eight scholars involved was 21 1990-94, it was 68 1995-96, 99 1997-98 and 160 1999-2000 (after excluding self citations and cross citations within the group). This is a strong indication of the growing visibility and impact of the work by DRUID-scholars since the unit was established.

Aalborg, August 31, 2001
Bengt-Åke Lundvall
Research Manager

Section I: Publications

Introduction

In what follows the written output from DRUID is presented under the following headings:

- a. Articles in refereed journals
- b. Articles in refereed books
- c. Refereed books

An attempt has been made to make sure that the same article or book only appears once as a refereed contribution. This also means that all contributions with several authors have been listed under one author only.

In table 1 the number of refereed contributions have been given for 1997, 1998, 1999 and 2000. Only publications by scholars now active in DRUID have been included

Table 1: Number of refereed publications from DRUID-participants 1997-2000

	1997	1998	1999	2000
a. Art. Ref. J.	12	15	29	14
c. Art. Ref. B.	17	14	26	22
e. Ref. B.	1	4	0	4

Table 1 shows a satisfactory productivity in terms of refereed publications. 1999 was an extreme year with three publications per senior staff and it is expected that 2001 will again be characterised by a high productivity. It is interesting to note that quite a number of refereed contributions have been authored or co-authored by Ph.D.-students.

Articles in refereed journals:

2000:

Andersen, P., Mols, N.P. and Bukh, P.N.D. (2000), 'A Comparative Study of Sourcing Strategies.' *Journal of Financial Services Marketing*. Issue 4/3.

Andersen, P., Christensen, P. R. (2000), 'Interpartner Diversity in Global Subcontractor Relationships.' *European Journal of Purchasing and Supply Management*, Vol. 6: 2, pp. 105-116.

Andersen, P. and Kumar, R. (2000), 'Managing Meaning in International Strategic Alliances.' *International Business Review* (2000), Vol.9:2, pp. 237-252.

Drejer, I. (2000), 'Comparing Patterns of Industrial Interdependence in National Systems of Innovation – A Study of Germany, the United Kingdom, Japan and the United States', *Economic Systems Research*, Vol. 12:3, pp.377-399.

Foss, N. J. (2000) 'Ledelseslære – et økonomisk perspektiv.' *Økonomi og Politik* Vol. 72: 2-9.

Foss, N.J. & Elfring, T. (2000), 'Competence Building: Understanding the Role of Internal Venturing and Spin-Offs,' *Advances in Applied Business Strategy* vol.6 pp.97-119.

Foss, N.J & Foss, K. (2000), 'Theoretical Isolation in Contract Economics'. *Journal of Economic Methodology*.

Foss, N.J. & Foss, K. (2000), 'Learning in Firms: Knowledge-Based and Property Rights Perspectives', *European Journal of Social and Economic Systems*, Vol.14:119-142.

Foss, N.J. (2000), 'The Dangers and Attractions of Eclecticism', *Journal of Macromarketing* Vol. 20:65-67.

Foss, N.J. (2000), 'Austrian Economics and Game Theory: An Evaluation and a Stocktaking', *Review of Austrian Economics* Vol. 13: 41-58.

Laursen, K. & Meliciani, V. (2000) 'The Importance of technology based inter-sectoral linkages for market share dynamics'. *Weltwirtschaftliches Archiv*, Vol. 136:4, pp. 702-723.

Laursen, K. (2000), 'Do Export and Technological Specialisation Patterns Co-evolve in Terms of Convergence or Divergence? : Evidence from 19 OECD Countries, 1971-1991', *Journal of Evolutionary Economics*, Vol. 10:4, pp. 415-436.

Teubal, M. and Andersen, E.S. (2000), 'Enterprise Restructuring and Embeddedness: A Policy and Systems Perspective', *Industrial and Corporate Change*, Vol. 9:1, pp. 87-111.

Tolsby J., (2000), 'Taylorism given a helping hand: how an IT system changed employees flexibility and personal involvement in their work', *Journal of Organizational Change Management*, Vol 13.

1999:

Andersen, E.S. (1999), 'Multisectoral Growth and National Innovation Systems', *Nordic Journal of Political Economy*, Vol. 25:1, pp. 33-52.

Andersen, P. (1999), 'International Technology Subcontracting - An Investigation of the Knowledge-Stickiness Problem.' *Research Policy*, Vol.28:6, pp. 61-85.

Andersen, P. and Sørensen, H.B. (1999), 'Reputational Information and Interorganisational collaboration.' *Corporate Reputation Review*, Vol. 2, pp. 25-45.

Christensen, J.F. & Foss, N.J. (1999), "A Market-Process Approach to Corporate Coherence", in *Managerial and Decision Economics*.

Christensen, P.R. & Philipsen, K. (1999), "Evolutionary Perspectives on the Formation of Small Business Clusters - the Case of a Stainless Steel District in Denmark", *Entrepreneurship and Regional Development - an International Journal*.

Christensen, P. R. and Andersen, P. H. (1999), 'The Pen and The Needle: Partner Diversity in International Subcontractor Relationships.' *Asian Case Research Journal*, vol. 3., pp. 157-168

Dalum, B., Laursen, K. and Verspagen, B. (1999), 'Does Specialisation Matter for Growth?' *Industrial and Corporate Change*, Vol. 8:2, pp. 267-288.

Drejer, I. , Kristensen F.S. and Laursen, K. (p), (1999), "Cluster Studies as a Basis for Industrial Policy: The Case of Denmark", *Industry & Innovation*, Vol 6, No. 2, 1999.

Foss, N. J. (1999), 'Research in the Strategic Theory of the Firm "Integrationism" and "Isolationism".' *Journal of Management Studies*, Vol.36: 725-755 (November).

Foss, N. J. (1999), 'Networks, capabilities, and competitive advantage.' *Scandinavian journal of management*, Vol. 15: pp. 1-15.

Foss, N.J. (1999), 'The Use of Knowledge in Firms', *Journal of Institutional and Theoretical Economics* Vol. 155:458-486.

Foss, N.J. (1999), 'Edith Penrose, Economics, and Strategic Management', *Perspectives in Political Economy* Vol. 18: 87-104.

Foss, N.J. (1999), 'The Challenge of Business Systems and the Challenge to Business Systems', *International Studies of Management and Organization*, Vol. 29: 9-24.

Foss, N.J. (1999), 'Perspectives on Business Systems', *International Studies of Management and Organization* Vol. 29: 3-8.

Foss, N.J. & Langlois, R.N.(1999), 'Capabilities and Governance: the Rebirth of Production in the Theory of Economic Organization' *KYKLOS* Vol. 52:201-218.

Foss, N.J., Pedersen, T. & Forsgren, M. (1999), 'Accounting for the Strengths og MNC Subsidiaries: The case of Foreign-Owned Firms in Denmark', *International Business Review* Vol. 8; 181-196.

Foss, N.J. (1999), 'Edith Penrose and the Penrosians – Or Why There is Still so Much to Learn From The Theory of the Growth of the Firm', *Economies et Sociétés* Vol. 29: 143-164.

Foss, N.J. (1999), 'Pandoras æske, sorte æsker og den økonomiske virksomhedsteori', *Nordiske Organisationsstudier* Vol.1: 3-31.

Laursen, K. (1999), 'The Impact of Technological Opportunity on the Dynamics of Trade Performance', *Structural Change and Economic Dynamics* Vol.10, 341-357.

Laursen, K. and Drejer, I. (1999), 'Do Inter-sectoral Linkages Matter for International Trade Specialisation?', *The Economics of Innovation and New Technology* Vol. 8, 311-330.

- Lundvall, B.-Å. (1999), 'National Business Systems and National Systems of Innovation', *International Studies of Management and Organization*, No. 2, pp.60-77.
- Lundvall, B.-Å. & Nielsen, P. (1999), 'Competition and transformation in the learning economy – illustrated by the Danish case', *Revue d'Economie Industrielle*, No.88, pp.67-90.
- Lundvall, B.-Å. (1999), 'Spatial Division of Labour and Interactive learning' *Revue d'Economie Régionale et Urbaine*, No.3, pp. 469-488.
- Maskell, P. & Malmberg, A. (1999), 'Localised learning and industrial competitiveness.' *Cambridge Journal of Economics*. Vol. 23:2.
- Malmberg, A. & Maskell, P. (1999), 'Guest editorial: localized learning and regional economic development.' *European Urban and Regional Studies*, Vol. 6:1.
- Maskell, P. & Malmberg, A. (1999), 'The competitiveness of firms and regions: 'ubiquitification' and the importance of localized learning.' *European Urban and Regional Studies* Vol. 6:1.
- Maskell, P. (1999), 'The micro-theoretical foundation of Economic Geography and the Exactitude in Science.' *The Swedish Geographical Yearbook*, Vol.74: 89-97.
- Mikkola, J.H. (1999), 'Impacts of supplier-buyer relationships on modularization in new product development,' *European Journal of Purchasing and Supply Management*, Vol 5:3-4, pp. 197-207.
- Præst, M. (1999), "Changing Technological Capabilities in High-Tech Firms: A Study of the Telecommunications Industry", *Journal of High Technology Management Research*, vol. 9, no. 2, pp.175-193.

1. Articles in refereed books

2000:

- Andersen, E.S., Damsgaard, J., Hanseth, O., King, J.L., Markus, M.L., and Monteiro, E. (2000), 'Standardization, Network Economics, and IT, in Baskerville, R., Stage, J. and DeGross, J.I., *Organizational and Social Perspectives on Information Technology*, Kluwer, Boston, pp. 521-525.
- Andersen, P. & Kristensen, P.H. (2000), 'The Systemic qualities of Danish Industrialism' in Karnøe, P., Kristensen, P. H. & Andersen P. H. (eds.) *Mobilising Resources and Generating Competencies*, Copenhagen Business School Press.
- Christensen, J.F. (2000) 'Building innovative assets and dynamic coherence in multi-technology companies.' In: Foss, N.J. & Robertson, P.L. (Eds.) *Resources, Technology and Strategy. Explorations in the ressource-based perspective*. London and New York: Routledge.

- Christensen, P. R. (2000), 'Challenges and Pathways for Small Sub-Contractors in an Era of Global Supply Chain Restructuring@.' In Vatne, E.& Taylor, M., *The Networked Firm in a Global World. Small Firms in New Environments*. Aldershot: Ashgate, side 67-93.
- Dahl, M. and Dalum, B.(2000), 'The ICT Cluster in Denmark', in *OECD, Innovative Clusters: Drivers of National Innovation Systems*, Paris: OECD.
- Dahl, M. and Dalum, B. (2000), 'The Construction Cluster in Denmark', in *OECD. Innovative Clusters: Drivers of National Innovation Systems*, Paris: OECD.
- Foss, N.J. & Foss, K.(2000), 'Competence and Governance Perspectives: How Much Do They Differ? And How Does It Matter?' in Foss, N.J. & Mahnke, V. (eds.) *Competence, Governance and Entrepreneurship*, Oxford. Oxford University Press.
- Foss, N.J. & Mahnke, V. (2000), 'Advancing Research in Competence, Governance and Entrepreneurship' in Foss, N.J. & Mahnke, V., (eds). *Competence, Governance, and Entrepreneurship*. Oxford. Oxford University Press.
- Foss, N. J. (2000), 'The Boundary School'. In Elfring, T. & Volberda, H. (eds.) *New Directions in Strategy*. London: Sage.
- Foss, N.J. (2000), 'Les Compétences et les Entraves Cognitives dans la Nègociations entre Firmes', in Voisin, C., Plunket, A. Bellon, B. *La Cooperation Industrielle*. Paris: Economica.
- Foss, N.J. (2000), 'Evolutionary Theories of The Firm: Reconstruction and Relation to Contractual Theories', forthcoming in Dopfer, K.ed. *Evolutionary Principles of Economics*, Boston: Kluwer.
- Foss, N.J. (2000), 'The Theory of the Firm: an Introduction to Themes and Contributions' In Foss, N.J., ed. *The Theory of the Firm: Critical Perspectives in Economic Organization*. London: Routledge.
- Foss, N. J., Lando, H. & Thomsen, S. (2000), 'The Theory of the Firm in Boudewijn Bouckaert & Gerrit de Geest (eds.) *The Handbook of Law and Economics*. Aldershot: Edward Elgar.
- Foss, N.J. (2000), 'Equilibrium and Evolution: The Conflicting Legacies of Demsetz and Penrose' in Foss, N.J. & Robertson, P.L. (eds.) *Resources, Technology, and Strategy*. London: Routledge.
- Foss, N.J. and Foss, K. (2000), 'The Market Process and the Firm: Toward a Dynamic Property Rights Perspective', in Krafft, J. (eds.) *The Process of Competition*, Aldershot: Edward Elgar; French Version 'Le processus de marché et la firme: Vers une perspective en termes de propriété dynamiques', in Krafft, J. (eds.) (1999). *Le Processus de Concurrence*. Paris: Economica.
- Knudsen, M.P. (2000), 'Demarcation of Technological Competence Groups: Methods, Problems, and Future Oppertunities' in Sanchez and Heene, *Advances in Applied Business Strategy*. JAI Press.
- Lundvall, B.-Å. & Maskell, P. (2000) 'Nation states and economic development- From national systems of production to national systems of knowledge creation and learning', forthcoming in

Clark, G.L., Feldmann, M.P. and Gertler, M.S. (eds.), *Handbook in Economic Geography*, Oxford, Oxford University Press, pp. 353-372.

Maskell, P. (2000), 'Competitiveness, localised learning and regional development'. In: Treptow, R., (eds.) *Economic and cultural transition towards a learning city: The case of Jena*. pp. 57-61. Paris: OECD.

Maskell, P. (2000), 'Towards an explanation of industry agglomeration and regional specialization.' Chapter 7 in Edquist, C. & Malmberg, A. and McKelvey, M., (eds.) *Systems of Innovation. Growth, Competitiveness and Employment* Cheltenham: Edward Elgar.

Maskell, P. (2000), 'Future challenges and institutional preconditions for regional development policy of economic globalisation.'. In: Karppi, I., (eds.) *Future challenges and institutional preconditions for regional development policy* pp. 27-88. Stockholm : Nordregio.

Maskell, P. (2000), 'Verdenshandel og kapitalbevægelser'. In Dolin, J., (eds.) *Grundbog i Geografi for Gymnasiet og HF* København: Gyldendal.

Maskell, P. (2000), 'Social capital and competitiveness'. In: Baron, S., Field, J. and Schuller, T., (eds.) *Social Capital. Critical Perspectives*. Oxford: Oxford University Press.

1999:

Andersen, P. & Strandskov, J. (1999), 'Contexts of Firm Internationalisation. The Importance of Business and Ownership Integration.' In Pedersen, K. & Thomsen, S. (eds.) *Internationalisering - styring og samarbejde*. Systime.

Begg, I., Dalum, B. Guerrieri, P. and Pianta, M. (1999), 'The Impact of Specialization in Europe', in Fagerberg, J., Guerrieri, P. and Verspagen, B. (eds.) *The Economic Challenge for Europe: Adapting to Innovation-Based Growth*. Cheltenham& Northhampton: Edward Elgar.

Christensen, J.F. (1999), "Building Innovative Assets and Dynamic Coherence in Multi-Technology Companies". in N.J. Foss and P.L. Robertson (eds.): *Resources, Technology and Strategy*, London: Routledge 1999.

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Christensen, P. R., Philipsen, K. and Cornett, A. (1999), 'Coherence of innovation policy instruments.' In: *SME policy and the regional dimension of innovation*, Final TSER-report, Chapter 7, Oslo.

