

The Finnish Information Society: Progressive yet Vulnerable



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In recent years Finland has been at the centre of increasing international interest. While the economic crisis of the early 1990s was exceptionally deep, leaving certain parts of the population worse off than before, the recovery that followed was also dramatic. Despite the current economic uncertainties, Finland, known for its high level of technological know-how and the spectacular success of Nokia, is today considered to rank among the true forerunners of internationally competitive information societies. However, it remains highly uncertain if the country can translate this benefit into sustainable competitive advantage.

Introduction

The post-war period of relatively stable and predictable economic growth, lasting roughly from 1945 to the first oil crisis of 1973, has often been labelled as the 'Golden Era' of contemporary capitalism. Politically, these decades were dominated by the arms race and the cold war between the superpowers of the United States and the former Soviet Union. Economically, this period was the heyday of the bureaucratic corporation, national protectionism, and investment-driven growth. According to the politics of the Golden Era, a strong independent economy was the backbone of every nation. Simply put, the rules of competition were

in favour of large markets that could support and protect the interests of domestic manufacturing. From the point of view of individuals, relatively secure employment and career advancement were realistic possibilities, even without extensive education.

In this environment small states such as Finland faced a paradox. A diversified and independent production structure was an important political concern; yet overall economic development required organizational growth and specialization to fuel robust export industries, which are of vital importance in any country whose home market is too small to sustain these industries. However, Finland was also considered too small to support companies of true international significance. As for example S.N. Eisenstadt (1985, 44–45), one of the most astute sociologists of the Golden Era, have pointed out, the most common problem of the small states has been, and still is, how to create and maintain a general standard of living which equals the one prevailing in the respective international system, i.e. *vis-à-vis* those international markets on which small states are dependent.

Now, at the beginning of a new millennium, the situation looks very different, both from a world political and economic point of view, but the quest for competitiveness persists. Economic protectionism has largely been replaced by the deregulation of financial markets and the opening up of national borders for international competition. Although the US still maintains the 'privilege' of being the 'engine' of the world

economy, a number of small states have found a competitive edge in some very unlikely quarters of production. In this respect Finland is a case in point. As a result of rapid movement from traditional manufacturing towards technology-driven industries since the early 1990s, Finland now has an internationalized, innovation-based economy.

Nevertheless the basic problem of a small state persists: the stronger it becomes in a particular market niche, the more damage any future failure will cause. In Eisenstadt's (1985) words, 'one of the great problems of small states is that they may become so attuned to one type of international market that they collapse entirely if this market changes' (p. 45). In Finland the collapse of soviet trade was one the main causes of the economic disaster of the early 1990s. Today, the sheer size of Nokia is of concern to many critics, even though the company has consistently outperformed its competitors.

Crisis and Renewal

Is it the fate of a small state to drift helplessly at the mercy of the shifting currents of global capitalism? Has globalization replaced the anomalies posed by economic protectionism with less transparent yet equally coercive rules of international competition? Not necessarily: compared to the big players a small economy may find its strength in greater flexibility and adaptability to continuous change. In this respect Finland is a unique case. Finland became an industrialized wage-working society much later than other European countries, but the process, once it got under way, was much more rapid and far more dramatic than elsewhere in Europe. Writing in the late 1980s, David Arter, a British political historian, says:

'In no other European democracy has the progression from an essentially agrarian society through a period of accelerated industrialisation to a predominantly service economy been compressed into a mere four decades. Finland, it seems, has become a typical post-industrial state in the lifetime of many Winter War veterans.' (Arter 1989, 227; italics added)

While the situation in Finland today is very different from the years of rapid industrialization, the pace of change is still showing no signs of slowing down. The transitional period from in-

dustrial to post-industrial society was exceptionally short-lived, so much so that it could be said that Finland bypassed the 'machine age' altogether. After the Second World War, Finland caught up with the rest of the industrial world in a quantum leap from primary production to services. At the beginning of the 1990s, 'creative destruction' – to borrow Joseph Schumpeter's famous expression – began to gather momentum again, and Finland rose from the ashes of recession to the frontline of emerging information societies. In this process the country became less dependent on resource-based manufacturing, particularly on forestry and metal using industries, the traditional cornerstones of the economy. According to a common interpretation it is precisely because of the lack of natural resources to sustain industry that Finland was forced to make the changes that led to the creation of an information economy inclined to services (Shifflet 2001).

