

Outside the Net: Kiribati and the Knowledge Economy

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Abstract

The Information and Communications Technologies of the last three decades have revolutionized the way in which societies and economies interact on both a global and a domestic scale, with concomitant impacts on the ways in which business is conducted and people and communities interact. A series of studies undertaken by the World Bank from 1997 to the present suggests that those countries which do not take up to the fullest possible extent the technologies now available and enter what has been termed the 'Knowledge Economy' will be 'left behind' in the same way as the Third World, which did not experience the industrial revolution. Two of the distinguishing characteristics of the Knowledge Economy, however, are that first, unlike the industrial revolution it does not require the same massive injections of capital into physical plant and R&D, and second, that countries may 'leapfrog' into the Knowledge Economy without having gone through industrialization. Many such developing countries (Mauritius is a prime example) have taken that leap and are now functioning effectively in and with cyberspace. However, not all countries are participating equally in this interconnected world and this paper examines one country which has not taken up the challenge of the Knowledge Economy - the Republic of Kiribati which straddles the equator in the heart of the Pacific Ocean. Kiribati is an island nation, and its people are of the sea, with fishing as the mainstay of their subsistence lifestyle. Nets are part of every-day life - but the Net is outside their world. It is suggested that a conservative culture and a paternalistic form of government - itself a reflection of Micronesian cultural values - combine to create an environment where ITC is not pursued actively - or indeed at all. There are significant cultural and socio-political barriers that inhibit the uptake of ITC and some of these factors are explored in this paper.

Introduction and Methodology

The Knowledge Economy

In the past decade, as Information Technology and Communications (ITC) have penetrated into every corner of the globe, some societies (mainly western) have adopted the technologies in such a comprehensive way that they have re-shaped their economies and their architecture for knowledge management. The creation of world-wide networks like Internet, the ubiquitous presence of desktop computers in most western societies, falling prices of telecommunications globally with progress in satellite technology, and advances in materials science and electronic engineering have created new products and services, new businesses and new opportunities unknown just ten years ago. A recent World Bank report (1997) suggests that as much as seventy percent of the global economy is now extra-national, crossing (even disregarding) national boundaries at will. Globally, knowledge is increasingly recognized as a key resource which contributes to economic development. Unlike more traditionally recognized inputs to economic growth such as labor and capital, knowledge once created can be widely diffused and used on a non-exclusive basis throughout society if proper incentives and capabilities exist, among individuals as well as institutions. As countries recognize the importance of proper incentives and capabilities to create, diffuse and use knowledge, many have begun to craft strategies which can enhance the contribution of knowledge to economic efficiency, social welfare and sustainable growth.

This is called by some the knowledge revolution, because many of the new opportunities are in industries and institutions dependent upon scientific and technical knowledge and instant knowledge of world markets. They are reliant upon advanced organizational theory and financial systems and on timely acquisition and use of information. They have forced a re-structuring of established industries and led to the creation of scores of new types of enterprises which are knowledge-based (National Research Council and World Bank, 1995). Knowledge, like currency, it is considered, must be circulated to be of any use. Only through use will its value be realised. Knowledge in both its explicit and tacit forms is learned through an interactive process, sustained through shared social networks and connected organizations. Building a networked learning society requires some degree of proper coordination and connected organizations. Many countries have initiated such processes of collaboration among different spheres of society - government, private sector and civil society - beginning with crafting a collective vision of how knowledge can be used more effectively for economic development.

Many countries, however, perhaps the majority according to a World Bank survey (1995), have only recently begun to respond to the globalization of the knowledge revolution; and technological and market developments are progressing so rapidly that many of them have fallen behind. Just as in an earlier age, those countries which participated in the industrial revolution

quickly achieved economic and technological supremacy over those countries which did not (or could not) participate, so the same gap is likely to be repeated in the context of the knowledge revolution.

