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**INVENTORS AT THE DAWN OF THE NEW MILLENNIUM:
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**EMPLOYED INVENTORS - AN IMPORTANT ASSET OF ENTERPRISES AND
NATIONS: HOW TO PROTECT THEIR RIGHTS AND INTERESTS**

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extract from a publication entitled:
Workplace Innovations – A Way Of Promoting Competitiveness, Welfare
and Employment in Finland (Helsinki 1997)*

STARTING PREMISES OF THE PROGRAMME

1. In the 1990s Finland had to overcome difficult social problems such as mass unemployment and a rapid increase in the government debt. The root of such problems lay not in economic fluctuations but in structural factors. Finland's situation in this respect is by no means unique among the EUMember States. There are two main approaches to the reason for structural problems in the EUMember States (cf. Naschold 1996, 205 -206). The first identifies primarily cost problems, caused by high direct and indirect labor costs, punitive taxation and excessive social regulation, with the ensuing "regulation costs" (such as rigid employment contract terms). The suggested solution is an "adjustment of level", that is, costs should be lowered and regulation dismantled. The other approach considers that the problems derive primarily from inadequate promotion of productivity and innovation, which are excessively slow compared with the United States, Japan and the "economic tigers" of Southeast Asia. In this light, an "adjustment of level" is not enough; rather, the solution must be sought in improvement of the entire national innovation system.

2. Several Finnish authors have suggested that the most sustainable solution to structural problems lies in developing the national innovation system, and here innovation in the workplace should be considered an essential part. Thus the main emphasis falls on finding ways of ensuring sustainable long -term economic and employment growth.

MODES OF OPERATION OF WORK ORGANIZATIONS AND THE COMPETITIVENESS OF WORKING LIFE

3. Government support for the development of new product and production technologies and for both the general and vocational education of the population are generally accepted as basic principles of public policy in all Western market economies. They are also considered important investments in future economic growth.

4. Nevertheless, Naschold (1991, 243) has aptly pointed out that companies are not mere "black boxes" where the efficiency and quality of operations are mechanically determined by the technology they employ, the skills level of their staff or other input factors. The process in which inputs (investments) are returned into outputs (goods and services) can be implemented in many different ways. Factors such as management techniques, the organization of work and production, co -operation between management and staff, and the working environment are all important influences which determine how well a company can utilize and develop the technologies it uses and the skills of its staff.

WORKPLACE INNOVATIONS - PART OF THE NATIONAL INNOVATION SYSTEM

5. In future, growth of a country's economy and, consequently, employment trends, will increasingly be based on an accumulation of knowledge and skills, just like productivity and quality of operations in individual companies. Organizations and networks which promote the generation and dissemination of new knowledge and skills and their use in society will hold a key position in this process. In recent debates on economics, this concept has been

referred to as a national innovation system (Lundvall [ed.] 1992; Vuori & Vuorinen [eds.] 1994). It could just be said that internal organization of firms, interfirm relationships, the role of the public sector, institutional set-up of the financial sector, education and training systems, and the size and organization of investments in R&D are taken to be the key factors which influence innovation.

6. To talk about a national innovation system also expresses a critical attitude to the presumed existence of internationally applicable "global best practices". These, in fact, vary from one situation to the next, depending on the unique characteristics of each innovation system. An individual company's cope for applying new practices is greatly influenced by the environment in which it operates. At best, the application of new practices derives from an extensive social consensus, with different institutions supporting companies in bringing about change, also ensuring that an adequate social security safety net is created to cushion the impact.

7. Researchers like Lundvall (1992), who use the concept of a national innovation system in its "strong" sense, claim that the national level is of considerable importance for innovation even in an internationalized economy. In Lundvall's view, innovation and learning are complex processes based on interaction between the parties, where the effective transmission of information requires adequate inter-cultural competence for all those involved.

