1. THE DANISH SOFTWARE MARKET

The Danish software market (including application and systems software but excluding maintenance, consultancy and education) had a value of 502 million CDN$ in 1990, growing to 652 million CDN$ by 1991 — up 29.9 per cent. We saw a relatively high growth rate in overall software spending. A vertical split indicates that industries such as manufacturing (excluding food and beverages), banking, finance and insurance will grow at an above average rate towards the beginning of 1992. Owing to the low number of banks and insurance companies in Denmark, the calculation for those industries is based on a sample of six organizations. However, they all show the same trend in software investments. On the other hand, the growth in software investments is largely offset by saving on hardware, consultancy and (to a small degree) in personnel; consequently, we believe a large portion of the increase in software budgets will be absorbed in the total IT budget.

There are 270 mainframes in Denmark, distributed over 197 sites. The mainframe market is currently best described as static; we see no significant changes in the mix before 1992. However, we do see the beginning of a reduction in the total number of mainframes installed during 1992, mainly as a result of a consolidation of data centres. We also see end users beginning to plan the down-sizing of their applications. The mainframe market is dominated by IBM, with a 54-per-cent share of the installed base at year-end 1991, followed by Siemens (including models 75XX) with 11 per cent. HDS and Control Data have six per cent each and Unisys has four per cent. Amdahl has achieved a three per-cent share.

The mini platform is still dominated by proprietary operating systems. UNIX is running on only 16 per cent of the installed base at year-end 1990, although this will increase to 18 per cent by year-end 1991. However, we see a rapid increase in the UNIX penetration of the installed base during 1992; UNIX-based systems will account for 30 per cent of the installed base by year-end 1992.

The mini market is dominated by IBM, with a 49-per-cent share of the installed base at year-end 1991, followed by DEC with 27 per cent, HP with seven per cent and Unisys with six per cent. We expect the mini market to continue to grow during 1992 by about eight per cent.

The emergence of client/server technologies will greatly influence system and application investments on the mid-range platform. The increased down-sizing and processing on desktop will push software vendors to introduce more dynamic network licensing schemes where network pricing charges are based on the number of active log-ons. Owing to the inherent marketing attractiveness, we believe that network pricing will gain support quickly among UNIX vendors.

Packaged PC software constituted 607 million DKK with a 1990 annual growth rate of 39 per cent, which is low compared to other European markets. The leading operating system on the PC platform is still DOS (including both MS-DOS and PC-DOS); 95 per cent of the PCs installed are running on that operating system, though that figure will decline to 91 per cent during 1991. The acceptance of OS/2 (including both the standard and the extended edition) has been slowed by delays and the lack of real application functionality; consequently, OS/2 was running on only three per cent of the installed base of PCs at year-end 1990, though this will grow to eight per cent during 1991. Apple Macintosh is a niche player in terms of installed base, accounting for two per cent of the installed base at year-end 1990 and remaining static at that level during 1991. UNIX is currently running on less than one per cent of the installed base of PCs but there seems to be a trend towards greater acceptance of UNIX on the PC platform. We expect UNIX to run on between one and two per cent of the installed base at year-end 1992.

At year-end 1992 we see the first real impact of OS/2 on the PC platform; it will likely capture 15 per cent of the installed base. The increase will come almost exclusively as a result of migration from DOS installations.