Workplace Development Programmes in the Knowledge-Based Economy

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This paper takes a look at some fresh challenges faced by programmatic workplace development, which are generated by ongoing economic change. This change, in this paper called the "transition to a knowledge-based economy", will probably have considerable impact on enterprise organisation, workforce utilisation and qualification demands. The paper begins by outlining essential features of the change from the point of view of explicit-tacit knowledge interplay, then goes on to discuss their implications for workplace development, especially in the context of Nordic labour markets. The aim is not to provide a comprehensive analysis of the ongoing economic change and its impacts, but rather to take on some relevant topics for further discussion and inquiry.

Programmatic Workplace Development in Industrial Western Nations

Workplace development has been a focus of interest for governments, labour market organisations and researchers alike in many industrial western nations since the 1970s. Interest in workplace development was boosted at that time by an increase in job dissatisfaction, absenteeism, labour turnover and industrial action, all of which were viewed as signs of the crisis of Taylorism. In many countries, programmes were launched with the aim of improving the quality of working life, humanising work or promoting labour-management cooperation. In the 1980s and 1990s, the focus increasingly expanded to improving the productivity, competitiveness and innovativeness of companies as well.

The interest shown by governments and labour market organisations in workplace development programmes has varied, depending on the period and the country concerned. In Germany and in Sweden, where the government and labour market organisations have funded workplace development more than anywhere else, the volume of programmatic development has fallen distinctly in recent years. In certain other countries, for instance Finland and Ireland, programmatic development did not begin until the 1990s. Meanwhile, Anglo-American countries, with the partial exception of Australia, have never given this much effort.

Despite certain common trends, programmatic workplace development has developed differently in different countries, equally where theoretical approaches, programme designs and institutional arrangements are concerned (*Business*

Decisions Limited 2000; Gustavsen et al 2001; Naschold 1994). The institutional environment in which companies operate and in which labour, the labour market and the R&D policy are implemented has had considerable impact on approaches to workplace development in practice. The institutional environment is made up of many historical and cultural layers. The content and form of workplace development approaches has been most affected by who the key collective actors are and how their mutual relationships are structured. The key collective actors are usually companies and company networks, research groups, labour market organisations, governments and various funding bodies and authorities in charge of working-life, technology and regional development. In Finland, Germany and France, for instance, government or government agencies have held a key role as initiators and coordinators of development programmes, while this role has been played by the axis between the labour market organisations in countries such as Norway, Denmark and Ireland. In Sweden, the UK and Italy, meanwhile, various regional actors have been the engines in recent years.

The Knowledge-Based Economy – Interplay of Explicit and Tacit Knowledge

There has been a great deal of discussion in recent years about whether the technologically most advanced industrial nations are changing over to a new type of economic growth. Specifically, the debate has gained momentum because of the economic growth and rising productivity, which continued unabated in the USA throughout the 1990s without any significant inflationary pressure. The main features of this new phase can be captured as follows from the perspective of corporate operating environments:

- The ability to create, process, store, transfer and protect knowledge has become an increasingly important source of competitive strength for companies. The growing knowledge intensity of products and operative processes in all sectors of the economy will lead to a blurring of the distinction between manufacturing and services, and ultimately to obliteration of the distinction. Many traditional manufacturing companies do not identify themselves as goods producers anymore, because they provide their clients “systems” or even “solutions”, i e integrated packages of hardware and embedded knowledge-intensive services. Many service companies alike are increasingly integrated into industrial production networks, as manufacturing firms outsource activities, which are beyond their core competence.
- The ability to learn rapidly and develop constantly and to efficiently use this ability to generate constant product innovations has become the key success factor for an increasing number of companies. Their main developmental

problem is no more rationalisation within or optimisation of the production process, but continuous optimisation and development of the entire product concept. Giddens describes the ongoing transformation of managerial discourse: “When one talks to business people, one is struck by the intensity of the pressure of ideas on them. They are always thinking: what comes next, what should I be thinking about next? Where can I find a niche in this market for a while? They don’t really any longer talk much about problems of production. You can’t really do business these days without having a concept”. (Giddens and Hutton 2000, pp 26-27)

- The new information and communications technologies (ICT), which are based on microelectronics, telecommunications and network-oriented computer software, hold a key role as economic growth engines. ICT is the technology base for the greater knowledge intensity of goods and services and also one of the factors, which promotes companies to acquire improved capacity to learn.