Dalum, B. (1999), 'Erhvervsstruktur og erhvervs politik'. Kapitel 10 i Andersen, T. et al. *Beskrivende Økonomi*, 6. udgave. København: Jurist- og Økonomforbundets Forlag.

Dalum, B. og Smith, V. (1999), 'Fremstillingsvirksomhed'. Kapitel 12 i Andersen, T. et al. *Beskrivende Økonomi*, 6. udgave. København: Jurist- og Økonomforbundets Forlag.

Dalum, B., Holmen M., Jacobsson, S., Praest, M., Rickne A. and Villumsen, G. (1999), 'Changing the Regional System of Europe', in Fagerberg, J., Guerrieri, P. and Verspagen, B. (eds.) *The Economic Challenge for Europe: Adapting to Innovation-Based Growth*. Cheltenham & Northampton: Edward Elgar.

Dalum, B., Freeman, C., Simonetti, R., Tunzelmann, N. v. and Verspagen, B. (1999), 'Europe and the Information and Communication Technologies Revolution,, in Fagerberg, J., Guerrieri, P. and Verspagen, B. (eds.) *The Economic Challenge for Europe: Adapting to Innovation-Based Growth*. Cheltenham& Northampton: Edward Elgar.

Drejer, I., Skov Kristensen, F. & Laursen, K. (1999), 'Studies of Clusters as a Basis for Industrial and Technology Policy in the Danish Economy', pp. 293-313, in *OECD (ed.) Boosting Innovation: The Cluster Approach*, Paris, OECD.

Foss, K. (1999), 'Le processus de Marché et le firme: vers une perspective de droits de propriété dynamiques' in Krafft, J.(ed.) *Le Processus de concurrence*, Economica Paris, pp 16-33.

Foss, N.J and Mahnke, V. (1999), 'Strategy Research and the Market Process Perspective,' in Krafft, J. (eds.) *The Process of Competition*, Aldershot: Edward Elgar; French Version 'La recherche en strategie et la perspective de processus de marché' in Krafft, J. (eds.) *Le Processus de Concurrence*. Paris: Economica.

Foss, N.J. (1999), 'Incomplete Contracts and Economic Organization: Brian Loasby and the Theory of the Firm', forthcoming in Dow, S.& Earl, P. (eds.) *Economic Knowledge and the Economic Coordination: Essays in Honour of Brian Loasby*. Aldershot: Edward Elgar.

Foss, N.J. (1999), "Market Process Economics and the Theory of the Firm," in Ron Sanchez, ed. 1999. *Beyond the Boundaries of the Firm*. Elsevier, 1999.

Foss, N.J. (1999), "The Theory of the Firm: an Introduction to Themes and Contributions", in N.J. Foss, ed. *The Theory of the Firm: Critical Perspectives in Economic Organization*. London: Routledge (1999),

Foss, N.J., Lando, H. and Thomsen, S. (1999), "The Theory of the Firm", in Boudewijn Bouckaert and Gerrit de Geest, eds. *The Handbook of Law and Economics*. Aldershot: Edward Elgar, 1999.

Knudsen, M.P., Dalum, B, Holmen, M., Jacobsson, S., Rickne, A. & Villumsen, G. (1999), 'Changing the Regional Systems of Innovation' in Fagerberg, J, Guerrieri, P., Verspagen, B. (eds.), *The Economic Challenge for Europe: Adapting to Innovation-based Growth*. Edward Elgar Publishing Copany.

Lundvall, B.-Å.. (1999) 'Technology Policy in the Learning Economy', in Archibugi, Michie, J & Howells, J. (eds.), *Innovation Policy in a Global Economy*, Cambridge University Press, pp 19-34.

Mahnke, V., Von Krogh, G., Lyles, M. & Rogulic, B. (eds.), (1999), 'Preparing the organization for new competencies : a process perspective of integrating knowledge and competence.' *Advances in management cognition and development and organizational information processing*. Vol. 6 pp. 51-72. HHK: IVS.

Mahnke, V. & Foss, N.J. (1999), 'La recherche en strategie et la perspective de processus de marché', in Krafft, J. (eds.) *Le Processus de Concurrence*. Paris: Economica.

Maskell, P. (1999), 'Globalisation and industrial competitiveness: The process and consequences of ubiquitification.' Chapter 2 in Malecki, E.J. & Oinas, P. *Making Connections: Technological Learning and Regional Economic Change*, pp. 35-60 Aldershot: Ashgate.

Maskell, P. (1999), "Social capital and competitiveness", in Field, J., Schuller, T. and Baron, S., (Eds.) *Social Capital Collection* Oxford: Oxford University Press.

Mikkola, H. J. & Vepsäläinen, A.P.J. (1999), 'Strategisches Portfolio-Management von FuE-Projekten,' in Mohrle, M.G. (eds.), *Der richtige Projekt-Mix: Erfolgsorientiertes Innovations- und FuE-Management*, Berlin, Heidelberg, New York, Barcelona, et. Al.: Springer, 53-72.

Præst, M. (1999), "Changing Technological Capabilities in High-Tech Firms: A Study of the Telecommunications Industry", in C. E. Garcia and L. Sanz-Mendendez (1998): *Management and Technology*. European Commission, pp. 79-99.

Præst, M. (1999), "Demarcation of Technological Competence Groups: Methods, Problems, and Future Opportunities", in Sanchez and Heene (1999): *Research in Competence-Based Strategic Management*.

Præst, M. (1999), "The Accumulation of Technological Competencies: Or Who Perform Better in Turbulent Environments?" in Sanchez and Heene (1999): *Knowledge Management and Organisational Competence*.

2. Refereed books

2000:

Laursen, K. (2000), *Trade Specialisation, Technology and Economic Growth: Theory and Evidence from Advanced Countries*. Cheltenham, UK and Lyme, US. Edward Elgar.

Foss, N. J. & Mahnke, V. (2000), *Governance, Competence, and Entrepreneurship*. Oxford. Oxford University Press.

Foss, N. J.(2000), *The Theory of the Firm: Critical Perspectives in Economic Organization*. 4 vols. London: Routledge

Foss, N. J. & Robertson, P.L (2000), *Resources, Technology, and Strategy: Extending the Ressource-Based Approach to the Firm*. London: Routledge.

1999:

Section II: Ph.D-Activities

DRUID was initially established without funds for PhDs. However, during the run of the DRUID programme an increasing number of PhD students have participated in the activities and greatly benefited from close interaction with senior scholars from the international network. The proposed new DRUID network, which was accepted by the Social Science Research Council (SSF) in December 2000, will have PhD training as an explicit task of high priority. The aim is to anchor the Ph.D. activities in a permanent institution called the DRUID ACADEMY, rather than in a temporary network. The DRUID Academy is a long term co-operation agreement between the two major departments of DRUID – Department of Business Studies at Aalborg University and Department of Industrial Economics and Strategy at CBS in co-operation also with Southern Danish University (Kolding) and Aarhus School of Business.

The intention of the DRUID ACADEMY is to create synergy and critical mass for PhD students participating in the DRUID network. With a current stock around 20 students (Copenhagen + Aalborg) a necessary scale is within reach. A domestic course programme is in the pipeline and is one of the important aims of the proposed DRUID2. The annual DRUID Winter conference has been focused at international PhD participation especially from January 2000.

The DRUID ACADEMY is plugged into an international network, the European Doctoral School on Economic, Technological and Institutional Change EDS-ETIC, which can be dated back to 1993. Through two substantial 3 year EU grants (1996-98 and 1999-2001) from the EU Framework programme Training and Mobility of Researchers (Action 4), the IKE Group at Aalborg University has been part of the core group⁶ organising PhD courses/seminars at the European level in Maastricht and Strasbourg. These activities (the ETIC PhD courses) have been scheduled as four weeks annually. Two of these weeks have been co-ordinated by DRUID members since their beginning (Esben Sloth Andersen and Bent Dalum, Aalborg University).

From 2001 these institutions have extended their network and ambition towards creating EDS-ETIC as a European doctoral school. SPRU, University of Sussex; LEM, University of Pisa and University Carlos III, Madrid have joined the core group, and the DRUID Academy is representing the Danish participation (not just IKE, Aalborg). EDS-ETIC has recently been recognised as a Marie Curie Training site (for PhD students). 288 months/fellow grants will be allocated as 4-6 months stays abroad at the member institutions in 2001-2004. The first round of applications is due to be announced in Autumn 2001. EDS-ETIC is closely connected to the Summer School programme in industrial economics, ESSID, organised as one week annually at Corsica. EDS-ETIC is also connected to the CCC consortium of major US PhD programmes in the field of the economics of technical change, headed by prof. R. Nelson, Columbia and D. Moverly at Stanford. Intensified co-operation between the European and US networks, involving the DRUID ACADEMY as a central node, is in the pipeline.

⁶ The overall co-ordinator is BETA, University of Strasbourg; the other fourth member is MERIT, Maastricht University.

In the period covered by this report, seven Ph.D.-students who participated in the DRUID-network have finalised their Ph.D.-studies by successfully defending their theses. At present there are close to 20 Ph.D.-students connected to the network. Of these, another five are expected to finish their theses in 2001.

An important element in the DRUID Ph.D. training is the active participation of students in the annual DRUID Winter Conference where Ph.D.-students are expected to present work in progress and in the annual DRUID Summer Conference where they also are expected to present papers and act as discussants on papers by international scholars (See Appendix 2). The Ph.D.-students related to DRUID have been active in all these respects.

In 1998 a special scheme to stimulate new Ph.D.s to communicate results from their dissertation in the form of articles to journals has been established in collaboration with the departments and faculty in Copenhagen and Aalborg. When the dissertation has been delivered, and clearance given by the supervisor, Ph.D.-candidates can apply for a 3-month grant to write papers for refereed journals.

Ph.D-students connected to DRUID 1995-2001

	Period	Dissertation theme
Aage, Tine	2000 – 2003	Knowledge, Adaptation and Global-local Stengthening of Regional Systems of Innovation
Amaya-Lopez, Ana Lisette	June 2000 – October 2002	Knowledge Transfer and Learning Processes in SMEs in Nicaragua: Innovation, Cleaner, Technology and Agro-Industri
Andersen, Maj M.	January 95 – November 98 Ph.D.-defence took place in June 1999	Firm Trajectory Change through Interorganisational Learning – The Economic Organisation of the Greening of Industry
Bang, Henrik	August 93-	Strategic Management of Construction Firms
Bonilla, Segura Olman	June 96 – May 1999 Ph.D.-defence took place in December 1999.	Competitiveness and Sustainable Development in the Forest Sector in Central America.
Boon, Arnold	June 94 – Ph.D.-defence took place in May, 2001	Vertical Coordination and Innovation in the Agribusiness and Food Industry
Pun Arj Chairatana	Maj 99-Maj 2002	Institutional and system Architecture: Agro-Innovation System in Thailand
Dahl, Michael	1999-2002	Regional Specialisation, Knowledge Spillovers and Economic Development
Dahlgren, Henrich	2000-2003	Product Development & Industrial Networks
Drejer, Ina	February 96 – October 99* Ph.D. –defence will took place October 1999	Aspects of technological interdependence – an analysis of the role of external knowledge and knowledge intensive interaction in technological development and innovative activity
Foss, Kirsten	December 1991-April 1996 Ph.D. defence took place September 1996	Transaction costs and production costs paths: The case of the Danish Fruit and Vegetable Industry
Husted, Kenneth	April 94 – marts 97 Ph.D. defence took place October 1998	Industriel forskning: styring og autonomi
Hsuan, Juliana	Ph.D.-guest November 98 – September	Modularization in New Product Development: a Market Access Strategy

	99	
Iversen, Michael	December 96 – December 99 Ph.D. defence took place in November 2000	Organization of industrial synergies
Jeppesen, Lars Bo	2000-2003	Industry Evolution, Firm Innovation and demand-side Dynamics. Empirical field: Computer Games Industry and On-line Communities
Jørgensen, Kenneth	May 96-October 99 Ph.D. defence took place October 2000	Organizing new technologies in loosely coupled systems.
Kaisla, Jukka	March 98 – March 2001 Ph.D. defence will take place in August 2001	Economic Evolution through Institutional Discoveries: A Study in Austrian Economics of the Pharmaceutical Industry
Kristensen, Frank Skov	May 96 – April 99 Ph.D. defence will take place in May 2001	The Dynamics of Knowledge: A Sectorial Perspective
Køster, Nana	August 95-August 98	
Laursen, Keld	February 95 – August 98* Ph.D.-defence took place November , 1998.	A Neo-Schumpeterian Perspective on the Determinants and Effects of International Trade Specialisation (PhD Thesis title)
López, Mario	January 1998-May 2000	Innovation System and the Agro-Forestry Industry. The case of the timber-furniture branch in Nicaragua
Lorenzen, Mark	September 95 –September 98 Ph.D. Defence took place in April 1999	Localised learning and community capabilities: On organisation of knowledge in firms, markets, and communities
Mahnke, Volker	October 97 – August 98 Ph.D.-Defence will take place in October 1999	Towards a new strategic theory of the firm: the economies of intellectual production.
Molin, Måns	2000 – 2003	The sources of Dynamic Capabilities
Nymark, Søren	February 96 – January 99.	Organizational storytelling; value based management
Præst, Mette	April 95 – October 98* Ph.D.-defence took place January 15 1999.	Patterns of Technological Competence Accumulation and Performance: Experiences from Telecommunications.
Reichstein, Toke	1999 – 2002	Firm Growth and the Size Distribution of Industries
Schmidt, Anders McIlquham	May 97 - Maj 2000	Strategy, strategic management and performance.
Sornn-Friese, Henrik	September 96 – August 99	Industry Dynamics and Firm Capabilities in the Road Haulage Sector in Denmark
Tolsby, June	August 99 – August 2002	The Economics of Industrial, Technological and Institutional Change
Thomassen, Mikkel	2000 – 2001	Co-ordination Practices in the process of construction
Valente, Marco	Marts 97 – August 99	Evolutionary modelling of market processes
Vang-Lauridsen	Jan	Boundaries of the Firm in Intellectual Production. The case of the Danish Newspaper Industry
Alfaro, Leiner Vargas	January 1998-March 2001	Competitiveness and Innovation: Space for clean energy within electricity reforms
Vinding, Anker Lund	October 98-October 2001	Inter-organisational Interaction in the Process of Product Innovation collaboration at the interfirm level

Ph.D.-defenses 1999-2000

Andersen, M. M. (1999), *Trajectory change through interorganisational learning: On the economic organisation of the greening of industry*.
(Ph.d.-serie ; 99-8) København. HHK: IVS

Bonilla, S.O. (1999), '*Competitiveness and Sustainable Development in the Forest Sector in Central America.*', Aalborg University.

Drejer, I. (1999), '*Technological Change and Interindustrial Linkages. Introducing Knowledge Flows in Input-Output Studies*', Aalborg University.

Iversen, M. (2000), '*Organization of industrial synergies*'. HHK: IVS.

Jørgensen, K. (2000), '*Organizing new technologies in loosely coupled systems*', Aalborg University.

Lorenzen, M. (1999), '*Localised learning and community capabilities: On organisation of knowledge in markets, firms, and communities*', København: Samfundslitteratur.

Mahnke, V. (1999), '*Intellectual production and strategic theory of the firm*'. Copenhagen Business School. CBS Handelshøjskolen i København. HHK: IVS

Knudsen, M.P. (1999), '*Patterns of Technological Competence Accumulation and Performance: Experiences from Telecommunications*', Department of Business Studies, Aalborg University.