The Sociology of Knowledge

The emphasis of most of the analysis of this phenomenon has been related to its economic impact and in terms of globalization, a new descriptor, the 'Knowledge Economy', has been advanced in the past decade to label the radical change in the ways in which the world conducts its business. However, the adoption of the technologies necessarily requires a new approach to the way in which knowledge itself is managed and controlled. In many countries it requires a new *culture* of knowledge, one which encourages and facilitates the widest dissemination of knowledge. And this is often in stark contrast to societies which are rigidly hierarchical, where class difference is often based on control of knowledge and where the power of the elite is utilised to withhold its dissemination or to restrict public access to only those aspects which will reinforce and maintain their power and authority.

Even in democratic countries the architecture of knowledge management reflects the architecture of power of course; but most western democracies have structures for both public and private sector dissemination of information.

In such countries much public service practice is designed to encourage discussion, consultation and debate about policies and developments - not always willingly, certainly not perfectly, but there is often an expressed policy of intent even if in practice there is an implementation gap (Dunsire, 1978). It may be standard practice, for example, for departmental files to be unclassified, so that a specific decision must be made to classify and therefore restrict circulation of a particular document or piece of information. In a country like Australia it is easy to forget that only twenty or so years ago, the public service did not operate in such an open way and that, as is the case with many of the small South Pacific Island nations with recent histories of independence, a very deliberate decision had to be made to *declassify* something, for all files were regarded as automatically closed to the public.

There may be legislation through a 'Freedom of Information' Act which provides enabling procedures for members of the public to attempt to gain access to government-held information. The free press will often play a 'watchdog' role: its investigative journalism is seen as a key agency in knowledge management, its capacity to disseminate information widely through television and hard copy newspapers providing a very real pressure point to which governments (and the private sector) are often forced to respond.

The private sector may also face a similar environment of knowledge culture in which its activities and actions may be held to public account at various times and in prescribed circumstances. Thus, stock exchanges will be supported by legislation designed to ensure propriety in operations by listed companies; a format for relevant and timely disclosure of information considered to be in the public interest; and a system of penalties for redress if codes of practice are not honored. Again both the free press and the courts system will operate, in the context of the private sector, as key participants in knowledge management.

In a range of developing countries the architecture for knowledge dissemination is not so open. With reference to the South Pacific, for example, five of the six countries which participated in the World Bank knowledge assessment surveys in 1997/98 have elected governments but all of their public services operate on the basis of a closed system, and public access to basic data such as population census details may be difficult to obtain. Even within government ministries there are obstacles or a reluctance to share information despite legislative requirements for various departments to provide data to others. Usually databases are 'managed' on the basis of information being 'secret' rather than a valuable source of information that could be readily accessible. The societies in which they are situated militate against a readiness to see the benefits of an open approach to information dissemination. Tonga has one of the few surviving ruling monarchies in the world with most decision-making vested solely in the person of the king; much information is held by the privileged few and the concept of public access to public service data is not sanctioned.

With regard to the media, Vanuatu and Kiribati have no free and independent press or radio (neither has television), although interestingly national parliamentary debates are broadcast 'live'. In Tonga, the heavy hand of the Government over its free press (little more than a struggling weekly newsletter of less than 12 pages) stifles public debate about any contentious issue: radio remains firmly in government control. In Fiji the freedom of a once vigorous press has been heavily circumscribed since the military coups of 1987, and radio and television remain firmly under government direction. It remains to be seen what transpires from the present coup in Fiji. Samoa similarly has limited freedoms. Only in Solomon Islands, where a single editor has been a vigorous champion of freedom of speech for the 18 years since he founded a newspaper, is there a real degree of press autonomy; but the national radio (there is no television) responds to all government directives. In all six countries, however, radio is perhaps the major medium of transmission of educational material, in contrast to western radio stations where entertainment tends to be the dominant theme.

None of the six Pacific Island countries has a coherent national strategy for adoption of the technologies of the knowledge economy. Computerization is limited (non-existent in some ministries in all countries). Access to Internet, e-mail and the World Wide Web is very restricted. Telecommunications services and facilities are monopolistic, expensive and limited. And technical expertise is also lacking (Sofield et al., 1998).