Learning is a multifaceted process, which is possible to deal with only in a very simple manner in the following. The term “multifaceted” refers to the fact that learning can take place on different levels (individual, group, organisation, network), can be of different levels of profundity (single loop, double loop), may focus on different kinds of knowledge, etc. From the latter point of view, learning could be viewed in the following way (Lundvall 2000, p 127): *Know-what* refers to knowledge about “facts”. *Know-why* refers to knowledge about principles and laws of motion in nature, in the human mind and in society. *Know-how* refers to skills, or the ability to do something. *Know-who* involves information about who knows what and who knows how to do what, as well as the ability to cooperate and communicate with different kinds of people and experts.

ICT is most effective in supporting the learning of know-what and know-why. Key tools in both of these kinds of learning are the ability to read documents, participate in training and access databases. At its best, ICT may bring about a revolution in the dissemination of this kind of *explicit*, codified knowledge. ICT allows explicit knowledge to be transferred quickly and at low cost from one place to another and from one user to another, regardless of physical distances. For instance, the so-called net technologies (the Internet, intranets, extranets) can help solve the traditional trade-off in information economics between the richness and reach of information, since it makes for rich information with a broad reach (Evans and Wurster 1997).

Learning know-how and know-who requires different tools, however, since the knowledge they require is of a different nature. It is based on learning by doing and learning by using, and on shared experiences generated through social interaction within different types of groups and networks (learning by interac-

ting). This type of experience-based knowledge can be called *tacit* knowledge (Lundvall 2000; Nonaka et al 2001). Unlike explicit knowledge, tacit knowledge cannot be codified into speech, writing, diagrams, instructions or standards; rather, it is anchored in values, feelings, beliefs, cultural symbols and mental models.

It is difficult, not to say impossible, to replace the significance of individual or collective face-to-face interactions in the sharing of tacit knowledge and articulating it as explicit in an organisation, even if rapid development of interactive multimedia applications combining text, image and sound offers increasingly advanced communication potential. Virtual forms of working and work organisation might at best supplement, but never totally replace, self-managing teams with close physical and social contacts, for instance, as a forum for learning (De Santis and Fulk 1999; Jackson 1999; Malhotra 2000).

A highly developed ICT infrastructure *is* an important factor in support of individual and collective learning from the company point of view. Its importance derives not so much from its increasingly advanced potential for acquiring, processing, storing or transferring explicit knowledge, however, as from the way it can be used to support knowledge-conversion processes in the organisation, based on interaction between explicit and tacit knowledge. This interaction is the foundation for innovation and, accordingly, the key competitive strength of the organisation in the environment of the knowledge-based economy (Nonaka et al 2001). The following two sections take a closer look at what this kind of perspective on learning entails for enterprise organisation, workforce utilisation and qualification demands.

New Organisational Logic – Towards Strategic Enterprise Networks

In the post-war decades, it was typical of major companies to strive for advanced vertical and horizontal integration. Horizontal integration was a means to seek growth by expanding into new sectors. Vertical integration, which was characteristic of the Fordist production model, was a means to internalise possible market risks in different phases of the value chains.

The globalisation of competition has, however, signified an end to the trends of horizontal and vertical integration. An increasing number of companies have chosen in recent years to focus on a narrower segment of products and of the value chain, around which they build their core competence. Horizontal disintegration is associated with the fact that when operations become global, there is less need for companies to balance their cash flow over economic cycles by betting on different industries; instead, balance can be sought through exploiting differences in regional markets. Another important reason is that amid tougher competition, companies find it hard to achieve competitive advantages in several

sectors or product segments at once. The role of ICT in the process of horizontal and vertical disintegration is twofold: on the one hand, ICT speeds up the product focusing, i e horizontal disintegration, by promoting globalisation (see above); on the other hand, it speeds up vertical disintegration by reducing transaction costs. ICT helps rethink the production economic logic of organising the value chains by creating new possibilities to reshape them into new business areas.

The ruling principle behind the organisation of value chains in the knowledge-based economy then becomes horizontal coordination rather than vertical integration (Schienstock 1999). According to the new organisational logic, value chains are split into several parts, with different companies in charge of the parts. From the point of view of the core companies in the chains, this means more outsourcing of functions and dense interaction with other enterprises in the chain and often also with clients. The core companies strive to retain responsibility for the most strategic and economically most productive parts of the chain. This usually means "going downstream", closer to the client, with embedded and more comprehensive services and integrated solutions (Wise and Baumgartner 1999).