Valente, M. (1999), '*Evolutionary Economics and Computer Simulations: A Model for the Evolution of Markets*', Department of Business Studies, Aalborg University.

Activities involving senior staff in Ph.D.-training

Andersen, E.S. (1999), PhD course on Evolutionary Modelling of Technical Change and Economic Dynamics, Strasbourg 26-30 April 1999 (organiser and lecturer).

(2000), PhD course on Evolutionary Modelling of Technical Change and Economic Dynamics, Strasbourg 10-14 April 2000 (organiser and lecturer).

Christensen, J. F. (1999) Medlem af bedømmelsesudvalg til Tietgenpris-opgave og PhD-afhandling under Erhvervsforskeruddannelsen (Kristina Lee).

Medlem af bedømmelsesudvalg vedr. besættelse af PhD-stipendier ved Institut for Erhvervsstudier, Aalborg Universitet.

PhD-supervisor for: Morten Overgaard Nielsen, Mikael Iversen, Henrik Bang

(2000) Medlem af bedømmelsesudvalg vedr. PhD-stipendier ved HHK (IVS).

Forelæsning på Risøs og REMAPS Phd-kursus i Management of Research and Innovation, 12/9-2000.

PhD-supervisor for: Juliana Hsuan Mikkola, Henrik Bang, Mikael Iversen, Morten Overgaard Nielsen, Jens Gammelgaard,

Christensen, P. R. (1999) Lecturing contributor to the European Doctorial Programme in Entrepreneurship and Small Business Management.

Member of the Doctorial Pre-conference Board at the RENT Conference (Research in Entrepreneurship) in London

(2000) Lecturing contributor to the European Doctorial Programme in Entrepreneurship and Small Business Management.

Johnson, B. “Responsible Party” for The SUDESCA project in the ENRECA program under DANIDA. The project includes Ph.D. training for Ph.D. students from Central America (4 students in the 1999-2000 period). It also includes assistance for developing a Ph.D program in economics (including industrial dynamics) at Universidad Nacional in Costa Rica.

Laursen, Keld

13th October, 2000: Gave two lectures on technology, trade and growth at the ETIC PhD course held in Maastricht, the Netherlands.

8th October, 1999: Gave a lecture on technology and trade at the ETIC PhD course held in Maastricht, the Netherlands.

Lundvall, B.-Å (1999) January 7-9: Organised and contributed to the DRUID Winter conference for Ph.D.-students.

September 8-9: Gave courses at ESSID Ph.D. Summer School, Cargese.

November 5: Participated in Ph.D. jury for Marianne van der Steen, Twente university.

November 25 : Gave Ph.D.-seminar Center for Development Studies, Copenhagen.

2000:

January 6-8: Organised and contributed to the DRUID Winter conference for Ph.D.-students

September 11-17: Gave courses at ESSID Ph.D. Summer School, Cargese.

November 14: Gave seminar for Ph.D.-students in Jena.

December 7-8: Gave Ph.D.-courses at STEP and TIK in Oslo.

Activities involving Ph.D.-student in Ph.D.-training

Aage, T.

DRUID S2000, W2001, W2001, ESSID 2000, Oslo Summer School 2000, Method course CBS 2001.

Chairatana, P.-A

DRUID S1999, S2000, ETIC 1999, ETIC 2000, National Science and Technology Development, Agency, Thailand, Science Policy Research Unit (SPRU) University of Sussex, UK.

Dahl, M.

ETIC 2000, ESSID 2000, CCC-conference 2001, DRUID W00, S00, W01, S01.

Dahlgren, H.

ETIC 2000, Seminar with Prof. Anna Grandori, CBS, 2000, (Euro)CINet conference sep.2000, Aalborg Denmark, ESSID 2000, Oslo Summer School 2000, DRUID S00, W00.

Mikkola, J.H.

DRUID W99, S99, W00, S00, W01, S01, CCC conference.

Reichstein, T.

DRUID W00, S00, W01, S01, ETIC 2000, ETIC 2001, ESSID 2000.

Tolsby, J.

EGOS Organisational Praxis 16th EGOS Colloquium 2nd-4th July 2000 Helsinki
The 4 th International Conference on Organizational Discourse: Word-views, Work-views and World-views 26th-28th July 2000 London, The 5 th Conference of the European Sociological Association Divisions and Visions Challenges to European Sociology August 28 September 1 Helsinki, 2001, DRUID S01.

Vang-Lauridsen, J.

Oslo Summer School (2000), ETIC (2000), ESSID (2000), Methods CBS.

Vinding, A. L.

DRUID W99, S99, W00, S00, Essex Summer School 2000.

Section III: Interaction with users

3. Publications aiming at users of resarch and addressing policy or management issues

2000:

Andersen, P. (2000), '*Søgeprocesser på det globale marked for underleverancer: danske indkøberes brug af Internet*'. Virksomhedens Internationale Aktiviteter, 11. 1 Børsens Forlag.

Christensen, J.L. (2000), '*Effects of Venture Capital on Innovation and Growth*'. Danish Ministry of Trade and Industry.

Christensen, J. L. (2000), '*Innovation i danske industri- og servicevirksomheder – resultater fra den 2. Community Innovation Survey EUR*', Ministry of Trade and Industry.

Christensen, J. L.(2000), '*Effekter af Venturekapital på Innovation og Vækst – dansk sammenfatning*'. Danish Ministry of Trade and Industry.

Christensen, J. L. (2000), '*Policies to stimulate collaboration on innovation – examples from Denmark*'. Paper for OECD-FG on CCN, policy module.

Christensen, P. R. & Damgaard, T (2000), '*Tilblivelse af netværkssamarbejde mellem virksomheder. I: Effektiv tilblivelse af projekter*'. Håndbog fra Symposiet Projektledelse. Fangel, M. (Eds.), Hillerød, Foreningen for Danske Projektledere.

Gregersen, B. (2000), '*The Role of Knowledge Institutions for Innovation – Findings and Conclusions from the Danish DISKO-project*', Paper presented at the Third Triple Helix International Conference, Rio de Janeiro.

Lundvall, B.-Å. (2000), '*The learning economy – implications for the knowledge base health and education systems, in OECD-CERI*', Knowledge Management in the Learning Society, Paris, OECD.

Philipsen, K. & Christensen, P.R. (2000), 'Når hverdagen spænder ben for fornyelsen' pp. 40-49 i *Årbog for Center for Småvirksomhedsforskning - Årbog 1999/2000*, Syddansk Universitet, Kolding.

Valentin, F. (2000), '*Danske virksomheders brug af offentlig forskning*' 229 s. Danmarks Forskningsråd, Forskningsministeriet. ISBN: 87-90890-21-3.

1999:

Andersen, E. S. (1999), '*Verdensøkonomi på spil*', Magisterbladet, No. 5, March 1999, pp. 30-32.

Andersen, P. (1999), '*Eksportsamarbejde blandt danske møbelproducenter*'. Working Paper 99-3, Department of International Business, The Aarhus School of Business.

Andersen, P., Mols N.P. & Bukh, P. N. D. (1999), '*The Configuration of Cash Management Relationships: Differences Between Market-based and Credit-based Financial Systems.*' European International Business Association Conference.

Andersen, P. (1999), '*Relationship Marketing Practices and Organisational Development*'. Presented at the 7th Colloquium in Relationship Marketing. Strathclyde University, Glasgow.

Christensen, J. L., Gregersen, B., Rogaczewska, A. (1999), '*Vidensinstitutioner og innovation*', DISKO-rapport nr.8. Erhvervsfremme Styrelsen.

Christensen, J.L. (eds.), Jackson, S., Riding, A., Mensah, S. (1999), '*Loan Guarantee Schemes in six countries*'. Ministry of Trade and Industry.

Christensen, J. L. (1999), '*Lånegarantier i Danmark?*' Ministry of Trade and Industry, 35pp.

Christensen, Jesper L. (1999), '*Risikovillig kapital til vækstorienterede innovative iværksættere*'. Århus Amts Erhvervsredegørelse.

Christensen, P. R., Philipsen, K. and Cornett, A. (1999), '*Innovations & Innovation Support for SMEs - The Triangle Region of Denmark*'. SMEPOL Report no. 2., TSER-country report, CESFO-Report Serie, Kolding.

Christensen, P. R., Philipsen, K. & Cornett, A. (1999), '*Coherence of innovation policy instruments*'. Chapter 7 in the final TSER-report on "SME policy and the regional dimension of innovation", Oslo.

Lundvall, B.-Å. (1999), '*Det danske innovationssystem: Et forskningsbaseret debatoplæg om innovationspolitiske udfordringer og handlemuligheder*'. København, Erhvervsudviklingsrådet.

Lundvall, B.-Å. & Barras, S. (1999), '*The Globalising Learning Economy: Implications for Innovation Policy*'. Brussels, DG XII.

Maskell, P. & Törnqvist, G. (1999), '*Building a Cross-Border Learning Region. Emergence of the North European Øresund Region*'. CBS-Press.

Thomassen, M.A. (1999), '*Integration i Byggeriets Leverancesystem*', Erhvervsfremme Styrelsen, København.

Vejrup-Hansen, P. (1999), 'Tilbagetrækning på arbejdsmarkedet : en oversigt over faktorer'. *Samfundsøkonomen*, Nr. 1, s. 17-22. . HHK: IVS.

Activities involving staff in events around policy or management issues

Andersen, P.:

Conducted an unpublished study for the Agency for Trade and Industry (Erhvervsfremme Styrelsen) on Danish Purchasers utilisation of the Internet and other Information Technologies as a sourcing device.

Christensen, J. L (1999):

- 7. January – Productivity: measurement and development. Seminar at CBS, Copenhagen
- 13. January – Arranged seminar with external experts in Copenhagen on Technological Services.
- 20. January, 22. January, 3. March – meetings in German, Dutch, French Ministry of Industry on financial products and financing of SME's
- 25. January, 24. March and 21. June – Steering Committee Meeting in Danish Ministry of Trade and Industry on potential implementation of Business Angels Network. Copenhagen.
- 4. February – Speech at seminar Institutrådet, "Technological Service in Denmark".
- 22. February – Speech for Council of Viborg Amt, "Finansiering af udviklingsorienterede virksomheder".
- 4. March – DISKO steering committee meeting, Copenhagen.
- 8. April – Seminar, Financing SME's, Prof. Allan Riding/Jesper Lindgaard Christensen, Ministry of Trade and Industry, Copenhagen.
- 22. April - Annual meeting VækstFonden, Copenhagen
- 3. May – Speech at NOVI on "Business Angels". Meeting in syndicate of business angels
- 4. May – Speech at Hotel Hedegaarden, Vejle on "Financing SME's in Denmark", Dansk Industri.
- 18. May – Meeting in OECD/NIS-project, Paris.
- 20. May – Speech at Industriens Hus, Copenhagen on "Financing innovations in Denmark", Dansk Industri (Danish Association of Industries).
- 1.-2. June – Meeting in editorial board of Scandinavian Venture Capital Journal, Stockholm, Sweden.
- 19. August, 22 nov - Meetings in Danish Ministry of Trade and Industry and VækstFonden on the development of the Danish Venture Capital Market. Copenhagen.
- 2. September – Seminar on innovation and policy, results and implications of DISKO. Copenhagen, Ministry of Trade and Industry.
- 17. September – Speech for Association of Danish Counts, "Industrial Development after year 2000", Amternes Hus, Copenhagen.
- 7. October - Conference on "Towards a more Interactive University?", Aalborg University.
- 8. November - Speech on "Political initiatives for stimulating firm-university collaboration" at Conference on "Nordjylland as a learning region", NOVI/Aalborg University.

Christensen, J. L. (2000):

- 6.-8. January – DRUID Winter Conference, Hillerød.
- 25. January, 28.march, 24.may – Seminar on analysis and identification of industrial clusters, Ministry of Trade and Industry and PLS Consult, Copenhagen.
- 28. Januar – konference on regional industrial policy, Ministry of Trade and Industry, Odense
- 10. February – Seminar, Aalborg University, ”Videnregnskaber”.
- 16.-18. February – OECD workshop ”Interfirm collaboration and Innovation”, Vienna, Austria.
- 25. February. Speech on ”Dynamics of Financial Systems – Implications for financing Innovations” at seminar ”Investing in Southern Europe”, EU, DGXII-TSER, Athens, Greece.
- 2. March – Seminar on regional industrial development, NOVI, Aalborg.
- 16. March – Speech on industrial development in Nord Jutland, Course for corporate advisors in North Jutland, NOVI, Aalborg.
- 30. March – Speech on Nordjysk Konjunktur Barometer, Course for corporate advisors in North Jutland, NOVI, Aalborg.
- 31. March – Participation in Technical advisory board on Jysk-Fynsk Erhvervsredegørelse, Nordjyllands Amt.
- 31. March – Speech on Nordjysk Konjunktur Barometer, DRUID seminar, Aalborg University.
- 4. April – Workgroup on SND-evaluation, STEP-group, Oslo.
- 6. April – Seminar on industrial development, results from the DISKO-project and possible policy actions, Amtsrådsforeningen and Nordjyllands Amt, NOVI.
- 10.-12. April – Conference on innovation, learning and competence, Aalborg.
- 4. May – Conference on Business Angels Network, Nordjyllands Erhvervsservice, NOVI.
- 23. May – Seminar on Venture capital in Denmark, Ministry of Trade and Industry, Agency of Trade and Industry and VækstFonden, Copenhagen.
- 15.- 17. June – DRUID Conference on National Innovation Systems, Hotel Rebild Park, Skørping.
- 19.-20. June – 11th Nordic Small Business Research Conference, Århus.
- 16. August - Speech on Nordjysk Konjunktur Barometer, Life-long learning seminar, social science faculty, Aalborg University.
- 21. August – Seminar on Danish Venture Capital, Ministry of Trade and Industry, Copenhagen.
- 1.-3. October - OECD workshop ”Interfirm collaboration and Innovation”, Rome, Italy.
- 1. Nov – Presentation of paper on ”The Rise, Fall and possible Re-vitalisation of the Danish Venture Capital Industry”, DRUID-seminar, Aalborg University.
- 8. Nov – Conference on Venture capital, ”Venturekapital Forum”, Copenhagen.
- 4.-5. December – Conference in LOK-research, Høje Taastrup.

Christensen, P.R.:

Member of the scientific evaluation board, concerning ’Centre for Interdisciplinary Studies of Technology Management’. Nominated by ’Forskningsstyrelsen’ (1999)

Advisor to the Ministry of Trade and Industry in questions related to ‘Clusters of Competence’ (2000)

Member of the scientific committee of ‘Industriens Realkredit Fond (1999/2000)

Member of the commission concerning 'Innovation Environments' at the Ministry of Trade and Industry (1999/2000)

Dahl, M.:

Activities involving staff in events around policy or management issues:
Working for Erhvervsfremmestyrelsen as a member of the OECD Cluster
Focus Group.

Gregersen, B. (1999):

Meetings in the ESST (The European Inter-university Association on Society, Science and Technology) Administrative Board and Teaching Committee, Lausanne, May 27-28, 1999.

POSTI (Policies for Sustainable Technological Innovation in the 21st Century) 1st international conference on "Technological Innovation in a Sustainable Perspective", EPFL, Lausanne, May 29-30, 1999.

DRUID's Summer Conference on "National Innovation Systems, Industrial Dynamics and Innovation Policy", Rebild, June 9-12, 1999.

DISKO-symposium, AAU, September 16, 1999.