This is all quite astonishing in view of the fact that in the mid-1990s, shortly before it joined the European Union, Finland was still reeling in the aftermath of a severe economic recession. Despite the severity of the crisis, by the turn of the millennium the country was well and truly back on its feet again. This would hardly have been possible without systematic specialization in high technology products and services and a heavy investment in research and development. Political and economic deregulation has also contributed to this process. Facilitated by the early liberalization of the telecommunications market, the latter half of the 1990s saw the aggressive growth of information and communication technologies (ICTs) as a new engine of foreign trade, economic growth and welfare. By the end of the decade ICTs production comprised the largest proportion of export revenues, transcending the significance of the traditional paper and metal producing industries.

Policy choices have been crucial in this context, in two complementary ways. On the one hand, there has been exceptionally broad cooperation in the country between business enterprises, publicly funded research institutes and policy makers. For example, since 1986 the Science and Technology Policy Council of Finland, chaired by the Prime Minister, has had a prominent position in shaping, coordinating and resourcing science and technology policy. Comprising government, industry, science and

labour market representatives, it is a truly exceptional body in terms of its scope (Paija 2001). Other important events of the 1980s included the establishment of the National Technology Agency (Tekes) in 1983 and the Finnish Competition Authority (FCA) five years later. While the former has become the most important source for public technology funding in Finland, the establishment of the latter institution signalled a conscious move towards a truly competitive economy, away from regulative and restrictive policies.

On the other hand, the development of welfare state mechanisms since the 1960s has provided the social cohesion necessary for the nation's adaptation to rapidly following changes. In particular, systematic investment in education has made it possible to meet the demands of the changing industrial environment. By international standards, the level of education, from comprehensive schools through to universities, is high and differences between educational institutions rather moderate (albeit growing), not to mention the fact that tuition fees are hardly charged at all.

Education is also a highly valued asset in Finnish society. Today, roughly half of each age cohort takes the matriculation examination, providing the necessary qualifications to progress to university level studies. Although prospective university students must pass an entrance examination, possibilities to acquire higher education abound. The aggregate intake in higher education institutions (universities and polytechnics combined) corresponds to around 70 per cent of each age cohort. At the same time, however, graduation takes a relatively long time, reflecting a less than optimal use of Finland's most important asset, i.e. its intellectual capital. Nonetheless Finland has managed to recruit enough competent labour in the production of high-value goods and services so that it is able to stand out in the global competition.

A High-Tech Focus

In recent years Finland has often been heralded as a model example of the 'new economy' based on technological know-how and a highly educated workforce. It is suggested that Finland has made excellent use of its innovative R&D and intellectual capital. This view is supported

by recent statistics: Finland has one of the most dynamic economies worldwide.

An important symbolic event in this respect was the nomination of Finland in 2001 as the world's most competitive economy. This was the first time ever that a European country came out on top on the list published by the World Economic Forum (WEF), which in earlier years had always been topped by the United States or one or the other of the 'Asian tigers'. Finland has also fared very well in other ranking lists compiled by the IMD (International Institute for Management Development) and Unice (Union of Industrial and Employers' Confederations of Europe). Although prominent Finnish economists have called into question the meaningfulness of these kinds of contests, criticising among other things the value judgements involved, the fact remains that Finland's competitiveness has skyrocketed since the early 1990s (Rouvinen 2001).

International comparisons also suggest that the technological infrastructure in Finland is well developed. A report published by the United Nations Development Program (UNDP) in July 2001 rated Finland's technological infrastructure as the most advanced in a comparison of 72 countries. In yet another comparison, the Information Society Index (ISI), Finland, along with the other Nordic countries, has also done well in recent years. The view is also supported by official statistics. The Nordic countries today have the highest level of ICT penetration in the OECD family. The latest figures available show that in 2002, about 90 per cent of Nordic citizens had access to a mobile phone, over 70 per cent to a PC and a little over 60 per cent had an Internet connection at home (*Nordic Information Society Statistics 2002*, 7).