Despite the lively discussion on the reshaping of value chains in the knowledge-based economy, there has been little analysis of how these changes will affect how companies use labour. One of the rare attempts to do this so far is Burton-Jones' "Knowledge Supply Model" (1999) which looks at a core company in a value chain, whose key production factor is knowledge. This kind of company is not interested in the workforce primarily as a source of physical labour, but as a generator of knowledge.

From the point of view of knowledge production by an individual company, functions which require mainly explicit and non-company-specific knowledge can be outsourced, while functions requiring a great deal of tacit and company-specific knowledge are kept in-house. The firm's most senior knowledge workers are responsible for its high-level knowledge integration functions and for planning, coordinating and controlling its activities. Such functions demand high levels of both explicit and tacit knowledge and company-specific knowledge. For this reason, the company strives to keep them committed through attractive arrangements involving ownership shares and share of profits. In the long term, the personnel of a knowledge-intensive company will consist in an increasingly large proportion of this group. These kinds of companies may not wish to grow by increasing their own personnel, preferring to network with their clients and the other companies in their value chain.

According to the Knowledge Supply Model, work demanding high levels of explicit knowledge, which is not considered by the company to belong to its core competence, is outsourced as a rule. Even highly qualified employees of core companies in value chains may find themselves self-employed or micro-entrepreneurs against their will as a consequence of their expertise not being part of the company's core competence. The market for knowledge-intensive business

services that develops around the core companies thus comprises a number of operators in different positions, ranging from self-employed and micro-entrepreneurs to big international companies. The level of the knowledge they possess, how specific it is from the point of view of other companies, and its value for other companies affects their market position as knowledge producers.

This type of model is naturally rough and abstract, but it may describe the general logic associated with changes in corporate organisation and utilisation of labour in the knowledge-based economy. The general trends described may filter through as divergent practical solutions in different industrial and national contexts, due to varying institutional practices.

Trends in Qualification Demands – A Closer Look at the Role of Tacit Knowledge

The ability of ICT to significantly facilitate the acquisition, processing, storing and transfer of explicit knowledge and thus the learning of know-what and know-why has led to a situation where it is increasingly difficult for companies to construct a long-term competitive advantage from explicit knowledge and such learning alone. In this kind of environment companies' possibilities to protect, let alone monopolise, explicit knowledge will be weakened radically. It would therefore seem that the development of ICT creates a somewhat paradoxical situation in which the significance of tacit knowledge for individual companies is emphasised in the knowledge-based economy. According to Lundvall (2000, p 129), the more complex and densely networked the operating environment of companies develop and the faster and more radical corporate change processes become, the more important role tacit knowledge will play. The rapid growth and superior financial performance of Nokia in recent years, for instance, has been explained by the company's efficient means of creating, sharing and articulating tacit knowledge (Kulkki and Kosonen 2001).

According to Lillrank (1998), the increased importance of tacit knowledge in production management is explained by the fact that quality systems or other standard operating procedures can only control fairly uniform and repetitive production processes. A company's capacity to control processes with the aid of explicit knowledge begins to deteriorate when the uniformity and repetitiveness of processes decreases. As the expected output variety of these processes grows, companies are forced increasingly into the realm of tacit knowledge. In such a situation, process control requires a highly developed quality culture. The effectiveness of this type of management method depends on how well the company employees have internalised the corporate vision, the extent to which their actions are guided by the company's commonly accepted values, and whether individual employees have adequate competence and tools to cope with their varying and rapidly changing work situations.

The emphasis on tacit knowledge as a source of competitive strength for a company is also reflected in the qualification demands for employees. Tacit knowledge is accumulated through experience, such as learning by doing and using and the social interaction in teams and networks. From this point of view, it is thus best accumulated through continuous, full-time careers and assignments involving a wealth of interfaces, such as working in a teamwork-based, project-based and densely networked environment. There is therefore ample justification for companies to develop their forms of work organisation in this direction.

We can assume that the importance of formal criteria, which describe explicit knowledge, will decrease in the recruitment of employees. In the future, the most important of these will be versatile professional skills, international skills (such as language skills) and digital literacy, i e the ability to work in an environment which requires the use of ICT. According to Schienstock (1999, p 39), companies are increasingly seeking new employees based on factors describing the work orientation – for instance, quality consciousness, reliability, precision, care, commitment, trust, creativity, openness to new ideas, entrepreneurial spirit and enthusiasm. Companies typically assume that these factors express an individual's potential for accumulating tacit knowledge. It is, in fact, often argued that companies are now looking for "nice guys". This is not restricted merely to the technologically most advanced organisations or traditional white-collar work, but also increasingly to traditional industries and blue-collar employees (Flecker and Hofbauer 1998; Lavikka 2000). Very divergent sectors now seek surprisingly similar "cross-professional" qualifications.