In addition to rigid governmental structures, controlling regulations and conservative bureaucratic practices in the Pacific Island countries which may constitute barriers, and the lack of appropriate technical equipment and infrastructure, there are cultural inhibitors to a rapid adoption of the concept of the knowledge economy. Melanesian, Micronesian and Polynesian cultures emphasize oral tradition in which the status of the chiefs and elders is highly respected. The Polynesian societies of the South Pacific, such as in Tonga, Samoa and Fiji, are stratified hierarchies of inherited royal chiefs; the Melanesian countries (e.g. Solomon Islands, Vanuatu) where leadership is achieved rather than ascribed, and the Micronesian countries (e.g. Kiribati) are more egalitarian societies. But in general it may be stated that they are slow to accept innovation.

To the extent that knowledge may be defined as "any and every set of ideas and acts accepted by one or another social group or society of people - ideas and acts pertaining to what they accept as real for them and for others" (McCarthy, 1996, p. 23), then it is of course culturally grounded. Its working premise is that social reality is in process and is formed out of the prevailing knowledge of a society or group of people. The sociology of knowledge is thus the sociology of culture, redefined and re-presented as a synthesis between the social determinants (knowledge is socially determined: e.g. Marx, Engels, Durkheim, Mannheim, etc.) and the social 'orderers' (knowledge constitutes a social order: e.g. Berger and Luckmann, 1996). The latter asserts that social reality is not a social fact in its own right but is something produced and communicated, its meaning derived in and through these systems of communications (McCarthy, 1996).

Attention is thus given to the production of knowledge, in turn giving rise to studies of observable properties of knowledge, such as symbols in texts, modes of communication, and forms of speech linked to specific institutional frameworks (Peterson, 1994). Culture is seen as "the signifying system through which necessarily a social order is communicated, reproduced, experienced and explored" (Williams, 1981, p. 13). "Interest in the problem of meaning is linked to a methodological framework that is neither causal nor explanatory but semiotic. The semiotic study of culture is directed towards the study of symbolic and signifying systems through which a social order is communicated and reproduced. These signifying systems and social practices are what make up a culture and its structure of meaning" (McCarthy, 1996, p.

20). Without wishing to go into any greater detail about a subject which has produced a great many texts, it is sufficient here to note that the knowledge economy with its reliance upon electronic forms of communication and delivery is central to the sociology of knowledge as culture, and that cultural barriers may be a major inhibitor to a wider application of the technologies.

Kiribati-Research Methodology

In 1997/1998 the World Bank undertook a National Knowledge Economy Assessment of six South Pacific countries, with a view to providing assistance to allow them to move into the Knowledge Economy. This paper focuses on just one of those countries, the micro-state of Kiribati. The methodology adopted for the World Bank's exploration of the knowledge economy in Kiribati was based on the 'Porter model' (National Research Council and World Bank, 1996) which provides a useful framework for examining major attributes and issues regarding current resources and activities. The model inter-relates the following components of a dynamic operating environment:

- the physical and social attributes of the economy, the natural resources and basic infrastructure;
- the structure of telecommunications, information technology and information industries, and the way they devise strategy and compete;
- aggregate and industry demand conditions;
- the supporting and related industries;
- the role of government; and
- chance events.

In the case of Kiribati, the role of government over the private sector is so dominant that the emphases of Porter's model required some adjustment. Social factors are also a major determinant of the way in which the economy functions so that the socio-cultural value system requires elevating to a more prominent position in the analysis. Combined, these two elements change the nature of aggregate and industry demand conditions through formal and informal regulation, legal/official and socio-cultural sanctions, thereby diminishing the role of supporting and related ITC industries: the latter are in fact almost non-existent in Kiribati in their international context. Government monopolies in telecommunications, power generation and distribution, radio broadcasting, news media and a number of other areas eliminates competition.

Some forty interviews were held with key people in the government, private and social sectors of Kiribati, supported by five meetings, workshops and focus groups with more than 150 participants, to collect information for an inventory of Information Technology and Communications (ITC) and in sounding out informants on potential applications of ITC, possible barriers to better or novel applications of ITC, and possible facilitators.

Constraints of space determine that this paper will not follow the entire structure of the Porter model but will focus on those aspects that are relevant to an examination of sociocultural and sociopolitical factors which inhibit take-up of ITC in Kiribati.

