

INFORMATION SOCIETY:

an introduction and overview

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Information society, service society, post-industrial society, technological society, computer society, knowledge society, compassionate society--these are all labels which attempt to make sense of the profound transformation that industrial societies have been experiencing since the mid-1950s. Regardless of label, the central assertion is common--that *industrial societies are evolving into a new form of society and so have no future as classic industrial societies.*

While the first use of *post-industrial* in print dates from 1917, *information society* was not used until 1968. *Service society* was the preferred term in the 1970s; although Peter Drucker used *knowledge society* in 1969 and OECD published a report on *The Information Society* in 1975. However, by the early 1980s, *information society* had come into such common use that it was in danger of becoming a cliché. Witness John Naisbitt's declaration, "*It is now clear that the post-industrial society is the information society*" (Naisbitt, 1982, p. 4). The earliest substantial book on an information-based society is Daniel Bell's 1973 *The Coming Post-Industrial Society: A Venture In Social Forecasting*. Bell does not use '*information society*'.

Even today, there is no widely-accepted formal definition of either the industrial or the information stages of society. However, the following features are commonly pointed at in order to distinguish between them.

Industrial societies are societies dominated by blue-collar workers who add value by labouring in large organizations, under close supervision, using industrial technologies, to process physical materials in order to mass produce physical goods--few of which require high levels of information or information technologies to design, manufacture, sell or maintain.

Information societies will be dominated by team-based knowledge-workers who will add value by strategically utilizing high-quality information in the creation of goods, services and relationships--all of which will require high levels of information and information technologies to create, sell and maintain. All of these activities are facilitated by information technologies.

These descriptions identify the two major developments--one technological, the other human--which have dominated the *information society* discussion. (1) The emergence of powerful, computer-based information technologies which, for the first time in history, make the sharing of information, regardless of its form or content, cheap, easy and distance-independent. (2) The emergence of the requirement that, in order to sustain success, persons, organizations and societies must be able to utilize high-quality information, and to do so strategically.

These are shocking developments when seen against the taken-for-granted world of the mid-20th century. Back then, communications and travel over long distances were occasions for excitement, e.g. personal long-distance phone calls, always operator-dialled, usually meant a birth,

a death or Christmas. Few persons were well-educated and the legitimacy of those in authority was always assumed. Boundary-less networks of self-managed work teams were unimagined,

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because they were unimaginable.

The *information society* discussion announced the end of this cosy, pre-1960s industrial world. The message often had a P.T. Barnum flavour, "*The end of the world as you know it, is coming! Prepare now for an alternative future!*" This tone is understandable, given developments such as these:

- ** In 1954 only twenty computers were shipped to customers in the USA. In 1958, in Europe, only 160 computers were in use. By the early 1990s, 140 million personal computers were in use world-wide and over 400 million microprocessors were embedded in autos, phones, TVs, and appliances. By 1994, Internet had over 15 million users world-wide.
- ** In the mid-1950s, 80 percent of the cost of a new car was for materials and wages. The cost of services and information--design, marketing, engineering, management, health care--accounted for the rest. By the mid-1980s, these ratios had reversed.
- ** In 1956, for the first time, white collar workers outnumbered blue collar workers in the United States. This date, well before the advent of the microprocessor, is used by Naisbitt to mark the arrival of the information society.
- ** By the early 1990s, national politics, professional sports, entertainment and commercial evangelists had all become dependent on their electronic audiences. Those who attend such live performances become set decoration.
- ** By the early 1990s, every form of information--data, text, pictures, sound, art--could be fully digitized and, therefore, integrated. The familiar distinctions among media delivery systems--computers, telephones, cable, radio, CDs, wireless, publishing, movies, and data bases--henceforth, are irrelevant. This realization lies behind the hype about the *information super-highway*.
- ** By 1991, computer hardware and software exports from the USA were almost \$48 billion--more than double the value of exported autos and auto parts (\$22 billion).
- ** In 1993, Americans spent \$341 billion on entertainment and recreation, almost ten cents of every nonmedical consumer dollar and more than the world-wide value of the sale of computer hardware and software (\$300 billion).
- ** Knowledge continues to double roughly every five years.