The search for nice guys increases the risks inherent in the recruitment process. It is more difficult to gauge individual people's potential for accumulating tacit knowledge than it is to assess the level of explicit knowledge they possess. The demands placed on the work orientation of these individuals are furthermore not without potentially conflicting tensions. For instance, "entrepreneurial spirit" and "openness to new ideas" are not necessarily qualities which ensure that people will commit themselves to an organisation's vision or values; rather, they may tend to promote independent actions and critical questioning of existing structures and systems (Flecker and Hofbauer 1998, pp 115-116). Corporate management systems and organisational forms should change at the same pace as the recruitment criteria they apply if they are to ensure that these criteria are not reduced to tools for normative subordination and control of the workforce, but instead remain real tools for encouraging employees to attain their true productivity and innovation potential.

The increasingly knowledge-intensive economy has a built-in mechanism, which reinforces social segregation. Lillrank (1997, p 82) has described this by saying, "in intellectual work, the difference between the performance capacity of individual employees can be infinite", contrary to the case in work based on physical tasks, where differences are smaller and thus somehow proportionate. The

growing differences between individuals as producers of added value will cause an increasingly uneven trend in distribution of work. According to Lillrank, there will no longer be as strong a production economy justification for equal income distribution following the transfer from mass production to the more flexible, tailored production characteristic of the knowledge-based economy, because it does not require the same reasonably homogenous mass market. This argument, however, is too simple even from the production economic point of view alone, since increasing social inequality may undermine the feasibility of the knowledge-based economy for another reason. According to Lundvall (2000, pp 132-133), sharp social divisions undermine the social capital of a society, which is the foundation of all interactive learning. The accumulation and articulation of tacit knowledge, in particular, is possible only through social interaction, and the main prerequisite for that is solid trust between individuals.

New Challenges for Workplace Development Programmes

The themes of the knowledge-based economy have not featured visibly in European countries in recent workplace development programmes, whether completed or ongoing. This is indirectly evident in the fact that the companies and workplaces included in these programmes operate largely in traditional sectors (Alasoini 2000a; *Business Decisions Limited* 2000). Although innovative companies can be found in all sectors, it might be assumed that companies specifically in the new, dynamic, rapidly expanding sectors would be the best laboratories for testing new types of work, organisational and human resource management practices, which could be an important source of inspiration also for the traditional sectors and help support better integration between the "new" and the "old" economy (Prihti et al 2000, pp 41-43). Experiences in Finland have, however, shown that, due to their rapid pace of change and lack of firmly established operating procedures, these companies (of many of them are in the ICT cluster) find it hard to commit to long-term programmatic development (Alasoini 2000b, pp 115-118; Kasvio et al 2000, pp 140-141). The absence of these types of company may at worst lead to two legitimacy problems when we consider the role of these programmes as part of a national or regional innovation policy:

- The programmes do not make for better integration of the basic values of workplace development policy into the work processes and assignments, or organisational and human resource management solutions of companies in the economy's growth sectors. Such values, specifically in a Nordic labour market context, include broad participation by employees, recognition of the need for balanced development between profitability and employee well-being, and offering employees equal opportunities for personal and professional development in connection with changes, irrespective of gender, age, ethnicity or

other factors. This problem is aggravated by the fact that many of the companies in the growing knowledge-based businesses aim to achieve the effect of "increasing returns", i e whoever gains advantage, *ceteris paribus*, gains further advantage (Arthur 1999; Teece 2001). This new business logic may feed "winner-takes-all" mentality and aggressive approach also in personnel policy; as the firm's knowledge base (in terms of employee skills and competencies) grows the more it is used, it becomes increasingly tempting for the firm to strive to exploit skills and competencies of the "knowledge workers" without any limitations.

- In focusing on traditional sectors, the programmes may see the main problems of workplace development too much from the perspective of the old structures of workplaces and assignments about to become replaced, leaving them little to contribute to the new, emerging structures. To use the distinction by Beck (2000), there is the danger that the programmes may try to solve the problems of the "second modernity" by approaches designed for the problems of the "first modernity", thus even promoting cognitive, political or structural "lock-ins" (Schienstock 1999, pp 45-46) in the search for new, innovative solutions.