Kiribati-Some Key Defining Features

Size and Location

Thirty-three small atolls lie astride the equator in the central Pacific, some 2,200 km north of Fiji, 5,000 km northeast of Brisbane, Australia, and 3,000 km west of Hawaii. It consists of three main groups, the Gilbert, Phoenix and Line Islands, extending 800 km north-south and 3200 km east-west. Except for the isolated island of Banaba (formerly Ocean Island) which is of raised coral limestone, all the other islands are atolls. Their highest point above sea level is 4-5 metres and few of the islands are more than 500 metres wide. An exception is Kiritimati (Christmas Island), the largest atoll in the world with a land area of 388 km².

As atolls are composed of unconsolidated coral sand and rubble, they have low fertility and no surface water. There are no known mineral reserves. Botanical speciation is low and coconut palms and pandanus trees dominate the vegetation cover on most of the atolls, with breadfruit trees, paw paws (papaya) and banana clumps providing fruit. Terrestrial animal species are also very limited and the main species are sea birds, some land crabs and a variety of small lizard.

Although the country's land area totals only 810 km² the islands generate an EEZ (Extended Economic Zone) of more than 4.8 million km². The reefs and waters of Kiribati are rich in corals and fish and Its EEZ contains some of the richest tuna resources in the world.

History

The 16 islands that make up the Gilbert Group plus Banaba are believed to have been inhabited about 3000 years ago by Micronesian seafarers, whose origins, according to linguistic archaeology, lie in south-east Asia. Micronesian peoples inhabit the string of archipelagoes stretching south from the Philippines through the Northern Mariana islands and Guam, west through the Federated States of Micronesia, the Marshall Islands and Nauru, and south again to Kiribati and a single (northern-most) island in the Tuvalu group.

The first European discovery of the Gilberts group was by the Spanish explorer Quiros in 1604. Captain Thomas Gilbert in 1788 discovered several more islands while sailing between Port Jackson (Sydney Cove) and China, and the central group of atolls were named after him. European explorers, traders and whalers made contact with the islands in the eighteenth and nineteenth centuries and several coconut plantations were established. In 1892 the Gilbert Islands came under British rule when it was declared a Protectorate. In 1915 the Gilbert and Ellice Islands were formally annexed as a colony. Administrative headquarters were established on Tarawa, which remains as the centre of government today.

In October 1975, the Gilbert and Ellice Colony was separated into the Gilbert Islands (Kiribati) and the Ellice Islands (now Tuvalu). By 1978, the Gilbert Islands had achieved full internal self-government with Britain retaining jurisdiction over foreign policy, defense and internal security. Moves towards full independence were taken in 1978 when the House of Assembly unanimously approved proposals outlining the basis of an Independence Constitution which previously had been widely discussed throughout the Colony. The terms of the Constitution were agreed upon at a constitutional conference in London in November 1978 and independence was achieved on 12 July 1979.

Population

The census of 1995 enumerated 77,658, but the actual population was estimated at 80,000. The estimated March 2000 population of Kiribati is about 88,000 (source: Kiribati Government statistician). Since the end of the Second World War in-migration to Tarawa from the outer islands has resulted in some 40,000 or almost 45% of the population residing there. The small island of Betio in South Tarawa has a population density of more than 1,800 persons per square kilometre, making it the highest in the South Pacific. Other atoll groups by contrast are almost uninhabited. The rural drift to Tarawa is expected to continue, exacerbating the already serious problems of waste disposal, sanitation, water shortages and environmental pollution.

Spatial Elements

Tarawa has no recognisable CBD (Central Business District) although it has four council areas where government administration and business activity tend to be somewhat concentrated. Betio, the southernmost island of the atoll, is the country's major port, the site of the main power station, several government departments, the Maritime Training Institute and a variety of commercial operations. Bairiki island, 3 km from Betio, is the main Government Administrative Centre. It houses the President's Office and residence, the Parliament, a range of government ministries, the National

Court, the National Bank, the Post Office, Telecom headquarters and a market. Bonriki island, about 15 km further around the lagoon, is the location of the largest and only 3 star hotel in Tarawa, the Otintaai, (60 beds); the Ministry of Education, the Teachers Training College; and the National Hospital. Bikenibeu island, a further 5 to 7 km beyond Bonriki, is the location of the airport, the Ministry of Natural Resources and the National Fisheries Training Institute. A single road runs from Bonriki to Betio, with numerous causeways linking the islands.