Gave presentation on "The Danish pattern of interaction between firms and universities" at the workshop "Towards a more Interactive University?", Aalborg University, October 7, 1999.

Gave presentation on "Samarbejde mellem virksomheder og universiteter - nogle hovedresultater fra DISKO-projektet" (Co-operation between firms and universities – main results from the DISKO project) at the Conference on "Nordjylland som lærende region" (North Jylland as a learning region), NOVI, Aalborg, November 8, 1999.

Gregersen, B. (2000):

Meetings in the ESST (The European Inter-university Association on Society, Science and Technology) Administrative Board and Teaching Committee, Strasbourg, May 25-26, 2000.

POSTI (Policies for Sustainable Technological Innovation in the 21st Century) 2nd international conference: Sustainability, Technological Innovation and Competitiveness of the Firm" Strasbourg, May 27-28, 2000.

LOKNIT conference on "e-commerce technologies and business models", Aalborg, June 14, 2000.

DRUID's Summer Conference on "The Learning Economy - Firms, Regions and Nation Specific Institutions", Rebild, June 15-17, 2000.

The Danish Board of Technology workshop on "IT in the public sector", Copenhagen, October 11, 2000.

Gave presentation on "Risikoprojektledelse set i et organisatorisk læringsperspektiv" (Project management from an organisational learning perspective), at the conference on "Fejltagelser i IT implementering" (Mistakes in IT implementation), Skejby Sygehus, November 13, 2000.

Meetings in the ESST (The European Inter-university Association on Society, Science and Technology) Administrative Board and Teaching Committee, Lindon, December 1, 2000.

Gave closing lecture on "The Learning Economy and Future Challenges for STS research" at the POSTI (Policies for Sustainable Technological Innovation in the 21st Century) 3rd international conference on "Policy Agendas for Sustainable Technical Innovation", December, 1-3, 2000,

London.

Member of The Danish Board of Technology Working Group on Large Public IT-projects. (Several meetings)

Johnson, B.:

Seminars on Innovation policy related issues with participating policy makers in Central America :

(1) International Seminar on Innovation, Competitiveness and Environment in Central America, San José, Costa Rica, February 22-23, 1999.

(2) ENRECA /SUDESCA annual meeting and international workshop, Escuela de Economía Agrícola, Universidad Nacional Autónoma de Nicaragua, Managua, Nicaragua, February 7-9, 2000

ENRECA /SUDESCA annual meeting: International seminar and international workshop on 'Innovation, Clean Technologies and Sustainable Development'. Hotel Intercontinental, San Salvador, May 2 and Hotel Izalco, El Salvador, May 3-5.

Lundvall, B.-Å. (1999):

Meetings in the Ministry of Research, Advisory group on Socio-Economic Research

Meetings in The Council for Industrial Development to present results of the DISKO-project

Meetings in connection with regional initiative on IT in Northern Jutland

March 15-3 OECD_meeting in Paris to prepare the report on Knowledge management.

April 28.-30 Organised with DG 12 Conference on innovation Policy in the globalising economy with TSER-DG XII.

May 17-18 Organised with OECD OECD/NSF-workshop on Knowledge management, Washington.

September 20-21: Gave a lecture on Employment and unemployment in the learning economy at TSER-workshop on challenges for Europe, Bruxelles.

October 11: Organised with Netværkscenteret AAU workshop on interaction between university and the region, Aalborg.

November 2: Participated in expert panel in Competition Authority in Copenhagen.

December 3-4: Participated in expert meeting on European Policy as preparation to the Portuguese chairmanship for European Commission, Lisbon.

Lundvall, B.-Å.(2000):

Meetings in the Technology Council of the Mayor of Berlin, Berlin 31/1 and 19/9.

Meetings in connection with the Portuguese Presidency, Lisbon 18-19/2, Sintra 29-30/5.

Meetings in connection with OECD-CERI project on knowledge management, Paris 16/5, Ottawa 21-22/9, Mexico City 15-26/9.

February 29: Lecture for LO Århus County.

March 30 : Lecture for EREN European network on regional development

April 6: Lecture for representatives of Danish Counties – Committees for industrial development

October 4: Lecture for Contact council of Aalborg University

October 11: Seminar with industrial development officers of Northern Jutland

Villumsen, G.:

Active in NorCOM, the North Jutland Communications Cluster association of wireless communications firms, Aalborg University researchers in electronics and the NOVI Science Park. Participate with DALUM, B in organising NorCOM meetings and writing the NorCOM web site (www.norcom.dk). Has given invited external talks and lectures concerning these issues.

Appendix 1:

DRUID Working Paper Series:

- 99-12 **Lundvall, Bengt-Åke and Christensen, Jesper Lindgaard:** *Extending and Deepening the Analysis of Innovation Systems - with Empirical Illustrations from the DISCO-project*
- 99-11 **Laursen, Keld; Mahnke, Volker and Vejrup-Hansen, Per:** *Firm growth from a knowledge structure perspective*
- 99-10 **Laursen, Keld and Meliciani, Valentina:** *The importance of technology based inter-sectoral linkages for market share dynamics*
- 99-9 **Nymark, Søren R.:** *Organisatorisk læring gennem den værdibaserede organisations fortællinger*
- 99-8 **Lund, Reinhard:** *Tillidsrepræsentantsystemet og de fleksible virksomhedsformer*
- 99-7 **Foss, Nicolai J.:** *Capabilities, Confusion, and the Costs of Coordination: On Some Problems in Recent Research On Inter-Firm Relations*
- 99-6 **Jørgensen, Kenneth M.:** *The Meaning of Local Knowledges*
- 99-5 **Foss, Kirsten & Foss, Nicolai J.:** *Organizing Economic Experiments: The Role of Firms*
- 99-4 **Foss, Kirsten & Foss, Nicolai J.:** *Understanding Ownership: Residual Rights of Control and Appropriable Control Rights*
- 99-3 **Foss, Nicolai J.:** *Understanding Leadership: A Coordination Theory*
- 99-2 **Ernst, Dieter:** *Responses to the Crisis: Constraints to a Rapid Trade Adjustment in East Asia's Electronics Industry*
- 99-1 **Lorenz, Edward :** *Organisational Innovation, Governance Structure and Innovative Capacity In British and French Industry*
-
- 00-13 **Rodrigo Arocena & Judith Sutz** *Interactive Learning Spaces and Development Policies in Latin America*
- 00-12 **Gabriel Yoguel & Fabio Boscherini** *The environment in the development of firms' innovative capacities: Argentine industrial SMEs from different local systems*
- 00-11 **Gabriel Yoguel, Marta Novick & Anabel Marin:** *Production networks: linkages, innovation processes and social management technologies. A methodological approach applied to the Volkswagen case in Argentina*
- 00-10 **Søren Nymark:** *Value-based management in learning organizations through 'hard' and 'soft' managerial approaches: The case of Hewlett-Packard*
- 00-9 **Mark Tomlinson:** *Innovation surveys: A researcher's perspective*
- 00-8 **Mark Sanders and Bas ter Weel:** *Skill-Biased Technical Change: Theoretical Concepts, Empirical Problems and a Survey of the Evidence*

- 00-7 **Michael Storper and Yun-chung Chen with Fernando De Paolis:** *The Effects of Globalization on the Location of Industries in the OECD and European Union*
- 00-6 **Machiel van Dijk and Önder Nomaler:** *Technological diffusion patterns and their effects on industrial dynamics.*
- 00-5 **Anne Yvrande:** *The New British Railways Structure: A Transaction Cost Economics Analysis*
- 00-4 **Juliana Hsuan Mikkola:** *Modularization assessment of product architecture*
- 00-3 **Lucia Cusmano:** *Technology Policy and Co-operative R&D: the role of relational research capacity*
- 00-2 **Patrick Llerena & Mireille Matt:** *Technology policy and cooperation: a paradigmatic approach*
- 00-1 **Patrick Llerena & Vanessa Oltra:** *Diversity of innovative strategy as a source of technological performance*

Appendix 2: The DRUID-Conference programs 1999-2000

Programme for the DRUID Winter Seminar, January 7-9, 1999

Thursday the 7th

15.30 Arrival at Scanticon Comwell
Kongevejen 195
2840 Holte

Coffee

16.00 – 18.30 Session 1: **The regional and international dimension**
Chairperson:
Local external influences on SME export marketing activity: An empirical analysis
Andersen, Poul Houman
Commentators:
Alice Lam/Jesper L. Christensen
Market institutions and interorganisational learning
Andersen, Maj Munch
Commentators:
Ken Green/Michael Iversen
Modularization in black-box design: Implications for Supplier-buyer Partnerships

Juliana Hsuan
Commentators:
Ned Lorenz/Kirsten Foss
Proximity and coordination
Filippi, Maryline
Commentators:
Alice Lam/Peter Maskell

Dinner

20.30 – 21.30 Session 2: **Guest Speaker**
Chairperson: Bo Carlsson
Firm Strategies, Innovation and Sustainable growth
Ken Green

Friday the 8th

9.00- 12.30

Session 3: **From micro to macro**
Chairperson: Esben Sloth Andersen

11.00 – 11.15

Coffee
The Role of Technological Linkages in a Leontief Scheme
– From static Structures to Endogenous Evolution of
Technical Coefficients

Drejer, Ina

Commentators:

Bo Carlsson/Bent Dalum

Competition, transformation and polarisation in the learning economy — illustrated by the Danish case

Bengt-Åke Lundvall and Peter Nielsen

Commentators:

Ned Lorenz/Maj M. Andersen

Do export and technological specialisation patterns co-evolve in terms of convergence or divergence?: Evidence from 19 OECD Countries, 1971-1991

Laursen, Keld

Commentators:

Bo Carlsson

Towards a taxonomy of learning regimes: An empirical analysis of the Danish economy

Kristensen, Frank Skov

Commentators:

Ken Green/Henrik Sornn-Friese

13.00 – 14.00

Lunch

14.00 – 16.00

A walk in the wood

15.45 – 16.00

Coffee

16.00 – 18.30

Session 4: **Firm strategies**

Chairperson: Jens Frøslev Christensen

Modular Product Design: Creating "Technologically Separable Interfaces"

Foss, Kirsten

Commentators:

G.B. Richardson/Esben Sloth Andersen

The Economies of Knowledge-Sharing: Production- and Organization Cost Considerations

Mahnke, Volker

Commentators:

Eric Brosseau/Poul Rind Christensen

How marketing relationships affect Marketing Organization: Evidence from Denmark

Andersen, Poul Houman & Kristensen, Frank Skov

Commentators:

Ned Lorenz/Ina Drejer

Mutualism, Economic Relationships, and Business Strategy

Sornn-Friese, Henrik

**Commentators:
Alice Lam/Jukka Kaisla**

19.00 Dinner

Saturday the 9th

9.00 – 12.30 **Session 5: Markets and knowledge Sharing
Chairperson: Bent Dalum**

11.00 – 11.15 **Coffee**
The Organization of Large, Complex Firms: an Austrian View

Foss, Nicolai Juul & Sautet, Frédéric

**Commentators:
Eric Brosseau/ Keld Laursen**
Re-Configurations and Co-Productive Strategies –
Overcoming bottlenecks for knowledge sharing

Lojacono, Gabriella

**Commentators:
Bo Carlson/Kristian Philipsen**
Competive Advantage through Intrafirm Synergies

Iversen, Mikael

**Commentators:
G.B. Richardson/Nicolai J. Foss**

13.00 – 14.00 Lunch
Departure

International Guests:

Bo Carlsson, Professor, Case Western Reserve University, USA
Eric Brousseau, Université de Nancy II & ATOM, Paris, France
Ken Green, CROMTEC, Manchester School of Management, UMIST
A.C.L. Lam, CBS, University of Kent, UK
Ned Lorenz, University of Technology of Compiègne, France
G.B. Richardson, UK

Papers presented at the conference:

Maj M. Andersen: Market institutions and interorganisational learning

Poul H. Andersen: Local external influence on SME export marketing collaborative activity: Towards a Research Agenda

Poul Houman Andersen & Frank Skov Kristensen: How does Relationship Marketing Strategies affect Marketing Organisation?: Evidence from Denmark

Ina Drejer: The Role of Technological Linkages in a Leontief Scheme - From Static Structures to Endogenous Evolution of Technical Coefficients

Kirsten Foss: Modular Product Design: Creating "Technologically Separable Interfaces"

Nicolai J. Foss & Frédéric E. Sautet: The Organization of Large, Complex Firms: an Austrian View

Juliana Hsuan: Modularization in Black-Box Design: Implications for Supplier-Buyer Partnerships

Mikael Iversen: Competitive Advantage through Intrafirm Synergies

Frank Skov Kristensen: Towards a Taxonomy and Theory of the Interdependence between Learning Regimes and Sectorial Patterns of Innovation and Competition: an Empirical Analysis of an Elaborated Pavitt Taxonomy applying Danish

Keld Laursen: Do export and technological specialisation patterns co-evolve in terms of convergence or divergence?: Evidence from 19 OECD Countries, 1971-1991

**Gabriella Lojcono: Re-configurations and Co-Productive Strategies
- Overcoming bottlenecks for knowledge sharing -**

Bengt-Åke Lundvall & Peter Nielsen: Competition, transformation and polarisation in the learning economy – illustrated by the Danish case

Volker Mahnke: The Economies of Knowledge-Sharing: Production- and Organization Cost Considerations

Henrik Sornn-Friese: The Firm, Decision Premises, and Economic Relationships: A Relational Approach to Economic and Industrial Organization

**Programme for DRUID's Conference on National Innovation Systems,
Industrial Dynamics and Innovation Policy, Rebild, June 9-12, 1999**

Wednesday, 9 June

15:00 - 16:00 # Arrival and registration

16:00 - 16:30 # Coffee

16:30 - 18:15 # Plenary session I: Opening and introduction [LA]

- Chair: Peter Maskell
- *Introduction to the problems and topics of the conference*, Bengt-Åke Lundvall, Director of DRUID
- *The concrete goals and organisation of the conference*, Esben S. Andersen (DRUID)
- Poul Skovgaard (Chairman of the Danish Business Development Council): *Using a System Approach when Designing Innovation Policy - the Danish Experience*
- Bo Carlsson (Chairman of the advisory board of DRUID), Staffan Jacobsson, Magnus Holmen & Annika Rickne: *Innovation Systems: Analytical and Methodological Issues* [Proceedings, Vol. I]
- Plenary discussion defining the main tasks of the conference

18:30 - 20:15 # Dinner

20:30 - 21:30 # Plenary session II: Innovation systems in North and South [LA]

- Chair: Lynn K. Mytelka. Discussant: Franco Malerba
- Keith Smith: *Innovation, Growth and Industrial Structure: Issues for Policy*
- Rodrigo Arocena & Judith Sutz: *Looking at National Systems of Innovation from the South* [Proceedings, Vol. I]

Thursday, 10 June

7 - 9 # Breakfast

9:00 - 10:30 # Parallel sessions A

A.1: National Innovation Systems in Developing Countries I [SA]

- Chair: Dieter Ernst. Discussants: Bjørn Johnson & José Cassiolato
- Shulin Gu: *Concepts and Methods of NIS Approach in the Context of Less-developed Economies* [Proceedings, Vol. I]
- J.Y.Choung, H.R.Hwang & H.Y.Hwang: *Co-evolution of technology and institution in the developing countries* [Proceedings, Vol. I]
- Klaus Lindegaard & Leiner Vargas: *Are the Central American Export Specialisation Patterns "Sticky"? - The National Systems of Innovation Approach* [Separately distributed paper]