When understood, such developments herald the end of the known industrial world.

Their significance began to sink into our imaginations in the 1970s. The initial responses were predictable. Academics and futurists wrote an increasing number of articles and books. Reports

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were commissioned by governments, e.g. the 1972 "*Computer-Communications Task Force*" of the Government of Canada. National policy conferences were organized, e.g. the annual Telecommunications Policy Review Conference, first held in 1973. Journals were established, e.g. The Information Society Journal in 1981. Consultants developed management information systems (MIS). Data base libraries were created, e.g. Dialogue and Lockheed in the late 1960s. Computer conferencing systems were developed, e.g. Internet in the 1970s.

In the 1970s and 1980s, many persons rejoiced and, in a style typical of industrial North America, advocated that we welcome the information age--whether or not we understood it. Their message was "*Information is the future. Go east, young man (or woman)!*" Such voices urged us to abandon resource extraction and manufacturing and to move to information-rich, high-tech service industries, i.e. to move to the right (east) along the traditional spectrum of the sectors of an industrial economy (see Figure 1). By this understanding, the information society was reduced to the high-tech sector of an industrial economy. In reality it became a neo-industrial society.

Others worried about the emerging information society, especially whether its impacts could be controlled. (1) Many worried about the sheer volume of information which would be created, stored and accessed. Careless talk of the "*mass production*" of information was common, as was fear of *information explosions* which would lead, inevitably, to *information overload* and *info-glut*. (2) Fear was often expressed about the number of blue collar and clerical jobs that would be lost because of the widespread use of information technologies. Interestingly, the decimation of middle management, now an emerging reality, was seldom foreseen. (3) Also common were fears that one's privacy would be invaded, that individuals would be depersonalized and that a centralized surveillance society might develop. (4) There was also much brave talk about public bodies exerting control over these new technologies and determining who would benefit from their use. The New Information Order discussion among developing nations at the UN was but one example. Few persons then grasped the fact that in an information society such control by governments, or others, would no longer be possible.

It is now evident that the early discussions of the emerging information society were largely shaped by the assumptions and categories of industrial consciousness and culture. This fact should neither surprise nor shame us. Before we deeply understand any new reality--whether culture or technology--it is necessary to live with it for many years. For example, 1909--the year Henry Ford launched his Model 'T'--was fully twenty-four years after the automobile was invented. Yet, even then, few persons had any reliable idea of the social and economic significance of the automobile. So with microelectronics. Remember the microprocessor was invented only twenty-three years ago. We are still in the early days.