The narrow elongated island nature of the atoll means that there is simply not enough land to locate all ministries and services centrally and this accounts for the distance between major points. The pattern of settlement is a contiguous sprawl of villages from one end of South Tarawa to the other, interspersed only occasionally with government ministries, institutes, church administration headquarters, or other centres of administrative or commercial activity. North Tarawa, by contrast is more sparsely populated and is accessible only by boat because no causeways have been constructed between the islands.

Society and Culture

The village society of Kiribati is centered around the *maneaba*, a very large structure which embodies the whole of society: the *kainga* (extended family), the village and the island as a whole. The word *maneaba* is made up of two words, *manea*, meaning to accommodate, and *te aba*, meaning both people and land. It thus incorporates two categories of existence: the people who live on the land and the land on which they live. The *maneaba* is 'owned' by all members of the community; all will participate in its construction and maintenance (Tabokai, 1993).

Each discreet community on Tarawa has its own *maneaba*, so that they may be seen every two or three kilometres. The National Parliament is also constructed as a *maneaba* and is locally termed the *Maneaba ni Maungatabu* (meeting house of the nation).

The *maneaba* is multi-functional. It serves as a meeting house where the community will discuss all important matters; as a 'court' of justice where miscreants will be arraigned before the community and punishment decided; as the place for community entertainment and dancing; and as accommodation - canoe travellers can stop at night and according to island tradition are entitled to enter the *maneaba* and spend the night before proceeding on their journey the next day. It is the place from where the elders uphold the traditions and cultural norms considered essential to maintain community values and accepted behaviour. Every family has its allotted sitting position

within the *maneaba*, (called *boti*), thus every individual has a place (Crocombe and Mason, 1988).

The importance of the *maneaba* to the functioning of society cannot be over-estimated. Because the resources of the atolls are so limited, meetings take place regularly to ensure that all members of the community have their basic needs met. Ideas are processed, news is communicated, information is given, conflicts are resolved, justice is sought. The individual is subordinated to the community. Once only *unimane* (elders) could speak in the *maneaba* but now younger leaders in the churches, in politics, in government administration and those with professional and technical expertise, including women, may all participate actively in discussions. Rule and authority are applied, not by domination of a few, not by majority vote, but by consensus. Once a decision is pronounced in the *maneaba* then it must be respected. The power of the *unimane* over island affairs has been significantly reduced but they still exercise a very strong moral authority over their clans and communities.

The *maneaba* actualizes the mono-culture and mono-class system which exists in Kiribati. The unity which flows from the *maneaba* is based on the political concept that the community must be responsible for its own management as a collective; and in this context the paternalistic overtones of present government in Kiribati today should be interpreted as much as a legacy of Kiribati cultural heritage as of colonial imposition (Sofield, 1998).

Co-existing with the openness of society as exemplified through the *unimane* and the *maneaba* is a secret world of magic, rarely displayed to outsiders but always present. For i-Kiribati traditionalists magic is enduring and powerful, its secrets known to only a few. Those who possess magic/traditional-sacred knowledge are commonly accepted as being imbued with power that may be used to create propitious circumstances (e.g. for a bountiful fishing trip, a good harvest of taro) or alternatively to harm others. This knowledge is bound up in their myths and legends which contain an element of ideology. Christianity is pervasive throughout Kiribati, however, and there is thus a disinclination to concede the existence of such secret knowledge. It is nevertheless a society in which this kind of knowledge is equated with the capacity to exercise certain kinds of power over fellow beings.

All land in Kiribati is owned by clan-based families. The exception is some of the outer uninhabited islands where first expatriate planters and then successive governments have exercised ownership. The *maneaba* and the *unimane* have traditionally played a central role in determining land ownership and resolving boundary disputes. Because of population expansion the inheritance system has resulted in continuing fragmentation of land holdings, and even by South Pacific standards the situation is chaotic. The

complex land tenure system and accompanying government leasing system present a particularly difficult problem for a rational approach to future growth and development (Sofield, 1998).