A.2: Interindustry and Interfirm Linkages within National Innovation Systems I [F3]

- Chair: Esben S. Andersen. Discussants: Rajneesh Narula & Bart Verspagen
- Keld Laursen & Valentina Meliciani: *The Importance of Technology Based Inter-Sectoral Linkages for Market Share Dynamics* [Proceedings, Vol. I]
- Ina Drejer: *Technological Interdependence in National Systems of Innovation: An International Comparison of Embodied R&D Linkages* [Proceedings, Vol. I]
- Juliana Hsuan: *Modularization in New Product Development: A Mathematical Modeling Approach* [Proceedings, Vol. I]

A.3: Organizational Learning within Innovation Systems [F2]

- Chair: Peter Maskell. Discussants: Brian Loasby & Kenneth Jørgensen
- Alice Lam: *Tacit Knowledge, Organisational Learning and Societal Institutions: An Integrated Framework* [Proceedings, Vol. I]
- Allan Næs Gjerding: *The evolution of the flexible firm. New concepts and a Nordic comparison* [Proceedings, Vol. I]

10:30 - 11:00 # Coffee

11:00 - 12:30 # Parallel sessions B

B.1: National Innovation Systems in Developing Countries II [SA]

- Chair: Dieter Ernst. Discussants: Judith Sutz & Shulin Gu
- Scott Tiffin: *Applying the Learning and Innovation System Paradigm To Design an IDRC Research Funding Program in Latin America* [Proceedings, Vol. I]
- Poh-Kam Wong: *National Innovation Systems for Rapid Technological Catch-up: An analytical framework and a comparative analysis of Korea, Taiwan and Singapore* [Proceedings, Vol. I]
- José Cassiolato & Helena M.M. Lastres: *Local, National and Regional Systems of Innovation in the Mercosur* [Proceedings, Vol. I]

B.2: Interindustry and Interfirm Linkages within National Innovation Systems II [F3]

- Chair: Esben S. Andersen. Discussants: Allan Næs Gjerding & Poul Houman Andersen
- Chris DeBresson: *An Entrepreneur Cannot Innovate Alone: Networks of Enterprises are Required* [Proceedings, Vol. I]
- Anker Lund Vinding & Preben Sander Kristensen: *Importance of collaboration partners in product development* [Proceedings, Vol. I]
- Jane Marceau: *Dancing the Tango: First results of the DISKO study of Interfirm Collaboration in Australia* [Separately distributed paper]

B.3 The Wider Environment of Innovation Systems [F2]

- Chair: Björn Johnson. Discussants: Birgitte Gregersen & Keith Pavitt
- Barry Bozeman, Michael Crow & Chris Tucker: *Federal Laboratories and Defense Policy in the U.S. National Innovation System* [Proceedings, Vol. I]
- Raykun R. Tan: *Environment, Critical Success Factor, Strategic Response, and Firm Size/R&D Intensity: An Exploratory Firm Level Study of the Electrical and Electronic Industry in Taiwan* [Separate paper; a misprinted version is found in Proceedings, Vol. I]

12:45 - 14:00 # Lunch

14:00 - 16:00 # Guided walk through "Rebild Bakker"

16:00 - 16:30 # Coffee

16:30 - 18:15 # Plenary session III: Different perspectives [LA]

- Chair: Bo Carlsson. Discussants: Jorge Niosi & Birgitte Andersen
- Bengt-Åke Lundvall & Jesper Lindgaard Christensen: *Extending and Deepening the Analysis of Innovation Systems - with Empirical Illustrations from the DISKO Project* [Separately distributed paper]
- Patrick Llerena and Mireille Matt: *Technological Cooperation and Dynamic Performance of Industries: Towards an Evolutionary Foundation of Technology Policies* [Proceedings, Vol. II]
- Michael Storper & Yun-chung Chen: *Globalization, Localization, and Knowledge Flows* [Separately distributed paper]
- General discussion

18:30 - 20:15 # Dinner

20:30 - 21:30 # Plenary session IV: Patents and systems of firms [LA]

- Chair: Bent Dalum. Discussant: Finn Valentin & Mette Præst
- Bart Verspagen: *The Role of Large Multinationals in the Dutch Technology Infrastructure: A Patent Citation Analysis* [Proceedings, Vol. II]
- Pari Patel & Keith Pavitt: *National Systems of Innovation under Strain: The Internationalisation of Corporate R & D* [Proceedings, Vol. II]

Friday, 11 June

7 - 9 # Breakfast

9:00 - 10:30 # Parallel sessions C

C.1: Knowledge, Learning and Institutions I [SA]

- Chair: Alice Lam. Discussants: G.B. Richardson & Jens Frøslev Christensen

- Birgitte Andersen & Ian Miles: *Complex Socio-Economic Distributed Innovation Systems in The Knowledge-Based Service Economy: The Music Industry* [Separate paper; a misprinted version is found in Proceedings, Vol. II]
- John Mathews: *From National Innovation Systems to National Systems of Economic Learning: The Case of Technology Diffusion Management in East Asia* [Proceedings, Vol. II]

C.2: Issues of Growth and Industrial Renewal I [F3]

- Chair: Stan Metcalfe. Discussants: Bruno Amable & Tarmo Lemola
- Esben Sloth Andersen: *National Innovation Systems in the Context of Multisectoral Growth and Development* [Proceedings, Vol. II]
- Franco Malerba: *Sectoral Systems of innovation* [Separately distributed paper]
- Pier Paolo Saviotti: *Growth, production and qualitative change* [Proceedings, Vol. II]

C.3: Globalisation and the National Innovation Systems [F2]

- Chair: Lynn K. Mytelka. Discussants: Staffan Jacobsson & Jon Sigurdson
- Dieter Ernst: *How Globalization Reshapes the Geography of Innovation Systems: Reflections on Global Production Networks in Information Industries* [Separately distributed paper]
- Lynn Mytelka: *Globalization and investment: A learning and innovation perspective* [Separately distributed paper]

10:30 - 11:00 # Coffee

11:00 - 12:30 # Parallel sessions D

D.1: Knowledge, Learning and Institutions II [SA]

- Chair: Alice Lam. Discussants: Patrick Llerena & Maj Munk Andersen
- Jorge Niosi: *National Systems of Innovation are x-efficient* [Proceedings, Vol. II]
- Frank Skov Kristensen: *The Performance of Different Organisations under Different Market Conditions: An Empirical Analysis of the Organisational Structure and*

Performance of 1900 Danish Firms [Proceedings, Vol. II]

- Olman Segura: *Systems of Innovation and Learning from Natural Capital* [Proceedings, Vol. II]

D.2: Issues of Growth and Industrial Renewal II [F3]

- Chair: Stan Metcalfe. Discussants: Benjamin Coriat & Morris Teubal
- Staffan Jacobsson, Cecilia Sjöberg & Marie Wahlström: *Alternative specifications of the institutional constraint to economic growth - or why is there a shortage of computer and electronic engineers and scientist in Sweden?* [Proceedings, Vol. II]
- Tarmo Lemola & Christopher Palmberg: *Innovations and Industrial Renewal in Finland: Back to Basics in Innovation Studies* [Proceedings, Vol. II]
- Keld Laursen, Volker Mahnke & Per Vejrup-Hansen: *The Process of Firm Growth From a Knowledge Structure Perspective* [Proceedings, Vol. II]

D.3: Regional Approaches to Innovation Systems [F2]

- Chair: Michael Storper. Discussants: Mark Lorenzen & Chris DeBresson
- Aadne Cappelen, Jan Fagerberg & Bart Verspagen: *Lack of regional convergence* [Separate paper; a misprinted version is found in Proceedings, Vol. I]
- Bent Dalum, Magnus Holmén, Staffan Jacobsson, Mette Præst, Annika Rickne & Gert Villumsen: *Changing the Regional System of Innovation* [Separate paper; a misprinted version is found in Proceedings, Vol. I]
- Gerd Schienstock: *Regional Competitiveness, Co-operation and Innovation: A Comparative Study of Eight European Regions* [Proceedings, Vol. I]

12:45 - 14:00 # Lunch

14:00 - 16:00 # Plenary session V: Institutions and growth [LA]

- Chair: Bengt-Åke Lundvall. Discussants: Jan Fagerberg & Pier Paolo Saviotti
- Bruno Amable & Pascal Petit: *On Institutions, Innovation and Growth* [Proceedings, Vol. II]

- Stan Metcalfe: *Competitive and Comparative Advantage: (Rough) Notes Toward an Evolutionary Approach to Growth and Foreign Trade* [Separately distributed paper]
- Esben S. Andersen & Morris Teubal: *The Transformation of Innovation Systems: Towards a Policy Perspective* [Proceedings, Vol. II]
- General discussion

16:00 - 16:30 # Coffee

16:30 - 18:00 # Plenary session VI: Microfoundations [LA]

- Chair: Michael Storper. Discussants: Pascal Petit & Gerd Schienstock
- Robin Cowan, Paul A. David & Dominique Foray: *The explicit economics of knowledge codification and tacitness* [Proceedings, Vol. II]
- Benjamin Coriat & Olivier Weinstein: *Organization and Institutions in the Innovation Generation - Towards a theory of "Corporate Systems of Innovation"* [Separately distributed paper]
- General discussion

18:30 - 22:00 # Conference dinner

- After the dinner the Rebild Fiddlers, based in the [Rebild Fiddlers' Museum](#), will tell about their art and entertain. Leader: Niels Jørgen Østergaard

Saturday, 12 June

7 - 9 # Breakfast

9:00 - 10:30 # Plenary session VII: Knowledge and policy [LA]

- Chair: Bo Carlsson. Discussants: Keith Smith
- Richard R. Nelson: *Knowledge and Innovation Systems* [Proceedings, Vol. II]
- Charles Edquist: *Innovation Policy - A Systemic Approach* [Proceedings, Vol. II]
- General discussion

10:30 - 11:00 # Coffee

11:00 - 12:30 # Plenary session VIII: The further research agenda [LA]

- Chair: Esben S. Andersen
- Introduction to round table and general discussion by Bengt-Åke Lundvall
- *Round table*: Charles Edquist, Jan Fagerberg, Lynn K. Mytelka, Bengt-Åke Lundvall, & Richard R. Nelson
- General discussion

12:45 - 14:00 # Lunch

14:00 - 15:00 # Departure

- After the conference there is a separately organised Workshop on "Globalization of Innovation-Systems. The Challenge for Small Developed Countries" co-organised by ESST Oslo, DRUID and the Danish Council for Industrial Development.

Final programme of the DRUID Winter seminar, January 6-8, 2000

Please note: The papers (with two exceptions) are available in pdf-format at:
<http://www.business.auc.dk/druid/conferences/winter2000/papers.html>

Thursday the 6th

Gathering at Kastrup Airport Domestic Terminal 6, not later than 14.00.
A bus (named "Lyngby Turistfart") will be waiting to take us to Hillerød

15.30 Arrival at: Pharmakon
 Milnersvej 42
 DK-3400 Hillerød
 Phone +45 4826 5000
 Fax +45 4826 5160

Coffee

16.00 Welcome address by Bengt-Åke Lundwall,
 Director of DRUID

16.10 – 16.45 Key-note address:
 GLOBALISATION OF TECHNOLOGY
 by Daniele Archibugi

16.45 – 18.30 Session 1: INNOVATION SYSTEMS
 Chair: Peter Maskell

Marco Antonio Vargas Local Systems of Innovation in
 Developing Countries: A Study on
 Technological Learning in Local
 Productive Arrangements in Brazil

Discussants: Virginia Acha, Juliana Hsuan
 Mikkola

Mika Kautonen Trajectories, Innovation Networks
 and Location

Discussants: Marina Honorio de Souza Szapiro,
 Anker Lund Vinding

Victor Gilsing Cluster Governance: How clusters
 can adapt and renew over time

Discussants: Polina Krasnoschekova, Allan Næs
 Gjerding

19.00 Dinner

20.30 – 21.30 Session 2: EVOLUTIONARY PERSPECTIVES

Chair: Esben Slot Andersen

Jukka Kaisla

Extending the Constitutional
Perspective on the Firm by
Combining Evolution and Design
Discussants: Gerd Schienstock, Marco Valente

Per Botolf Maurseth

Growth Theory and Philosophy of
Science – A Comparison of Neo-Classical and
Evolutionary
Perspectives
Discussants: Daniele Archibugi, Nicolai Juul Foss

Friday the 7th

9.00- 12.30

Session 3: FIRMS, KNOWLEDGE AND CONTRACTS

Chair: Jens Frøslev Christensen

11.00 – 11.15 Coffee

Mikkel Andreas Thomassen

A Sectoral approach to knowledge
and learning – the example of the
Construction Industry in Denmark
Discussants: Viki Sonntag, Jesper L. Christensen

Henrik Sornn-Friese

Industry Evolution: Specialization
and Mutual Dependence in the
Road Haulage Sector in Denmark
Discussants: Mark Saunders, Kirsten Foss

Keld Laursen, Volker Mahnke and
Per Vejrup-Hansen
Discussants:

Firm growth from a knowledge
structure perspective
Bas ter Weel, Mikkel Thomassen

Mark Lorenzen

Co-ordination problems and
solutions. Examples of the role of
analogy for cognitive co-ordination
Discussants: Marco Antonio Vargas, Michael
Slavensky Dahl

Henrich Dahlgren
Product Development & Knowledge Transfer – a study of Activity Distribution in three Industrial Small Firm Networks

Discussants: Anne Yvrande, Toke Reichstein

Nicolai Foss and Kirsten Foss
Discussants: Assets, Attributes, and Ownership
Daniele Archibugi, Esben Sloth Andersen

13.00 – 14.00 Lunch
14.00 – 16.00 A walk

15.45 – 16.00 Coffee

16.00 – 18.30
**Parallel Session 4a:
MODELLING NETWORKS AND LABOUR
MARKETS
Chair: Bent Dalum**

Attia Rajà
Strategic Behaviours and Territory Dynamic: Some Elements for Modeling Networks' production and innovation

Discussants: Keith Smith, Mette Præst

Esben Slot Andersen and Marco Valente
The two software cultures and the evolution of evolutionary economic simulation

Discussants: Didier Chabaud, Jukka Kaisla

Machiel van Dijk and Önder Nomaler
Network externalities, new technology adoptions and industrial demography: a simulation model

Discussants: Mark Tomlinson, Keld Laursen

Mark Sanders and Bas ter Weel
Skill-Biased Technical Change: Theoretical Concepts, Empirical Problems and a Survey of the Evidence

Discussants: Victor Gilsing, Henrik Sornn-Friese

16.00 – 18.30
**Parallel Session 4b:
TRANSFORMATION PROCESSES
Chair: Poul Rind Christensen**

Cristina Ribeiro Lemos	Innovation and Industrial Policies for Small and Medium Enterprises in Brazil
Discussants:	Lucia Cusmano, Mark Lorenzen
Polina Krasnoschtchekova	Industrial Structure in Transition: The Case of the Russian Federation
Discussants:	Mika Kautonen, Michael Slavensky Dahl
Anne Yvrande	Is the New British Railways Structure Stable? A transaction Cost Economic Analysis
Discussants:	Per Botolf Maurseth, Peter Maskell
Mark Tomlinson	Services and economic development: A network Approach
Discussants:	Isabelle Davy, Henrich Dahlgren
19.00 Dinner	

**Words on the DRUID Academy by Peter Maskell
and on the future of DRUID by Bengt-Åke Lundwall**

Saturday 8th

**09.00 – 12.30 Session 5
STRATEGY AND CAPABILITIES
Chair: Kirsten Foss**

11.00 – 11.15 Coffee

Marina Honorio de Souza Szapiro	Technological Capabilities in the Brazilian Telecommunications Industry: Development and Impacts of Structural Reforms in the 90s
Discussants:	Mark Tomlinson, Keith Smith
Viki Sonntag	The Role of Manufacturing Strategy in the Co-Evolution of Product Markets and Advanced Manufacturing Technologies
Discussants:	Önder Nomaler, Jesper I. Christensen
Isabelle Davy	The paradox of competitiveness in

Discussants:	the European semiconductor industry Machiel van Dijk, Allan Næs Gjerding
Virginia Acha	The Role of Technological Capabilities In Determining Performance: The Case of the Upstream Petroleum Industry
Discussants:	Attia Rajá, Poul Rind Christensen
Juliana Hsuan Mikkola	Modularization assessment of product architecture
Discussants:	Didier Chabaud, Marco Valente
Lucia Cusmano	Technology Policy and Co-operative R&D
Discussants:	Cristina Ribeiro Lemos, Bent Dalum

13.00 – 14.00 Lunch

14.00 Departure for Copenhagen

Programme for DRUID's Summer 2000 Conference, Rebild/Denmark, June 15-17

Programme

Thursday, 15 June

14:00 - 15:00 # Arrival and registration

15:00 – 16.30 # Plenary session I: Approaching the learning economy

Chair: Bengt-Åke Lundvall

Discussants: Sid Winter and Jens Frøslev Christensen

Keith Smith: What is the 'knowledge economy'? Knowledge-intensive industries and distributed knowledge bases

Dominique Foray: Various Roads towards the Knowledge-based Economy?