The perspective of this paper on the changes in company organisation, workforce utilisation and qualification demands in the knowledge-based economy is an interplay of explicit and tacit knowledge. This perspective leads to different future visions compared with both neo-liberalist and technology-oriented discourses, often with an uncritically optimistic attitude to technological change, and discourses dealing with the "end" or "degradation" of work. This perspective tends to see a potential for workplace development programmes in the environment of the knowledge-based economy too, but it also highlights many new, problematic issues.

In the 1970s, the focus of workplace development policy was typically on problems arising from Taylorist working arrangements being taken to extremes, such as the ergonomic and psychological problems of repetitive and monotonous work and the lack of autonomy and influence. These problems were tangible and clearly delimited in both the physical and the organisational sense, and it was often possible to find fairly simple solutions to them by applying the right expertise. The solutions in question were, furthermore, neutral in terms of effects, in that they did not usually have direct employment impacts on the workplace concerned, or indirect impacts on employees outside that workplace.

Even though these and many of the other "old" problems of Taylorism may still be a relevant object of development intervention in many workplaces, in the environment of the knowledge-based economy the starting points for workplace development programmes have become more complex, giving rise to new question and challenges on several levels:

- The real actors in the knowledge-based economy are increasingly networks of organisations. The focus of development intervention should shift, accordingly, from the level of individual workstations or working units to cover organisation-, company- and network-level issues as well.
- Due to this change of context and focus, problems and development needs facing workplaces have changed in the sense that it is increasingly difficult to find ready-made expert solutions to them, or even standards or "best practices".
- The effects of development intervention can reach further than ever in a networked environment, something which makes it harder to foretell the indirect impact of solutions on the various parties involved, or even to assess them afterwards; generally speaking, it is becoming more difficult to predict the potential of development processes at the outset of projects, because the solutions tend to emerge during the process itself. In short, solutions are becoming increasingly unpredictable and uncontrollable.
- The role of employee participation is under increasing pressure from at least two points of view: firstly, the role of representative participation and the scope for acting as a "collective voice" for employees in processes of change is becoming problematic. Networked organisational structures do not automatically have the arenas for employee participation, which are required by law or collective agreements. Even at best, it may be very difficult to determine who is eligible to legitimately represent someone else's interests. It is also likely that employee interests will become increasingly divergent as their labour market positions become more differentiated. It might ultimately be downright misleading to speak of a collective voice of the employees in a network. Secondly, the new emphasis on tacit knowledge as a determining factor of the labour market position of employees means that the opportunity to participate directly in the planning and implementation of change will become increasingly crucial from the employees' own point of view. Tacit knowledge is accumulated only through doing and using, and through social interaction, with shared experiences at the core.

The Need for New Approaches

The above challenges call for the development of overall programme and project design concepts, and the way programmes and projects are actually managed and implemented.

Development strategies: Workplace development in a networked and increasingly dynamic environment demands new programme strategies. As problems and development needs facing workplaces are becoming increasingly complex and requirements for continuous learning are growing, building forums for boos-

ting exchange of information and experiences between workplaces and other actors is of crucial importance. Acquiring the sufficient expertise to successfully deal with these ever more complex issues in programmes calls for combination of different kinds of expertise, achieved only through broad dialogue between all relevant actors, whether researchers or practitioners. One of the most promising recent conceptual innovations in programmatic workplace development is a "module", developed in the Norwegian Enterprise Development 2000 Programme (1994-2000). A module is a group of researchers with a common research agenda that works with a group of enterprises, often together with other regional institutions as well, for a period of several years (Gustavsen et al 2001).

Development techniques: The new, networked and increasingly dynamic environment requires also new development models, methods and tools in projects where the focus of development is on a real production network of companies. Typical area of application so far has been "conventional" bilateral, principal-driven production cooperation between the principal and its suppliers. By contrast, there has not been a great deal of progress in development techniques for genuinely multilateral production networks yet, at least in Finland. Multilateral production networks would be a more fertile soil for process and product innovations than conventional bilateral networks, in which the goals of development measures are often determined by short-term productivity targets of the principal alone. Multilateral production networks, instead, have better chances of becoming genuine innovation-oriented "multivoiced activity systems" (Hyötyläinen 2000).