Kiribati is in general a conservative society with an inbuilt cultural resistance to sudden change. Its official "Visitor's Handbook 1997-1998", produced by the Kiribati Visitor's Bureau in the Ministry of Commerce, Industry and Tourism states, for example, that:

Culture and lifestyle of the people have remained largely unchanged for centuries. The people are friendly and very hospitable, fun-loving, easy going and somewhat languorous. We hope you will appreciate the values we consider important, family, hospitality, peace and tranquillity, time for conversation and sharing and time to relax. We put these values ahead of work, we do work but we have not become slaves to it and the pressures of modern life (p. 2).

I have dwelt at some length on the maneaba and its functions and symbols because crucial values emanate from it. The maneaba itself may have lost most of its powers of governance to the modern political structure but the value system it espouses has become institutionalized. Those values shape social views pervasively and there are consequential notions and assumptions which may act as barriers to a willingness to adopt ITC.

The Economy

Key features of the Kiribati economy include:

- the very large size of core government relative to the economy;
- the large public enterprise sector;
- constraints to private sector development; and
- minimal levels of foreign investment.

Macro-Economic Characteristics

The majority of i-Kiribati are subsistence villagers. Fishing is the major activity, supplemented by coconut/copra production and taro 'gardens.' Only 19 per cent of the 15-55 age group were in paid employment in 1995, with the public sector accounting for 91 per cent of these employees (Kiribati Government, Medium Term Strategy 1997-2000). There is little direct tax but considerable earnings from external sources, of which there are three main ones:

- fishing licence fees for DWFNs (Distant Water Fishing Nations) such as

Japan, Korea, and Taiwan, which have about 400 tuna boats registered to fish in the EEZ each year;

- seamen's remittances - 4,500 Gilbertese have passed through the German-run and partially German-funded Maritime Training Institute over the last 20 years. It turns out certificated Able Seamen for the international shipping sector and currently there are about 500 working on ships around the world. Their remittances inject significant foreign exchange into the national economy; and
- the Revenue Equalisation Reserve Fund (RERF). This is a fund derived from royalties and compensation from the former phosphate mining operation on Banaba Island set up prior to independence. Most funds have been placed overseas and investment earnings from the RERF have been used to cover government recurrent cost budgets.

To these must be added receipts from aid donors, which are very high on a global comparative per capita basis. Australia, Japan, Britain, the European Community and New Zealand have been the major aid donors and their inputs have accounted for 100 per cent of the development budget (capital costs of projects) in some years.

In 1998, GNP totalled AUD\$90.9 million, almost 40 per cent higher than its GDP at AUD\$65.6 million (Kiribati Government, Medium Term Strategy 1997-2000).

The Public Enterprise Sector

The central government budget is the dominant feature of the Kiribati economy, to an extent which very few other countries even approach. Government expenditure is very large in relation to overall economic activity. In 1998 it accounted for more than 90 per cent of GDP at factor cost. This compares with about 25 per cent for lower middle income countries on a global basis, and about 35 per cent for upper middle income economies.

In Kiribati this is only possible because of the high level of overseas earnings which are channelled into the economy through the Government. The public enterprise sector is very large and operates in virtually all areas of the economy, including those which would normally be the domain of the private sector in non-socialist economies. These include wholesaling and retailing, shipping and domestic airline operations, fishing, manufacturing, hotel operations, banking and insurance.

Government monopoly status exists in key sectors of the economy as a result of statutory measures and market conditions. This situation makes it difficult for the private sector to compete with public enterprises which are not required to generate commercial rates of return, or are actively prevented from

doing so under non-profit legislation. Statutory monopolies exist in telecommunications, and power generation and distribution, while de facto monopolies exist in commercial banking, radio broadcasting, oil distribution, gas supply, domestic aviation, housing construction and rental, insurance and postal services.

The formal private sector is very small, accounting for only 9 per cent of paid employment in 1998.