William Lazonick: The Theory of Innovative Enterprise: Organization of Innovation in the "Learning Economy"

16.30 - 17.00 # Coffee

17.00 – 18.30 # Plenary session II: Approaching the learning economy

Chair: Bo Carlsson

Discussants: Ned Lorenz and Peter Maskell

Giovanni Dosi, Giulio Bottazzi, Marco Lippi, Fabio Pammoli and Massimo Riccaboni: Processes of corporate growth in the evolution of an innovation driven industry – the case of Pharmaceuticals

Jacques De Bandt: Productivity in and through Knowledge Production

Ed Steinmueller: The Changing Locus of Learning Activities in the Firm and the Role of Information and Communication Technologies

19.00 - 20:30 # Dinner

21.00-22.00 Evening lecture by Sid Winter on the theme: Capturing and communicating productive knowledge followed by a roundtable chaired by Brian Loasby with participation of Alice Lam, Keith Smith, G.B. Richardson, and Ed Steinmueller.

Friday, 16 June

7 - 9 # Breakfast

9:00 - 10:30 # Parallel sessions A

A.1: Knowledge creation at the level of the firm

Chair: Jens Frøslev Christensen

Discussants: Dominique Foray and Brian Loasby

Christian Bessy: Comments on the Tacit Knowledge Hypothesis in the Evolutionary Approach of the Firm

Thorbjørn Knudsen: Linking Competitive Selection and Evolution og Team-embodied Skills

Nicolai J. Foss and Thorbjørn Knudsen: The Resource-Based Tangle: Towards a Sustainable Explanation of Competitive Advantage

A.2: Sectoral studies of learning

Chair: Bo Carlson

Discussants: Esben Sloth Andersen and G.B. Richardson

Patrick Llerena, Mireille Matt, and Sandrine Wolff: Incentives and Knowledge Creation in Cooperative Inter-organization Agreements

Jane Marceau and Ester Basri: Innovation and Knowledge-generation in 'Assembler' Industries: Adapting Public Policies to the Needs of Complex Production Framework

Ned Lorenz and Nathalie Lazaric: The Transferability of Business Practices and Problem-Solving Skills to Japanese Firms in Britain and France

A.3: Nation specific Institutions and learning

Chair: Björn Johnson

Discussants: Jesper Lindgaard Christensen and Volker Mahnke

Alice Lam: Skills Formation in the Knowledge-Based Economy: Mode 2 Knowledge and the Extended Internal Labour Market

Steven Casper and Hannah Kettler: Institutional Frameworks and the Hybridization of Entrepreneurial Business Models within the German and UK Biotechnology Sectors

Michael Dahl and Toke Reichstein: Sectoral Patterns of Firm Growth - An Empirical Study

A.4: Learning in regional and intersectoral contexts

Chair: Peter Maskell

Discussants: Mette Præst Knudsen and Jacques Debandt

Bent Dalum and Gert Villumsen: Labour and knowledge pools: the essence of clustering

Mark Lorenzen: Exploitation and exploration in learning networks and learning regions

Mikkel Andreas Thomassen: Coordination Costs and inter-firm learning within Construction

10:30 - 11:00 # Coffee

11:00 – 12:30 # Parallel sessions B

B.1: Learning at the level of the firm

Chair: Thorbjørn Knudsen

Discussants: Jens Frøslev Christensen and Paul Geroski

Juliana Hsuan Mikkola: Modularity, outsourcing, and inter-firm learning

Brian Loasby: Organizations as interpretative systems

John A Matthews: Competitive dynamics and economic learning: an extended resource based view

B.2: Sector specific learning patterns

Chair: Stan Metcalfe

Discussants: Patrick Lerena and Ina Drejer

Morris Teubal, Gil Avnimelech, and Alon Gayego: The Israeli Software Industry: Analysis of the Information Security Sector

Geoff, Jean-Paul Beltramo, and Jean-Jacques Paul: Knowledge Infrastructure, Technical Problem-solving and Industrial Performance: Electronics in Britain and France

Reiko Aoki: Patent Licensing with Spillovers

Phil Cooke: Learning Commercialiation of Science: Biotechnology and the new Economy Innovaztion System

B.3: Learning in Developing Countries

Chair: Shulin Gu

Discussants: Björn Johnson and Steve Casper

José E. Cassiolato and Helena M. M. Lastres: Knowledge, Learning and Development: Policy Lessons from the Mercosur Experience Firm

Rodrigo Arocena and Judith Sutz: Interactive Learning Spaces, and Development Policies in Latin America

Leiner Vargas: Learning in a Niche Development Space: The Case of the Clean Energy Cluster in Costa Rica

12:45 - 14:00 # Lunch

14:00 – 16.30 # Cultural event #

16:30 - 17:00 # Coffee

17:00 – 18:30 # Parallel sessions C

C.1: Interactive learning and transaction cost analysis

Chair: Esben S. Andersen.

Discussants: Ned Lorenz and Thorbjørn Knudsen

Christian Bessy, Eric Brousseau, and Stéphane Saussier: On Some Causes of Technology Licensing Contracts Structure

Margherita Turvani: 'Make or Buy' Option in Human Resources to Develop Innovative Capabilities of the Firm: A Knowledge Creation Perspective

Poul Houman Andersen: Division of inter-firm activities in the knowledge-based economy: The crucial role of knowledge processors

C.2: Innovation and Learning at the Sectoral Level

Chair: Franco Malerba

Discussants: Dan Marsh and Keld Laursen

Paul Nightingale: Knowledge, Technology and Organisation: Understanding the Dynamics of Pharmaceutical Innovation Processes

Jens Frøslev Christensen: Trajectories in Corporate Strategy, Organization and Management of R&D

C.3: Multinationals in the learning economy

Chair: Judith Sutz

Discussants: Daniele Archibugi and Leiner Vargas

Simona Iammarino and John Cantwell: EU Regions and Multinational Corporations: Change, Stability and Strengthening of Technological Comparative Advantages

Europe find most Important

Daniele Archibugi: The globalisation of Technology and the European Innovation System

C.4: Regional perspectives

Chair: Poul Rind Christensen

Discussants: Thomas Brenner and Bjørn T. Asheim

Paolo Guerrieri and Carlo Pietrobello: Models of Industrial Districts' Evolution and Changes in Technological Regimes

Annika Rickne: Network-based Innovation and Learning Regions - the Case of Young Biomaterials-related Firms

19:00 # Dinner

Saturday, 17 June

7 - 9 # Breakfast

9:00 - 10:30 # Parallel sessions D

D.1: Interfirm Linkages, learning, and knowledge transfer

Chair: Jens Frøslev Christensen

Discussants: G.B. Richardson and Ned Lorenz

Anker Lund Vinding and Preben Sander Kristensen: Exchange of Employees and Physical Prototypes and Use of Electronic Media in Product Development Collaboration

Bart Noteboom: Adaptive Trust and Co-operation: An Agent Based Simulation Approach

Patrick Cohendet and Ash Amin: How to govern simultaneously transactions and competences: should organisational learning rely on isolated properties or embedded practices?

D.2: Empirical analysis of innovation and its impact

Chair: Bent Dalum

Discussants: Keith Smith and Paul Geroski

Volker Mahnke and Keld Laursen: Knowledge strategies, firm types, and complementarity in human-resource practices

Franco Malerba and Fabio Montobbio: Sectoral Systems and International Technological and Trade Specialisation

D.3: Learning and economic development

Chair: Helena Lastres

Discussants: Birgitte Gregersen and Rodrigo Arocena

Shulin Gu: Learning Models and Technology Strategy in Catching-up

Pun Arj Chairatana: The economics of the Agro Innovation System

Björn Johnson and Bengt-Åke Lundvall: Promoting innovation systems as a response to the learning economy

D.4: Regional learning

Chair: Peter Maskell

Discussants: Paolo Guerrieri and Annika Rickne

Bjørn T. Asheim: The Learning Firm in the Learning Region: Workers Participation as Social Capital

Thomas Brenner: Industrial Districts: A Typology from an Evolutionary Perspective

10:30 - 11:00 # Coffee

11:00 - 12:30 # Plenary session IV: The Research agenda

Chair: Stan Metcalfe

Round table: Giovanni Dosi, Brian Loasby, Paul Geroski, Björn Johnson, Peter Maskell and Jens Frøslev Christensen.

General discussion

12:45 - 14:00 # Lunch

14:00 - 15:30 # Plenary session V: Policy perspectives on learning and knowledge with focus on learning organisations and labour market dynamics

Chair: Bengt-Åke Lundvall

Round table: Kurt Larsen, Ned Lorenz, Bent Dalum, Keith Smith and Alice Lam.

General discussion

Check-out

Checkout from your room should be made before 11:00.

Appendix 3:

A Presentation of Selected Web Server Statistics for the DRUID Home Page, January 1996 - December 2000

Between the start-up of DRUIDs home page in January 1996 and December 2000, we have had 648,954 ‘requests’ (the concept of ‘requests’ will be defined below) from visitors located all over the world. From the beginning, Lars Anderson (System Administrator at the Department of Business Studies, Aalborg University) has logged all visits to DRUID’s page on the Web. Based on this material and the software analog3.11/Unix, a set of statistics is updated on a daily basis. The statistics exclude hits (requests) from the domains cbs.dk (Copenhagen Business School) and auc.dk (Aalborg University), to avoid any kind of ‘home-market’ bias in the outcome.

The aim of this appendix is to describe briefly, the development in number of visitors the home page has had over time; the geographical dispersion of the visitors; and the aim is finally to describe the number of ‘hits’ the DRUID Working Papers have had, broken down on each individual paper. In Figure 1, to be found below, it can be seen that the popularity of DRUIDs home page has been increasing rather dramatically since the start in January 1996. There are two ways of measuring the number of visitors to a given page, namely in terms of the number of ‘requests’ and in terms of the number of ‘pages’. Number of pages refers to how many times ‘html’ files have been visited. An html file is a file containing links to other pages (html=hyper text markup language). An example of such a file is the DRUID upcoming events page to be found on:

‘<http://www.business.auc.dk/druid/upcoming/upcome.html>’.

Figure 1: Monthly visits to DRUID’s home page, January 1996 - December 2000

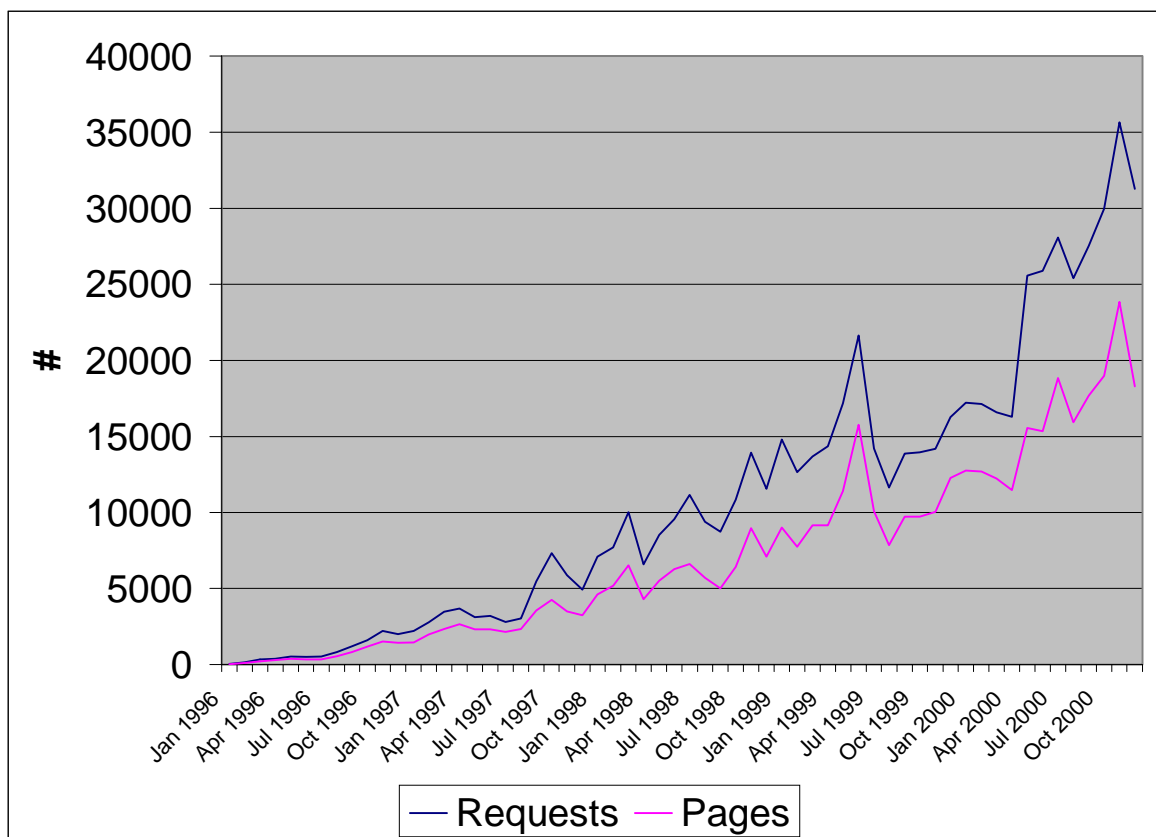


Table 1: Geographical location of DRUID's Web page visitors, with more than 2,000 visits

HITS	ADDRESS
190378	[unresolved numerical addresses]
70321	.com (Commercial)
52510	.net (Network)
47925	.dk (Denmark)
34164	.uk (United Kingdom)
29463	.fr (France)
25061	.edu (USA Educational)
19163	.de (Germany)
17358	.it (Italy)
13183	.ca (Canada)
13127	.nl (Netherlands)
10496	.es (Spain)
10082	.se (Sweden)
10066	.br (Brazil)
8984	.au (Australia)
8607	.fi (Finland)
8603	.pt (Portugal)
8452	.no (Norway)
4354	.jp (Japan)
3889	.at (Austria)
3869	.org (Non-Profit Making Organisations)
3858	.ar (Argentina)
3574	.sg (Singapore)
3573	.tw (Taiwan)
3306	.hu (Hungary)
3232	.nz (New Zealand)
2843	.be (Belgium)
2745	.ch (Switzerland)
2219	.gr (Greece)
2044	.my (Malaysia)

However, html files are not the only files to be found on the Web. All kinds of graphics files, pdf files (pdf=portable document format) etc. are used for various purposes as well. The DRUID logo (found on our Web site in various forms), is for instance, a gif graphics file. Whenever someone clicks on the DRUID 'upcoming events' page, this means that we register two 'requests', one for the html file (upcome.html), and one for the DRUID logo file (header.gif). In contrast, we will in the case register only one hit using the 'page' measure. In this respect the number of 'requests' can be said to be somewhat biased, due to an increasing number of graphics found on most home pages, these days (although the DRUID home page is low-key in terms of fancy graphics). On the other hand, our DRUID Working Papers are stored in the so-called pdf format. These are not counted when using the 'pages' measure. Due to the fact that the increase in the number of hits on the DRUID Web Page is mainly due to an increased numbers of hits on the Working Papers and conference contributions, the 'pages' measure is biased in this respect. However, as can be seen from Figure 1, the two series both have dramatic upward trends. Both series have increased more than five fold over the period from December 1997 to December 2000. The two peaks in May 1999

and in July 2000 are probably due to the fact that DRUID organises the Annual Summer Conference in June, and in this context makes a number of resources available via the Web, including the contributions to the conference in downloadable pdf-format. In total we have had 648,954 ‘visitors’, using the request measure, while we have had 427,735 ‘visitors’, using the pages measure, in the period from the start-up (Jan. 1996) to December 2000.