8. The importance of the national level does, however, depend on the type of innovation being studied: product innovation (new goods or services), technological process innovation, or organizational process innovation. Most discussion of national innovation systems has focused on the first two. Consequently, there has been some criticism about the adequacy of the national level in an environment where the development of new technologies often demands extensive scientific knowledge (Miettinen 1996). It could be assumed that the national level will continue to hold considerable importance in discussion on organizational process innovations. These innovations – or, in an even wider sense, workplace innovations, including new ways of organizing work or of working, new working hours and wage arrangements, and new systems of participation and negotiation – are more difficult to transplant from one country to another than are technological innovations, as their implementation often requires more profound social change and alterations in work cultures.

9. Development of a national innovation system is usually regarded mainly as the development of policies for industry, technology, science and education, without any links with workplace development. A strong faith in economic growth which relies on product and production technology innovations and investments in training has prevailed in many Western market economies. Meanwhile, this approach has not attributed as much importance to workplace innovations in production or service chains or innovations which improve the modes of operation of the work organizations within these chains. Awareness that this approach has shortcomings is becoming increasingly widespread. The EU Commission's Green Paper on Innovation (1995) and on Information Society (1996), for instance, state that the scarcity of organizational innovations is a particular weakness of European innovation systems (for the debate on the significance of workplace innovations, see also Andreasen et al. [eds.] 1995; Appelbaum & Batt 1994; Braczyk & Schienstgock [eds.] 1996; Gustavsen et al. 1996; Levine 1995; Mathews 1994).

THE NEED FOR WORKPLACE DEVELOPMENT IN FINLAND

10. Working life in Finland is subject to the same pressure for change as in other Western market economies. In its report, the group which prepared the development program identified the key pressures as follows (National Workplace Development Programme 1996, 1-2):

- Making product and service markets increasingly international requires Finnish companies to adopt more advanced modes of operation allowing them to increase productivity and improve quality of their activities and flexibility to meet customer needs. In the long term, customer-oriented modes of operation encouraging in-company learning will be in a key position: innovations concerning products, services and processes and their continuous improvement.
- The development of new products and technologies is changing the competitive situation on different product and service markets. This is giving rise to new markets, creating fresh sources of competitive edge for companies operating on existing markets and also leading to a reduction on some product and service markets. Companies are also using new technologies to develop their operations by automating processes and implementing radical process innovations. The widest possible exploitation of the potential offered by new technologies calls for input in developing new skills.
- Environmental issues will be of growing importance for companies when they plan new products, services and processes. On the one hand, they place restrictions on things like use of raw materials, the properties of products and emissions from processes. On the other hand, they give companies new sources of competitive edge.
- All these above-mentioned factors make new demands also on the modes of operation of public sector organizations. Public management in Finland also has to operate in an environment where it must both meet rising quality requirements concerning services and at the same time adjust to cutbacks in public expenditure.

11. Finnish companies and public sector organizations have tried to cope with these pressures in different ways, and they can show some impressive results:

- In business operations, labor productivity and total factor productivity have gone up much more rapidly in Finland during the 1980s and 1990s than in other OECD countries on average (Englander & Gurney 1994). The rise in productivity in the public sector, including the municipal sector in recent years;
- Finland is the only OECD country specializing in resource-based production and exports in the 1980s which has since managed to break free of this role. The contribution made to exports by high-technology products went up from 4% to 17.7% in 1981-95, i.e. reaching the same level as Germany and leaving Sweden and the other Nordic Countries far behind (Production and foreign trade of high-technology products in Finland 1996);

- A very rapid change has taken place in the use of information technology. While only 16% of Finnish employees used information technology in their work in 1984, the number had gone up to 54% by 1995 (Helsingin Sanomat, November 9, 1995), a percentage which must be among the highest in the world.

12. So far, few Finnish companies have achieved international fame with workplace innovations, for instance, teamwork or business-to-business networks. Certain international comparisons concerning quality management and initiatives even indicate that staff participation in their own workplace development is less common in Finland than in competing countries (Haonukainen 1992; Toikka et al. 1995; cf. However Fröhlich & Pekrubi 1996, 188-192). Co-operation between companies and research institutions in developing corporate modes of operation is also less common in Finland than in many other Western market economies. The claim put forward in the EU Commission's Green Paper on Innovation and on Information Society, that European innovation systems suffer from shortcomings as far as organizational innovations are concerned, is clearly very apposite for Finland, too.

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