Economic growth has been stagnant since independence and GDP per capita is reputed to be the lowest in the South Pacific. It has varied since independence in 1980 from a peak of AUD679 in 1982 to a low of AUD544 in 1990. In 1998 It stood at AUD596 (in constant prices of 1991). The economy has been unable to sustain growth and the higher variations have been due to one-off factors such as high copra prices. One point worth noting is that the sectors which have demonstrated fairly constant growth have been those in the public sector - electricity (owned by the Government), telecommunications (owned by the Government), public housing, and government itself. Overall however, the public enterprise sector has shown an average return on net worth of just 0.4 per cent per annum during 1991-1998. Paid employment has not been able to keep pace with the population increase. In the 10-year period from 1985 to 1995, while the population increased by 16,000 and the potential workforce (those aged between 15-55 years) grew by 7,500, numbers in paid employment increased by just 1,055 (Kiribati Government, Medium Term Strategy 1997-2000).

The Media

The Government has a monopoly in broadcasting and newspapers following the closure of the country's only private newspaper in 1996.

The broadcasting station provides a daily schools program from 9 am - 11.30 am on weekdays, and news services at mid-day and each evening. A range of international news is re-broadcast by the local network (Voice of the BBC, Voice of America, Radio Australia, Radio New Zealand), and these provide an important avenue for creating some local awareness of major international events and incidents. They also provide much useful information about a variety of topics considered of value locally (e.g. environmental issues, global warming, nutrition, health, child-care, agricultural extension, and many more). The radio broadcasts also provide live coverage of the two annual parliamentary sessions and so contribute to a degree of openness in Kiribati which is consistent with the way debate and discussion occurs in village communities.

The radio also provides daily 'service messages' and this is the major means of communications right around the country. Service messages will be issued by members of the public, community organizations and government authorities. They may range from advising relatives to meet a boat on a certain date to collect cargo; the birth or death of a relative; the arrival of a sports team in an outer province; the announcement by the central hospital of the results of a blood test; the schedule for a government immunizations visit by nurses; the dismissal of a school teacher and his/her replacement; and one hundred and one other things. Western standards of privacy are alien to these 'service messages' which will be listened to by thousands of people daily. Few of these announcements will be free, and they provide a useful source of income for the government broadcasting authority. The service messages constitute the single most important channel for quick communications with friends and relatives and the general public around the archipelago. As such they provide an essential service which transcends the use of radio in more developed societies. It is of course only uni-directional, i.e. transmission out from the center with no capacity to relay replies or responses.

Radio ownership is relatively high (an estimated 7,500 radios or one for every 12 persons), but of more importance than ownership is the fact that about 70% of the population listens to radio at least once per day. It takes only one operational radio in a village to achieve a high national audience since that radio will be regarded as an informal community asset. While cash may be scarce in most rural communities, priority (according to informed local observers) is given to the purchase of batteries for transistor radios. With fifty per cent of the population now living in Tarawa, radio listening is popular and while the radio station has a nominal closing time of 10 p.m. it usually continues broadcasting until it receives no more requests for its nightly music program, often well beyond midnight.

The Government newspaper appears only once weekly, and delivery to outer villages may take months, so that much of the information will be outdated (compare this with daily radio broadcasts). An edition numbers only 1,700, but each copy may be read by more than 100 persons. Copies of newspapers become valuable sources of reading material for schools, especially in the outer islands. They thus constitute an important educational tool.

Both the radio station and the newspaper are subjected to informal political pressure: staff are expected to conform to and report uncritically only government policy. Investigative journalism (which is surprisingly healthy and strong in the Solomon Islands, for example) is not practiced in Kiribati at present.

The Private Sector

As noted the private sector is very small. There are fewer than 200 private businesses registered in the entire country and in 1996 they employed only 672 people (Kiribati Government Statistician). There is a slight trend towards some expansion at present although in the past the private sector has contracted in line with factors such as declines in the price of copra, and it has not been able to demonstrate consistent growth. Bus operations, second hand clothing, retailing, marketing fish and vegetables and food stalls are examples of businesses undertaken by private entrepreneurs. Tourism has potential in different areas such as homestays, bungalows, fishing trips, and guided tours, and a second travel agency opened in 1997; but by and large the tourism potential remains unrealized.