Table 2: Ranking of DRUID Working Papers by number of downloads per paper

Rank	Hits	Paper	Author(s)	Title
1	3041	00-7	Michael Storper and Yun-chung Chen	The Effects of Globalization on the Location of Industries in the OECD and European Union
2	2563	98-22	Lam, Alice	'Tacit Knowledge, Organisational Learning and Innovation: A Societal Perspective'
3	2500	96-17	Lund, Reinhard & Gjerding, Allan Næs	The flexible company Innovation, work organisation and human ressource management
4	2397	96-10	Richardson, George B.	Competition, Innovation and Increasing Returns
5	2339	96-1	Lundvall, Bengt-Åke	The Social Dimension of the Learning Economy.
6	2246	97-1	Foss, Nicolai J.	The Resource-Based Perspective: An Assessment and Diagnosis of Problems
7	2143	00-11	Gabriel Yoguel, Marta Novick & Anabel Marin	Production networks: linkages, innovation processes and social management technologies. A methodological ...
8	2141	96-8	Foss, Nicolai J.	Capabilities and the Theory of the Firm:
9	2140	00-8	Mark Sanders and Bas ter Weel	Skill-Biased Technical Change: Theoretical Concepts, Empirical Problems and a Survey of the Evidence
10	2101	97-12	Ernst, Dieter & Lundvall, Bengt-Åke	Information Technology in The Learning Economy: Challenges for Developing Countries
11	2026	96-2	Foss, Nicolai J.	Firms, Incomplete Contracts and Organizational Learning.
12	1795	99-11	Laursen, Keld; Mahnke, Volker and Vejrup-Hansen, Per	Firm growth from a knowledge structure perspective
13	1762	98-3	Ernst, Dieter	What Permits Small Firms to Compete in High-Tech Industries? Inter-Organizational Knowledge Creation in the...
14	1730	96-15	Foss, Nicolai J.	Thorstein B. Veblen: Precursor of the Competence-Based Approach to the Firm
15	1708	97-16	Lundvall, Bengt-Åke & Kristensen, Frank Skov	Organisational change, innovation and human resource Development as a response to increased competition
16	1626	96-5	Andersen, Esben S. et al.	The Nelson and Winter Models Revisited: Prototypes for Computer-Based Reconstruction of Schumpeterian Competition.
17	1611	98-30	Laursen, Keld	Revealed Comparative Advantage and the Alternatives as Measures of International Specialisation
18	1589	97-14	Drejer, Ina; Kristensen, Frank Skov & Laursen, Keld	Studies of Clusters as a Basis for Industrial and Technology Policy in the Danish Economy
19	1580	97-2	Langlois, Richard N. & Foss, Nicolai J.	Governance: the Rebirth of Production in the Theory of Economic Organization
20	1579	98-7	Lam, Alice	The Social Embeddedness of Knowledge: Problems of Knowledge Sharing and Organisational Learning in International...
21	1574	97-4	Richardson, George B.	Economic Analysis, Public Policy and the Software Industry
22	1485	98-2	Ducatel, Ken	Learning and skills in the Knowledge Economy
23	1477	99-3	Foss, Nicolai J.	Understanding Leadership: A Coordination Theory
24	1470	97-9	Ernst, Dieter	High-Tech Competition Puzzles: How Globalization Affects Firm Behavior and Market Structure in the Electronics Industry
25	1358	96-12	Laursen, Keld	The Impact of Technological Opportunity on the Dynamics of Trade Performance
26	1351	99-7	Foss, Nicolai J.	Capabilities, Confusion, and the Costs of Coordination: On Some Problems in Recent Research on Inter-Firm Relations
27	1325	98-29	Foss, Nicolai J. & Mahnke, Volker	Strategy Research and the Market Process Perspective
28	1321	98-6	Valente, Marco	Technological Competition: a Qualitative Product Life Cycle
29	1306	96-11	Maskell, Peter	Localised low-tech learning in the furniture industry
30	1287	97-10	Foss, Nicolai J.	Equilibrium vs Evolution in the Resource-Based Perspective:

			The Conflicting Legacies of Demsetz and Penrose
31	1223 97-5	Boruss, Michael & Zysman, John	You Don't Have to Be A Giant: How The Changing Terms of Competition in Global Markets are Creating New Possibilities...
32	1213 96-6	Maskell, Peter	Learning in the village economy of Denmark. The role of institutions and policy in sustaining competitiveness.
33	1212 98-1	Præst, Mette	An Empirical Model of Firm Behaviour: A Dynamic Approach to Competence Accumulation and Strategic Behaviour
34	1205 98-23	Lund, Reinhard	Organizational and innovative flexibility mechanisms and their impact upon organizational effectiveness
35	1201 97-7	Ernst, Dieter & Guerrieri, Paolo	International Production Networks And Changing Trade Patterns In East Asia: The Case Of The Electronics Industry
36	1195 96-7	Foss, Nicolai J. and Christensen, Jens Frøslev	A Process Approach to Corporate Coherence.
37	1183 00-9	Mark Tomlinson	Innovation surveys: A researcher's perspective
38	1156 97-3	Ernst, Dieter	Partners for the China Circle?: The Asian Production Networks of Japanese Electronics Firms
39	1129 99-1	Lorenz, Edward	Organisational Innovation, Governance Structure and Innovative Capacity In British and French Industry
40	1079 96-4	Foss, Nicolai J.	Austrian and Post-Marshallian Economics: The Bridging Work of George Richardson.
41	1064 99-6	Jørgensen, Kenneth M	The Meaning of Local Knowledges
42	1049 97-11	Foss, Nicolai J.	Incomplete Contracts and Economic Organization: Brian Loasby and the Theory of the Firm
43	1015 00-10	Søren Nymark	Value-based management in learning organizations through 'hard' and 'soft' managerial approaches: The case of Hewlett-Packard
44	999 98-24	Christensen, Jesper Lindgaard & Drejer, Ina	Finance and Innovation System or Chaos
45	992 98-20	Mahnke, Volker & Aadne, John Harald	Processes of Strategic Renewal, Competencies, and the Management of Speed
46	958 98-21	Lorenzen, Mark	Information cost, learning, and trust Lessons from co-operation and higher-order capabilities amongst geographically proximate...
47	949 98-19	Foss, Nicolai J.	Firms and the Coordination of Knowledge: Some Austrian Insights
48	936 99-4	Foss, Kirsten & Foss, Nicolai J.	Understanding Ownership: Residual Rights of Control and Appropriable Control Rights
49	933 96-9	Foss, Kirsten	A transaction cost perspective on the influence of standards on product development: Examples from the fruit and vegetable market
50	931 00-5	Anne Yvrande	The New British Railways Structure: A Transaction Cost Economics Analysis
51	926 98-13	Andersen, Esben Sloth	The Dynamics of the Organisation of Industry
52	924 98-26	Holmén, Magnus & Jacobsson, Staffan	A method for identifying actors in a knowledge based cluster
53	913 98-16	Ernst, Dieter	Catching-Up, Crisis and Industrial Upgrading. Evolutionary Aspects of Technological Learning in Korea's Electronics Industry
54	900 98-14	Foss, Kirsten & Foss, Nicolai J.	The Market Process and The Firm: Toward a Dynamic Property Rights Perspective
55	871 97-13	Kristensen, Frank Skov	The Performance of Different Organisations under Different Market Conditions: An Empirical Analysis of the Organisational...
56	866 00-3	Lucia Cusmano	Technology Policy and Co-operative R&D: the role of relational research capacity
57	850 98-25	Laursen, Keld	How Structural Change Differs, and Why it Matters (for Economic Growth)
58	849 00-6	Machiel van Dijk and Önder Nomaler	Technological diffusion patterns and their effects on industrial dynamics
59	840 96-13	Andersen, Esben Sloth	The Evolution of an Industrial Sector with a Varying Degree of Roundaboutness of Production
60	825 97-6	Teubal, Morris	Restructuring and Embeddedness Of Business Enterprises: Towards An Innovation System Perspective On Diffusion Policy
61	821 98-8	Joergensen, Kenneth Moelbjerg	Information Technology and Change in Danish Organizations
62	805 00-1	Patrick Llerena & Vanessa Oltra	Diversity of innovative strategy as a source of technological

			performance
63	780 98-4	Christensen, Jens Frøslev	The Dynamics of the Diversified Corporation and the Role of Central Management of Technology
64	778 97-8	Lazarcic, Nathalie & Marengo, Luigi	Towards a Characterisation of Assets and Knowledge Created in Technological Agreements: Some evidence from the automobile...
65	773 96-14	Dalum, Bent; Laursen, Keld & Villumsen, Gert	The Long Term Development of OECD Export Specialisation Patterns: De-specialisation and "Stickiness"
66	773 96-3	Dalum, Bent and Villumsen, Gert	Are OECD Export Specialisation Patterns 'Sticky'? Relations to the Convergence-Divergence Debate.
67	746 00-2	Patrick Llerena & Mireille Matt	
68	742 98-10	Foss, Kirsten	Technological Interdependencies, Specialization and Coordination: A Property Rights Perspective on The Nature of the Firm
69	735 99-12	Lundvall, Bengt-Åke and Christensen, Jesper Lindgaard	Extending and Deepening the Analysis of Innovation Systems: with Empirical Illustrations from the DISCO-project
70	723 98-28	Foss, Nicolai J.	Austrian Economics and Game Theory: a Preliminary Methodological Stocktaking
71	705 98-18	Laursen, Keld	Do Export and Technological Specialisation Patterns Co-evolve in Terms of Convergence or Divergence?: Evidence From...
72	705 96-16	Gjerding, Allan Næs	Organisational innovation in the Danish private business sector
73	660 98-17	Kaisla, Jukka	The Market Process and the Emergence of the Firm: Some Indications of Entrepreneurship Under Genuine Uncertainty
74	655 99-5	Foss, Kirsten & Foss, Nicolai J.	Organizing Economic Experiments: The Role of Firms
75	648 97-15	Laursen, Keld & Drejer, Ina	Do Inter-sectoral Linkages Matter for International Export Specialisation?
76	646 99-2	Ernst, Dieter	Responses to the Crisis: Constraints to a Rapid Trade Adjustment in East Asia's Electronics Industry
77	581 98-11	Andersen, Poul H	Organizing International Technological Collaboration in Subcontractor Relationships An Investigation of the Knowledge...
78	574 98-27	Richardson, George B.	Production, Planning and Prices
79	566 99-10	Laursen, Keld and Meliciani, Valentina	The importance of technology based inter-sectoral linkages for market share dynamics
80	534 00-12	Gabriel Yoguel & Fabio Boscherini	The environment in the development of firms' innovative capacities: Argentine industrial SMEs from different local systems
81	495 00-4	Juliana Hsuan Mikkola	Modularization assessment of product architecture
82	474 98-15	Lorenz, Edward	Societal Effects and the Transfer of Business Practices to Britain and France
83	462 00-13	Rodrigo Arocena & Judith Sutz	Interactive Learning Spaces and Development Policies in Latin America
84	462 98-5	Valente, Marco	Laboratory for Simulation Development
85	419 99-9	Nymark, Søren R.	Organisatorisk læring gennem den værdibaserede organisations fortællinger
86	392 98-9	Andersen, Esben Sloth	Escaping Satiation in an Evolutionary Model of Structural Economic Dynamics
87	378 98-12	Nymark, Søren	Billeder af strategi i forandringsrige organisatoriske omgivelser: 3 cases fra DISKO studierne
88	271 99-8	Lund, Reinhard	Tillidsrepræsentantsystemet og de fleksible virksomhedsformer

The statistics can also be broken down on nationality of the visitors. In Table 1 are listed the geographical locations of the visitors to DRUID's home page (with more than a thousand visits). However, some computers are not set up, using the 'country of international linkages, and address an international audience to a large extent, then the 'home country' of DRUID still plays a major role. Otherwise it can be seen from the table that the 'heaviest' visitors to the DRUID Web page

come from mainly the richest countries in the world (the OECD countries). However, it can be noted that DRUID has had visits from places such as Jamaica, Mauritius, Kyrgyzstan, Kenya and Ethiopia. By far the single most popular service on the DRUID Web site is the electronically available Working Papers Series. 202,850 of the total DRUID requests (648,954) can be attributed to pdf-files (DRUID Working Papers and DRUID conference contributions; about 30% of the total number of requests). The total of downloads of the Working Papers is at present 102,260 (~16%).

DRUID had at the end of year 2000 published 88 Working Papers. The number of hits each paper has attracted is displayed in Table 2 (unweighted with respect to the time the papers have been available). From the table it can be seen that the single most popular paper was Michael Storper and Yun-chung Chen's paper on "The Effects of Globalization on the Location of Industries in the OECD and European Union". Moreover, it can be concluded from the table that *each* paper has been downloaded - on average - more than 1000 times (1162 'hits' per paper). No doubt that a publication in the DRUID WP series provides a high degree of visibility.