The qualifications and roles of experts: For the qualifications and roles of researchers and consultants, the above changes mean that the emphasis more and more often has to be shifted from offering design solutions towards planning, coordinating and supporting entire processes of change in interaction and dialogue with other actors. Owing to the growing complexity of problems and growing demands for interaction and dialogue, there is a need to shift towards increasingly reflective expertise in development work. The need for greater reflectivity concerns not only the development projects in question, but also the general conceptual framework guiding one's own thinking and action (Seppänen-Järvelä 1999, pp 72-75). This is a double challenge for universities: firstly, in the new rapidly changing environment, there will be a shift of emphasis in workplace development from solving problems to defining (re-contextualising) them. This is an area in which researchers are supposed to have, owing to the basically critical approach of research towards the "reality", an advantage over consultants or practitioners. But secondly, there is the question of how interested scientific communities are in expanding their role in an area in which they are in a constant danger of losing their battle for scientific purity. This question touches the very essence of scientific communities.

Programme and project management: The growing unpredictability and uncontrollability of the effects of development processes will require an increasingly reflective approach from programme and project management, too. Greater reflectivity means sensitivity in monitoring the effects of development processes and the flexibility to make any necessary redefinition of their content and forms. Areas in the environment of the knowledge-based economy which require particular sensitivity from monitoring will be ensuring the participation of employees, preventing processes of social segregation, or even exclusion, and pre-empting ecological risks in connection with change.

If workplace development programmes prove unable to respond to the new challenges brought by the environment of the knowledge-based economy, it may ultimately undermine their importance as part of national or regional innovation policy. This question must be taken seriously, primarily because workplace development programmes have so far been unable to gain the status in public policy-making held by technology development and transfer programmes in any western industrial nation. Quick-fix solutions to this "organisation development deficit" (Gustavsen 2000, p 121) are unlikely to exist. The main means available for countering any legitimacy problems that workplace development programmes may be experiencing will be how successful these programmes are in creating new innovation concepts which their stakeholders find credible and which are capable of dealing with the above and other challenges posed by the knowledge-based economy.

References

Alasoini, T (2000a) "On the Cutting Edge? – The Finnish National Workplace Development Programme and the Norwegian Enterprise Development Programme as Approaches to Workplace Renewal." In Gjelsvik, M and Hansen, K (eds) *Nordisk arbeidslivskonference 1999: Norden i verden og verden i Norden*. Nordic Council of Ministers. Copenhagen: TemaNord 2000: 575, pp 459-479

Alasoini, T (2000b) *Suomalainen työelämän kehittämiskokeilu 1996-99 – kokemuksia, näkemyksiä ja tuloksia Kansallisesta työelämän kehittämisohjelmasta* [Finnish Workplace Development Experiment in 1996-99 – Experiences, Insights and Outcomes of the National Workplace Development Programme]. Helsinki: Finnish Ministry of Labour. National Workplace Development Programme, Report 11

Arthur, W B (1999) "New Economics for a Knowledge Economy: The Law of Increasing Returns." In Ruggles, R and Holtshouse, D (eds) *The Knowledge Advantage*. Dover, NH: Capstone, pp 195-212

Beck, U (2000) *The Brave New World of Work*. Cambridge: Polity Press

Burton-Jones, A (1999) *Knowledge Capitalism: Business, Work, and Learning in the New Economy*. Oxford: Oxford University Press

Business Decisions Limited (2000) *Government Support Programmes for New Forms of Work Organisation* A Report for DG Employment and Social Affairs. Luxembourg: Office for Official Publications of the European Communities

DeSantis, G and Fulk, J (eds) (1999) *Shaping Organization Form: Communication, Connection, and Community*. Thousand Oaks – London – New Delhi: Sage Publications

Evans, P B and Wurster, T S (1997) "Strategy and the New Economics of Information." *Harvard Business Review,* Sep-Oct/ pp 71-82

Flecker, J and Hofbauer, J (1998) "Capitalising on Subjectivity: The 'New Model Worker' and the Importance of Being Useful." In Thompson, P and Warhurst, C (eds) *Workplaces of the Future*. Houndmills: Macmillan, pp 104-123

Giddens, A and Hutton, W (2000) "In Conversation." In Hutton, W and Giddens, A (eds) *On the Edge: Living with Global Capitalism*. London: Jonathan Cape, pp 1-51