Although the figures for ICT penetration in homes are somewhat lower in Finland than in the other Nordic countries, Finland has been a true pioneer in the development of mobile telecommunications and related value added services, equalled perhaps only by Japan. In Finland the wireless success story of Nokia and its subcontractors has had a particularly significant impact, providing a tremendous boost to the economy since the early 1990s (see especially Häikiö 2002; Steinbock 2001). An illuminating fact is that in 1990, the only EU country with a significantly weaker balance of trade in information technology products than that record-

ed by Finland was Spain. However, by the end of the decade Finland's exports/imports ratio was the highest in the EU (Statistics Finland 2001, 120) – thanks in large part to Nokia.

This development has not gone unnoticed in the international press. Since the early 1990s Nokia has enjoyed continuous exposure from the *Business Week* to *The Wall Street Journal*. For example, in September 1999 *Wired*, the semi-official voice of new economy advocates, devoted a 15-page cover story to the company. More recently, in February 2002 *The New York Times* went on to write that due to Nokia's impact Finland has become technologically the most interconnected nation in the world and, within the space of just decade, successfully adjusted its economy to global competition. In addition to Nokia, Linux, an open-source computer operating system invented by the Finnish programmer Linus Torvalds, has made the headlines as a potential alternative to Microsoft's hegemony. These and other less glorified yet important success stories, ranging from biotechnology and life sciences to the design of new materials and production processes, point at a profound change in the structure of the Finnish economy towards a high-tech focus (for an overview of technology-centred export enterprises, see *High Technology Finland 2003*).

Indeed, as Michael Porter argued in his important book *The Competitive Advantage of Nations* (1990), successful firms are seldom alone. Rather, as industrial economies have evolved towards innovation-driven growth, competitiveness increasingly stems from a cluster of firms supporting each other. This has clearly been the case with Finland.

Research and Development

Arguably, one of the main reasons behind Finland's rapid turnaround has been the sharp increase in its spending on research and development, especially in the private sector. According to figures compiled by Statistics Finland (2001, 127–128), there was hardly any change at all during the 1990s in levels of R&D intensity in the major industrial countries. In Finland, however, the R&D input steadily increased throughout the decade. The GDP share of R&D expenditure rose from 2.0 per cent in 1991 to 3.2 per cent in 1999. The only OECD country with a higher figure was Swe-

den (3.8 %), other R&D intensive nations including Japan, the US and South Korea. According to the latest information available, R&D expenditure reached 3.4 per cent in 2001 but then, due to the global economic downturn, the growth levelled off. Nevertheless the development has been impressive by any standards.

The rapprochement between academic basic research and the business world has also contributed to this process, even though public R&D spending remains modest in comparison to the private sector. According to Statistics Finland, privately funded research accounted for 71 per cent of total R&D expenditure in 2001, whereas a decade earlier the figure was 57 per cent. This imbalance is partly due to Nokia's impact. Nokia alone accounts for more than one-third to the country's total R&D input. Although Nokia's own research expenditure exceeds government subsidies by a wide margin, it has clearly benefited from its close cooperation with universities. Nokia's success is as much a result of good business sense as national technology policy, which has emphasized the importance of R&D and higher education as well as the liberalization, deregulation and privatization of telecommunications. It is the interdependence of technological innovation and systematic investment aimed at the development of know-how combined with a liberal and highly competitive telecom market that largely explains the recent success of the Finnish ICT industry.

In this context, the role of deregulation deserves special mention. In Finland the telecommunications sector was opened to competition earlier than in most other countries. In fact, the origins of free competition date back to the late 1880s when the Finnish Senate granted several private licences to engage in telecommunications that circumvented Russian telegraph regulations (Paija 2001, 51). More recently, in the early 1980s the now outdated analogue NMT (Nordic Mobile Telephone) network paved the way for the ongoing digital revolution. Whereas closed national standards failed, the path adopted by the Nordic countries quickly created a mass market of wireless communications that in turn provided impetus for the equipment industry. The pan-Nordic network was important because it provided concrete proof of the potential mass appeal of mobile car phones and handsets.