Appendix 4: Citations to the work by senior DRUID scholars

Gross Citations

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	I alt
Andersen, Esben Sloth	1	1	1	1	7	10	9	4	4	10	14	6	68
Christensen, Jens Frøslev	0	0	1	0	1	1	0	1	1	2	3	2	12
Christensen, Poul Rind	0	2	3	2	5	3	1	2	3	3	2	1	27
Dalum, Bent	0	1	1	1	1	4	1	4	3	5	2	3	26
Foss, Nikolai Juul	0	0	0	1	3	3	12	11	31	40	26	17	144
Johnson, Bjørn	1	0	0	2	2	4	3	8	5	7	7	6	45
Lundvall, Bengt-Åke	1	10	14	18	22	42	37	50	60	87	77	53	471
Maskell, Peter	0	0	2	0	1	3	2	5	6	14	22	16	71
Total	3	14	22	25	42	70	65	85	113	168	153		864

Self-Citations

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	I alt
Andersen, Esben Sloth	0	0	0	0	0	0	0	0	0	0	0	0	0
Christensen, Jens Frøslev	0	0	0	0	0	1	0	0	0	0	0	0	1
Christensen, Poul Rind	0	0	0	0	0	0	0	0	0	0	0	0	0
Dalum, Bent	0	0	0	0	0	0	0	0	0	0	0	0	0
Foss, Nikolai Juul	0	0	0	0	1	0	3	1	1	1	0	0	7
Johnson, Bjørn		0	0	0	0	0	0	1	1	1	0	0	3
Lundvall, Bengt-Åke	0	0	0	0	0	0	0	0	1	0	0	0	1
Maskell, Peter	0	0	0	0	0	0	0	0	1	3	0	0	4
Total	0	0	0	0	1	1	3	2	4	5	0	0	16

Citations from others of the selected authors

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	I alt
Andersen, Esben Sloth	0	0	0	0	1	0	0	0	0	0	0	0	1
Christensen, Jens Frøslev	0	0	0	0	0	0	0	0	0	0	0	0	0
Christensen, Poul Rind	0	0	0	0	0	0	0	0	0	0	0	0	0
Dalum, Bent	0	0	0	0	0	0	0	1	1	1	0	0	3
Foss, Nikolai Juul	0	0	0	0	0	0	0	0	0	1	0	0	1
Johnson, Bjørn		0	0	0	0	0	0	0	1	1	0	0	2
Lundvall, Bengt-Åke	0	0	0	0	0	0	0	1	1	2	0	0	4
Maskell, Peter	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	0	2	3	5	0	0	11

Net Citations

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	I alt
Andersen, Esben Sloth	1	1	1	1	6	10	9	4	4	10	14	6	67
Christensen, Jens Frøslev	0	0	1	0	1	0	0	1	1	2	3	2	11
Christensen, Poul Rind	0	2	3	2	5	3	1	2	3	3	2	1	27
Dalum, Bent	0	1	1	1	1	4	1	3	2	4	2	3	23
Foss, Nikolai Juul	0	0	0	1	2	3	9	10	30	38	26	17	136
Johnson, Bjørn	1	0	0	2	2	4	3	7	3	5	7	6	40
Lundvall, Bengt-Åke	1	10	14	18	22	42	37	49	58	85	77	53	466
Maskell, Peter	0	0	2	0	1	3	2	5	5	11	22	16	67
Total	3	14	22	25	40	69	62	81	106	158	153	104	837

Appendix 5:

Reflections on the history and future of DRUID presented at the Advisory board meeting in Skagen, June 2001

Bengt-Åke Lundvall, Research manager 1995-2001

I am leaving the coordinator job for DRUID at the end of June this year and the function will be taken over by Peter Maskell. On this basis and as an input to the Skagen meeting of the Advisory board below I have made some reflections on the history and future of DRUID.

The start-up

DRUID was established 1995 as a national network with CBS and AAU as major partners on the basis of an application to a new research programme in industrial economics in tough competition and with international refereeing. I had little to do with the preparation of the application since I worked at OECD-DSTI when it was designed. The application included a number of 'projects' to be realised but also some ideas about building infrastructure to support research and research training.

The basic characteristics of the DRUID- model

Gradually DRUID has become structured around two conferences. The Winter Conference has been dominated by DRUID- and Ph.D.-contributions with a handful of international experts as speakers and discussants. Increasingly it has developed into an attractive event also for Ph.D.-students from other parts of the world.

The Summer conference has always been organised around a specific theme in the field of industrial dynamics and it has invited a widening network of scholars. The idea has been to raise interesting issues and to promote the quality of research in Industrial Dynamics. Examples of themes raised have been the economics of knowledge and learning, alternative theories of the firm, inter-firm organisation and networking and finally innovation systems. An important objective has been to expose young and senior DRUID-scholars to high quality international research in the field. Gradually more participants from countries in the South have been included in networks.

Besides, and as a support to these core activities, there have been two important infrastructural elements. One has been the web-site where the conferences have been announced and the papers electronically published. The other has been the working paper series. They have made it possible to establish a continuous interaction with the rest of the world outside the conference periods.

Evaluation criteria

I have promoted this shift from a project-organised application toward actual investment in infrastructure and network building. The standard mode of support to research is to support 'projects' and it is my feeling that there is over-investment in new empirical projects and under-investment in exploiting results and reflecting upon results.

One factor that made this shift possible was that the external board for DRUID and CIE (Center for Industrial Economics) did not take much interest in the progress of specific proposed projects. The board emphasised the productivity in terms of publication in journals, Ph.D.-production and the interaction with users of research as the three major evaluation criteria.

Already from the beginning, DRUID included a number of highly active and productive scholars in all these fields but the publication pattern was, on average, somewhat too little ambitious. It has therefor been an explicit policy to promote publications in refereed and international journals. The interaction with users has never been a problem as a performance criteria. Several of the senior people involved in DRUID are strongly involved in collaboration with policy institutions in Denmark and abroad.

As I see it, the most important and lasting effect of DRUID has been its impact on the quality and quantity of Ph.D.-dissertations. The exposure of young scholars to international audiences has been instrumental in fostering some outstanding young scholars. The connections to the European ETIC-network and to the CCC US-network have been very useful in this context. A logical follow-up has been the establishment of 'DRUID-academy' as a virtual and real training site for Ph.D.-students.

When we were evaluated by the external board we got quite good marks on publications – emphasising the amelioration of ambitions over the period. It was also recognised that we had been quite active in interacting with users of research. Our contribution to Ph.D.-training was not much commented upon, however. The reason given was that it was not possible to judge the quality of Ph.D.-training and that the sheer numbers was for this reason not very telling.

In this context it is important to note that almost all dissertations were written in English, that normally at least one outstanding international scholar was part of the evaluation committee and that many of the Ph.D.-students published in refereed journals either while still being students or immediately after having defended their thesis.

Where do we go from here?

What we can do in the future will to a certain degree depend on the financial support we can mobilise. We had expected a new source of reasonably easy finance to pop up. This did not happen so now we need another million dkr per annum to keep the central activities going at the present level. We do have some support from the Social Science Council but it is much less than before. We hope that the Ministry of Trade and Industry will help us out also in the future. We have an application for DRUID-Academy still pending. But all in all we live in uncertain times.

To begin with, I will assume that we can raise the extra million and discuss the future on this basis. The questions I want to address is what to retain of the current mode and what to change. I will also ask if there are completely new perspectives and activities that should be promoted. At the end I will discuss what to do within the limits of a much more limited budget.⁷

⁷ Now, in august 2001 we have got some of the financial support applied for to DRUID-academy and there are good reasons to assume that DRUID will end up with a budget at the same level as in its most active days (around 2.2 mio Dkr p.a.) for the next 3 years.

Content of research

The way to introduce new content in research for DRUID has primarily been through promoting new themes at the Summer Conferences. I still believe that this is a pragmatic and realistic approach. Big new projects may be initiated and operated by druids but that will typically be on the basis of other budgetary means.

If I should make a list of topics that should be addressed in the future it would be a slightly schizophrenic one. Some would be topics that are closer to the heartland of standard economics and others would be applied more research topics and involve collaboration with experts from other disciplines. Here we go:

Economics:

Theory of the firm (Confronting the most recent theories on transaction costs, contracting and principal-agents etc. with the new context of learning-based competition).

Industrial organisation (evolutionary modelling making systematic use of empirical results).

Economic growth (the role of knowledge and learning in growth models, the role of human capital and of social capital in 'the new economy').

In all these three fields it would be useful to try to include in theoretical models elements that reflect globalisation and the increasing use of information technology.

Broader issues (applied research?):

Co-evolution of and complementarities between intra- and interorganisational characteristics of firms.

The transformation of sectoral innovation systems related to for instance construction, knowledge intensive business services and knowledge institutions.

National innovation systems and economic development – ecological and social sustainability of different models.

Some other themes that are underresearched:

The evolution of the public sector and of its capacity to promote or weaken innovation and transformation processes.

The role of intellectual property rights and of financial capital in promoting or weakening economic development in different regional and national contexts, including the impact on global inequality.

Organisation of research

I might be too conservative here, but I believe that the basic characteristics of the organisational model as described above is effective in promoting research and research training. There are some specific weaknesses in this model however that need to be considered.

One weakness has to do with publishing the results of the activities. It has been difficult to keep up the rate of working paper publications and some of the publication projects from conferences have been slowed down. Some more resources, better organisation and higher priority should be given to this issue. A specific problem is that as it stands now the working paper series and the web-site are highly dependent on the idealism of single persons (Willumsen and Laursen).

It might also be argued that the potential synergy in research in the network between CBS and AAU scholars has been exploited only to a limited extent. I think that this is correct, but I see no simple response. Perhaps we should try to establish specific incentives to promote co-authorship but at the same time I believe that there are strict limits on how far one can push and pull such processes.

The limited budget alternative

If we get a much more limited budget we could bring down costs for the Winter and Summer conferences by limiting further the proportion of invited speakers and leave it to almost all participants to pay their own travel. I believe that DRUID has now so many friends around the world that we would still get high quality speakers. But, of course, the time and effort to find funding would be a real barrier for some of the most busy ones.

We might also make more alliances around the organisation of the conferences so that we co-organise them and co-finance them with other Danish or international teams. This makes the preparation somewhat more complicated but it could also be one way to renew and further develop the research agenda of DRUID.

The international dimension

As should be clear from what has been said, the international network has been crucial for the relative success of DRUID. I think that it is fair to say that DRUID has become one important node in the global network doing research on Industrial Dynamics. This raises the issue if DRUID should take on even more responsibility in this respect. That would for instance imply that DRUID began to co-ordinate data collection, data banks and perhaps even initiate some major European research projects (BETA is already doing a great job in co-ordinating European Ph.D.-training and here the DRUID-academy should be seen as a support initiative). It is my assessment that DRUID cannot take on very big new tasks in these areas without a marked change in priorities. Here, I believe that DRUID also in the future will remain 'a meeting place' rather than a 'headquarter' for experts working on industrial dynamics.

Appendix 6

DRUID SEMINARS, AUTUMN 2000

Dec 21 - John A. Mathews, Aalborg: "The creation of a Semiconductor Industry in East Asia".

Dec 13 - Esben Sloth Andersen, IKE/DRUID: "Schumpeterian games and the network economy - towards a renewal of the Nelson and Winter tradition of evolutionary research".

Dec 4 - John A. Mathews, CBS: "Competitive Interfirm Dynamics within an Industrial Market System".

Nov 29 - Anker Lund Vinding, IKE/DRUID: "Absorptive Capacity and Innovative Performance: A Human Capital Approach".

Nov 24 - Lars Bo Jeppesen, CBS: "The Organization of Capabilities: The case of the electronic games industry".

Nov 17 - Jan Vang-Lauridsen, CBS: "Knowledge creation, communication and the new division of labour within the news industry".

Nov 17 - Tina Aage, CBS: "Knowledge, adaptation and change. Global-local strengthening of regional systems of innovation".

Nov 15 - Lars Gelsing, IKE/DRUID: "Revisiting the industrial district research".

Nov 10 - Henrich Dahlgren, CBS: "The competitive advantage of networks. Networks capabilities and product development".

Nov 10 - Mikkel Thomassen, CBS: "Coordination costs and inter-firm learning within Construction".

Nov 01 - Jesper Lindgaard Christensen, IKE/DRUID: "The Rise, Fall and Possible Re-vitalisation of Venture capital in Denmark".

Oct 25 - Mario Lopez, IKE/DRUID: "Innovation, Competitiveness and Development: Searching for the Links to Economic Development".

Oct 25 - Lissette Amaya, IKE/DRUID: "Knowledge Transfer and Learning Processes in SMEs in Nicaragua".

Oct 04 - Bent Dalum and Michael Dahl, IKE/DRUID: "The ICT Cluster in Denmark".

Sep 20 - Bengt-Åke Lundvall, IKE/DRUID: "On the convergence and divergence of national systems of innovation".

Sept 8 - Tina Aage, CBS, on F. A. Hayek, CBS: "Economics and knowledge' *Economia IV*".

Sept 8 - Tina Aage, CBS, on F. A. Hayek, CBS: "The use of knowledge in society' American Economic Review".

Sept 1 - Henrich Dahlgren, CBS: "G. A. Akerlof, CBS: "The market for "lemons": Quality uncertainty and the market mechanism. Quarterly Journal of Economics".

DRUID SEMINARS, SPRING 2000

Jun 07 - Anker Lund Vinding: "Regional innovation og forskning". IKE

Apr 05 - Leinar Vargas, Björn Johnson, Birgitte Gregersen, Klaus Lindegaard: "Systems of innovation in developing countries: concepts and policy implication".

Mar 31 - Bent Dalum, Jesper Lindgaard Christensen, and Carsten Stig Poulsen, Aalborg: "Nordjysk Konjunkturbarometer".

Mar 30 - Graham Winch, CBS: " A sectoral approach to innovation and the dynamics of business systems - the case of the construction industry".

Mar 29 - Manuel Gonzales, University of Manchester, CBS: "Effects of the external control of firms on the systems of innovation of peripheral regions".

Mar 22 - Bent Dalum, DRUID/IKE: "Does Specialization Matter for Growth?".

Mar 08 - Michael Dahl and Toke Reichstein, DRUID/IKE: "Firm Growth in Denmark - an Empirical Study on 20.000 Firms".

Mar 01 - June Tolsby, DRUID/IKE: "Comparing Organisational Learning Perspectives: Wenger's Communities of Practice versus Schön and Argyris's Organisational Learning".

Feb 23 - Mark Tomlinson, A University of Manchester.

Feb 16 - Toke Reichstein and Michael Dahl on their Ph.d. theses.

Feb 09 - Bent Dalum, Jesper Lindgaard Christensen, and Carsten Stig Poulsen: "Nordjysk Konjunkturbarometer".

Feb 09 - Workshop on "Læringsteorier under debat".

DRUID SEMINARS, AUTUMN 1999

Dec 07 - Frieder Meyer-Krahmer, Fraunhofer Institute for Systems of Innovation Research, Karlsruhe: "Industrial Innovation and Sustainability - Conflicts and Coherence".

Dec 06 - Robert Costanza, University of Maryland, Institute for Ecological Economics: "Envisioning a Desirable and Sustainable Future".

Nov 08 - Workshop on "Nordjylland som lærende region".

Nov 03 - June Tolsby: "The use of Information technology within small companies: Internet interaction and learning".

Oct 13 - Bengt-Åke Lundvall et al.: "The Policy Report of the DISKO Project".

Oct 07 - Workshop on "Towards a more Interactive University?".

Sep 29 - Kenneth Jørgensen: "Power and Technology - Power Relations and Organizational Changes in a Danish Bank".

Sep 22 - Pun-arj Chairatana: "Systems of Innovation - The Implications for the East Asian Economy".

Sep 16 - Symposium to celebrate the conclusion of the DISKO Project.

Sep 15 - Leiner Vargas: "Political Economy of Electricity Sector Reform in Costa Rica" and "The Cluster of Renewable Electricity in Costa Rica - the Cases of Hydropower and Windmill".

DRUID SEMINARS, SPRING 1999

Jan 15 - Hariolf Grupp , Fraunhofer Institute for Systems of Innovation Research, Karlsruhe: "Measuring Technical Change: Theoretical, Ideal and Pragmatic Concepts and Examples".