Gustavsen, B (2000) "Introduction: Research and Development Programs as Tools in Workplace Development." *Concepts and Transformation* 5: 1, pp 121-123

Gustavsen, B, Finne, H and Oscarsson, B (2001) *Creating Connectedness: The Role of Social Research in Innovation Policy*. Amsterdam – Philadelphia: John Benjamins

Hyötyläinen, R (2000) *Development Mechanism of Strategic Enterprise Networks: Learning and Innovation in Networks*. Espoo: VTT – Technical Research Centre of Finland. Publication 417

Jackson, P (ed) (1999) *Virtual Working: Social and Organisational Dynamics*. London – New York: Routledge

Kasvio, A, Haapakorpi, A and Ruohonen, M (2000) *Joustavat työjärjestelyt* [Flexible Working Arrangements]. Tampere: University of Tampere. Information Society Research Centre. Working Papers 12/2000

Kulkki, S and Kosonen, M (2001) "How Tacit Knowledge Explains Organizational Renewal and Growth: The case of Nokia." In Nonaka, I and Teece, D J (eds) *Managing Industrial Knowledge: Creation, Transfer and Utilization*. London – Thousand Oaks – New Delhi: Sage, pp 244-269

Lavikka, R (2000) "Palvelukseen halutaan 'hyvä tyyppi': eli osaaminen perinteisessä teollisuudessa." [Wanted: 'Nice Guys' or, Know-how in Traditional Industry] *Sosiologia* 37:1, pp 1-17

Lillrank, P (1997) "Työtehtävien ja –organisaatioiden murros." [Transformation of Jobs and Work Organizations] In Hämäläinen, T J (ed) *Murroksen aika: selviääkö Suomi rakennemuutoksesta?* [Period of Transformation: Will Finland Survive from the Structural Change?]. Porvoo – Helsinki – Juva: WSOY, pp 79-110

Lillrank, P (1998) "Introduction to Knowledge Management." In Lillrank, P and Forssén, M (eds) *Managing for Knowledge: Perspectives and Prospects*. Otaniemi: Helsinki University of Technology. Industrial Management and Work and Organizational Psychology. Working Paper No 17, pp 3-28

Lundvall, B-Å (2000) The Learning Economy: Some Implications for the Knowledge Base of Health and Education Systems. In *OECD: Knowledge Management in the Learning Society*. Paris: OECD, pp 125-141

Malhotra, Y (ed) (2000) *Knowledge Management and Virtual Organizations*. Idea Group. Hershey – London

Naschold, F (1994) *The Politics and Economics of Workplace Development: A Review of National Programmes*. Helsinki: Finnish Ministry of Labour. Labour Policy Studies 64

Nonaka, I, Toyama, R and Konno, N (2001) "SECI, Ba and Leadership: A Unified Model of Dynamic Knowledge Creation." In Nonaka, I and Teece, D J (eds) *Managing Industrial Knowledge: Creation, Transfer and Utilization*. London – Thousand Oaks – New Delhi: Sage Publications, pp 1-43

Prihti, A, Gerorghiou, L, Helander, E, Juusela, J, Meyer-Krahmer, F, Roslin, B, Santamäki-Vuori, T and Gröhn, M (2000) *Assessment of the Additional Appropriation for Research*. Helsinki: Sitra – The Finnish National Fund for Research and Development. Reports Series 2

Schienstock, G (1999) "Transformation and Learning: A New Perspective on National Innovation Systems." In Schienstock, G and Kuusi, O (eds) *Transformation towards a Learning Economy – The Challenge for the Finnish Innovation System*. Helsinki: Sitra – The Finnish National Fund for Research and Development. Publications 213, pp 9-56

Seppänen-Järvelä, R (1999) *Luottamus prosessiin: kehittämistyön luonne sosiaali- ja terveysalalla* [Trust in the Process: The Nature of Development Work in Social Welfare and Health Care]. Helsinki: STAKES – National Research and Development Centre for Welfare and Health. Research Reports 104

Teece, D J (2001) "Strategies for Managing Industrial Knowledge Assets: The Role of Firm Structure and Industrial Context." In Nonaka, I and Teece, D J (eds) *Managing Industrial Knowledge: Creation, Transfer and Utilization*. London – Thousand Oaks – New Delhi: Sage Publications, pp 125-144

Wise, R and Baumgartner, P (1999) "Go Downstream: The New Profit Imperative in Manufacturing." *Harvard Business Review* Sep-Oct, pp 133-141