Initially, however, mobile telecom services were a state privilege, although a number of regional telephone companies had a century-long tradition in providing wired connections. A decisive break took place in 1988 when privately owned operators established a joint venture, which subsequently received a licence to launch GSM services. On July 1, 1991, this venture resulted in the opening of the world's first commercial GSM (Global System for Mobile Communications) network provided by Nokia – years ahead of America and many other countries. Early deregulation allowed Nokia to exploit its home turf as a test laboratory for an emerging 'mobile life style'. It is no exaggeration to say that the rest is history. By 2000, Nokia had become one of the world's most valuable brands and the ICT sector the most important branch of the Finnish economy.

A New Crisis on the Horizon?

On these grounds, Finland's recent development towards a global information society has been at the centre of increasing international interest. For example, in the academic world none other than Manuel Castells, perhaps the most renowned authority on information society research, has showed a great deal of interest in the Finnish case:

'No need to look into future: just look around at courageous efforts such as those taking place in Finland. The Finns have quietly established themselves as the first true information society, with one website per person, Internet access in 100 per cent of schools, a computer literacy campaign for adults, the largest diffusion of computer power and mobile telephony in the world, and a globally competitive information technology industry, spearheaded by Nokia. At the same time they have kept in place, with some fine-tuning, the welfare state.' (Castells 2000, 72)

There is no denying that Castells' words are more than flattering for Finland. Yet there are a number of critical points that I feel obliged to address when evaluating the Finnish 'ICT miracle'. First and most importantly, in the year that the quotation above was published, the hype surrounding ICTs reached its peak with well-publicized results. After a sustained economic boom the stock market bubble burst and 'irrational exuberance', to borrow Alan Green-

span's now famous phrase, turned to bitter pessimism and uncertainty. Soon after the US economy plummeted, the growth of Finland's GDP came to a grinding halt, dropping from a staggering seven per cent in 2000 to 0.7 per cent in 2001. Between 1994 and 2000, average annual GDP growth had been around five per cent, a respectable figure for any advanced economy.

In Finland and elsewhere, the ICT sector suffered from an even sharper turn than the economy as a whole. Although Nokia has consistently outperformed its competitors especially with regard to its profitability, the Finnish ICT sector nonetheless experienced a drop from double-digit growth in 2001 to around two per cent in the following year. At the time of writing, the global economy seems to be recovering rather slowly and the word perplexed perhaps best captures the future prospects of venture capitalists, economists and stock market analysts. In the foreseeable future there is very little hope of the Finnish economy being able to recover to such growth levels that it was accustomed to seeing in the latter half of the 1990s. Unrealistic hopes placed on steady economic growth as well as overt technological optimism are once again *passé*, as has been seen on numerous occasions before in history.

It also seems that Finland has been slipping from its top slot among the elite of information societies. Against the backdrop of a turbulent world economy, the rapid growth in R&D input appears to have peaked, which in turn is likely to slow down the potential for further innovation-based growth. In this respect, Finland's dependency on Nokia is considered particularly problematic. Operating on highly uncertain business terrain, the vendor depends largely upon future promises and technologies yet to be commercially deployed. For example, the move towards third generation (3G) mobile handsets and networks, or the Universal Mobile Telecommunications System (UMTS), has been a much slower process than anticipated, not to mention the prospect of 4G platforms enabling broadband data transmission and ultimately the seamless integration of all modes of wireless communication from radio and television broadcasting to the Internet (see Steinbock 2003, 51-61).

What will happen to the Finnish telecom industry if mobile multimedia, i.e. 3G and subse-

quent developments, prove either economically or technologically untenable, or if for some other reason they fail to generate mass-market appeal? Would alternative technologies such as wireless wide and local area networks (WAN, WLAN) provide sufficient impetus for growth and, most importantly, could the Finnish ICT cluster adjust to such a change? According to Nokia's vision the evolution of mobile phones progresses from voice to data transmission. Nokia's major US-based rivals, Microsoft and Intel, see it the other way around. Their view is that laptop and palm computers (equipped for example with a WLAN link) will seize the market. For the time being, only one thing is certain: the competition is set to intensify considerably. Between 1991 and 2001, Finland did indeed reap the benefits of it being a first-mover in the initial phase of mobile digital revolution, but only the future will tell if the country can translate this benefit into sustainable competitive advantage.