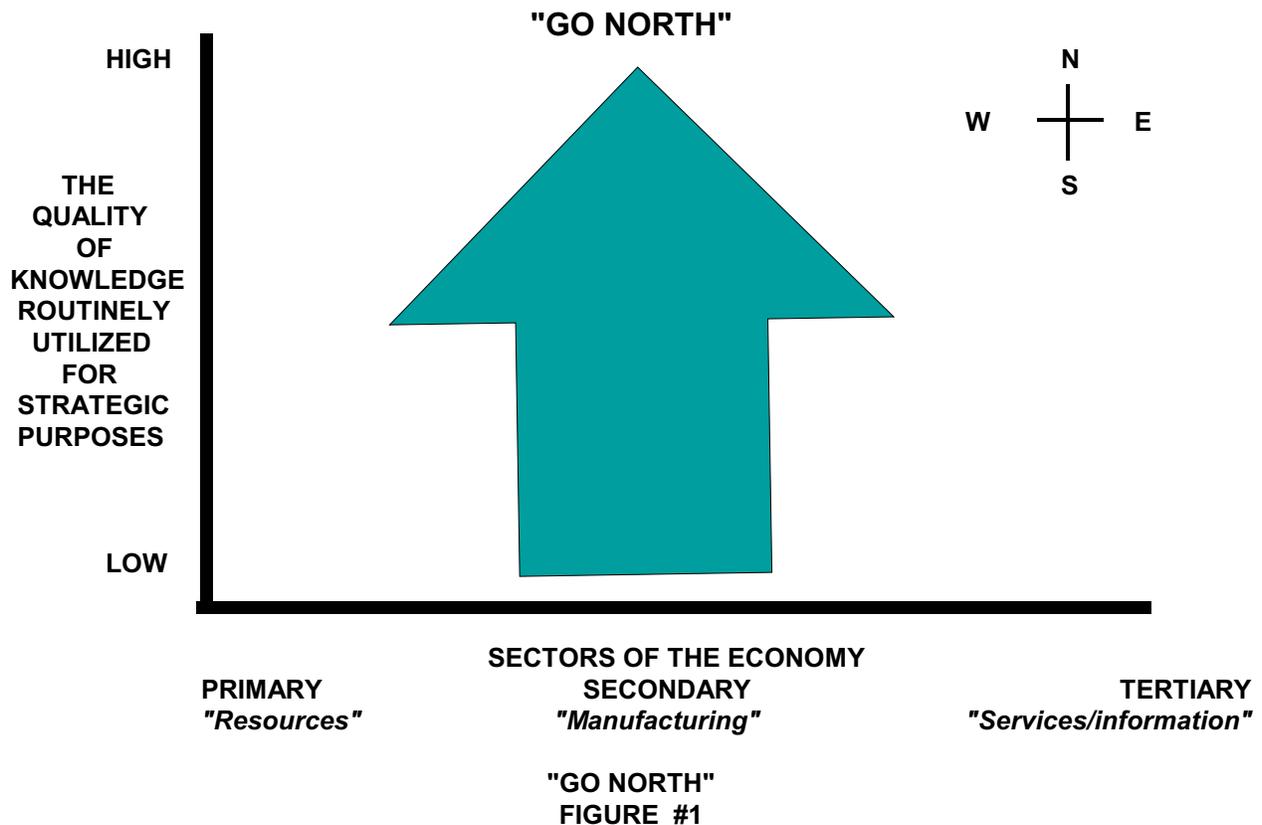
By the 1990s, a deeper appreciation was slowly emerging of the nature of an information society and what it will require of us as persons, organizations and governments. The discussion in the 21st century will be dominated by considerations such as these:

(1) Because knowledge is inherently a personal, social and cultural creation, an information

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society is ultimately more, not less, personal than an industrial society. This is good news. However, it means that an information society requires new epistemological foundations--a new understanding of what knowledge is, how it is created, and how validated. Knowledge can no longer be seen merely as *complex information*. Rather, knowledge is *information that has been internalized by persons*. For example, the content of this encyclopedia is knowledge to the authors. But, to a reader, it is only information--until it has been internalized. Objective knowledge, then, can no longer be defined as impersonal truth, but only as shared knowledge that has been tested and agreed-upon by a self-critical community.

(2) Knowledge-in-use, not merely the possession of information, is the key to sustained success in every area of life. The new message, in Hugh Wynne-Edwards' phrase, is, "Go north!". (See figure #1.) Regardless of the sector of the economy in which one is active, the new challenge--as person, family, organization or society--is not merely to possess high quality information, but to digest it into knowledge and put such knowledge to strategic use.



(3) The focus of our attention is becoming the human experience of creating, testing and using knowledge, not merely the technologies by which we possess and transmit information. This human dimension is revealed in the growing preoccupation with the formation of cultures, whether in families, organizations or societies, that are able to elicit and sustain self-critical learning and self-monitored performance.

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(4) The deepest question hanging over the *information society* discussion is this: "*In a world in which many citizens are well educated, widely travelled and have easy access to high quality information, how can we arrive at sound judgements which are respected, and thus accepted as binding throughout the whole community?*" It is increasingly evident that this standard can no longer be achieved by either the assertion of one's authority--technical or structural--or by the use of majority votes. Unconvinced minorities now undercut virtually every majority decision. Yet a community will disintegrate and become ungovernable if it does not have the capacity to create, trust and act on knowledge that is widely accepted. (See Rosell, 1992.) If we are to survive as free persons and societies, we must develop a much deeper capacity than is now possessed by any industrial society, to democratically co-create and agree upon that which, for us as persons, organizations and a society, will be true and binding knowledge.

This challenge, growing up into *deep democracies*, is the ultimate challenge of the transition to an information society.

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