The Real Plight of the Finnish Information Society

From a broader societal perspective, it is worth stressing that a high level of technology hardly makes any country more 'advanced' than others. The remarkable success of Nokia is not the whole story of Finland. In economic and technological terms the 1990s may have appeared to be an exceptionally triumphant decade for the Finns, but if we look at the mundane reality of working life and society at large, a more complicated picture emerges (see also Blom, Melin & Pyöriä 2001 and 2002). Consider the following:

- The level of unemployment has stabilized at close to 10 per cent, which is far from a healthy figure.
- Contingent or precarious employment has become commonplace.
- Those who are employed and economically active are suffering from increasing work-related stress symptoms.
- Income differentials are wider than during the period of industrialization, although still quite reasonable by international comparison.
- The ageing of the population, reflecting the retirement of the baby boom generation com-

bined with increasing life expectancy, is likely to become a serious burden to future taxpayers.

Apart from these new challenges, the question of migration has once again resurfaced. During the recession of the early 1990s the movement from rural areas to urban centres began to escalate; by the turn of the millennium it had reached the same sort of magnitude as was experienced during the 'Great Migration' in 1960-1975, i.e. the period of the country's most rapid phase of industrialization and urbanization. At present regional differences in employment opportunities and in the quality of public services constitute a major social problem, and it seems there is no force that could bring work and economic regeneration back to depressed regions. For example, telework, a well-publicized 'cure' for regional inequalities, has failed to live up to its promises and allow for a geographically even distribution of employment (Pyöriä 2002). Skilled professional (or knowledge workers) in particular tend to concentrate in and around a few major cities, creating an attractive environment for the development of further economic prosperity.

On the positive side, Finland's 'brain drain', i.e. the loss of intellectual capital to foreign countries, is virtually non-existent in comparison to many less developed countries. Even though Finland's high level of taxation has often been the target of scathing criticisms by corporate leaders, most recently by Nokia's CEO Jorma Ollila, and lay persons alike, universal welfare benefits and practically free education up to university level balance the account. In fact, the vast majority of people in Finland appreciate tax-funded services in spite of the costs. In an opinion poll carried out by the Centre for Finnish Business and Policy Studies (EVA) in 2000, 85 per cent of the respondents agreed with the statement that 'although good social protection and other public services are very expensive to maintain, the Finnish welfare state is worth its cost' (Ekholm 2001, 83). This consensus is remarkable in view of the fact that a middle-income wage earner earning less than 30,000 euros a year faces a marginal tax rate of about 50 per cent.

A bigger problem than public opinion in Finland is the country's appeal (or the lack of it) in the eyes of highly skilled foreign professionals and international enterprises seeking new part-

nerships. The competition for top knowledge workers' expertise has gone global, yet the number of foreign professionals in Finland has remained modest indeed. Today, foreign nationals account for around two per cent of the population in Finland. Despite its chronically high unemployment level, Finland will not be able to maintain its competitiveness on its own in an increasingly interdependent and heterogeneous world. Of course, this is not to suggest that Finland or any other country should use any means available to exploit foreign expertise, but the fact is that global success requires global cooperation. A sustainable solution should involve a long-term exchange of expertise between different areas and countries.

In short then, Finland's current situation can be characterized as contradictory. On the one hand, there is intense and continuous public criticism of structural unemployment and other social problems, but the same goes for financing of the public sector, in spite of its conduciveness to social equality. On the other hand, it is feared that the ageing of the population and the shortage of skilled foreign labour will hamper the future development of those high-tech enterprises that are striving for global success. These are the main challenges that Finnish policy makers must address over the next few years. The Finnish information society may appear to be exceptionally advanced by international comparison, but there is still much room for improvement on many fronts.

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