There are only four private businesses that deal with IT. One of these is a general hardware/importing company and only one deals solely in IT. Combined, they employ fewer than 10 people.

In terms of non-governmental organizations (NGOs), the Protestant Church, the Catholic Church and the newer, smaller Seventh Day Adventist Church are major providers of education, health and welfare services. Together with several non-sectarian NGOs such as the Foundation for the Peoples of the South Pacific (FPSP), and several regional organizations (University of the South Pacific, Forum Fisheries Agency) they employ about 500 people. The five resident diplomatic/aid missions (Australia, Britain, China, Japan, New Zealand) employ about 50 other people directly and up to another 200 at any time on various aid projects.

Government

It is axiomatic that the type of government and the structures which it constitutes will provide the framework for economic and social development. Kiribati has a democracy with general elections every four years. Its involvement in the commercial sector, however, is as extensive as in socialist countries, the former Marxist structure of Mozambique offering just one comparison.

Political Structure

On independence, Kiribati adopted a rather different structure from other former British colonies in the South Pacific in that it combined the position of head of government and head of state in a single President. However, it placed strict constitutional limitations on the degree of power exercised by any one individual and the President may serve three consecutive terms only. Kiribati has the status of a republic within the Commonwealth of Nations.

While political parties exist in name, they have not as yet played a significant role in the political process. Individuals do not generally run for parliament as members of a particular party although members of their communities will be aware of their affiliations. Individual capabilities and personality tend to play a greater role in the election of members. It is common for 'parties' to be formed only after elections among members who consider that they may have similar views on a range of issues and who subsequently register a name. This party affiliation does not always extend to disciplined groupings within the *Maneaba ni Maungatabu*. There are signs that this situation may be changing, however, as Opposition groupings appear less fluid than in the past (Van Trease, 1993).

Once the general election is completed for the 41 seats, the new Parliament meets as an electoral college and selects a Speaker from outside its members. It also nominates three or four of its members who may then stand for President. These candidates then engage in a short campaign and the general electorate again goes to the polls in a single, direct, first-past-the-post election. The President will then select a Cabinet from parliamentary members.

Administration

The Kiribati Government currently consists of 12 ministries, several of which have responsibilities directly encompassing aspects of ITC. These include the Ministry of Information, Communications and Transport (MICT), the Ministry of Works and Energy (MWE), and the Ministry of Commerce, Industry and Tourism (MICT). The Ministry of Finance and Economic Planning (MFEP) has primary responsibility for the overall direction of government finances and planning. The Ministry of Education has responsibility for human resource development and training, and its activities are of course central to any development of a knowledge economy.

Towards a Knowledge Economy

Factors which are essential to the development of a knowledge economy according to the Porter model include the following:

- a political system which is stable and transparent in its decision-making and which is accountable publicly;
- an economic environment which encourages and rewards enterprise and effort;
- a regulatory framework which supports the development, flow and acquisition of information and knowledge systems;
- appropriate levels of human, physical and capital resources to service the

- adoption and growth of new knowledge industries; and
- widespread acceptance of the value of ITC and a commitment to the development of knowledge systems from political, commercial and social leaders.

(National Research Council and World Bank, 1996).

In this context the situation in Kiribati might be described as pre-industrial and barely embryonically oriented towards the knowledge economy. It fails on all five of Porter's fundamentals. There are significant barriers to the ready adoption of ITC on a scale which could provide national benefits, although (as with any society) there are small progressive elements which may be willing to adopt the technologies of knowledge and able to apply it within their limited spheres of capabilities and influence. Without dynamic leadership on the issue, which in Kiribati can come only from the political system rather than the private sector, there will be no readiness generally to embrace the knowledge economy.

The barriers are considerable and should not be underestimated. An attempt is made to set out the most important ones below. While it is possible to categorize them into political, economic/commercial, and social/attitudinal, in fact they tend to intermesh. For example a social attitude may be reflected in a politician's stance which will be translated into an economic policy.

Actual and Potential Barriers to adoption of ITC in Kiribati

Role of the Private Sector versus Government and its Public Enterprises

In many countries around the world, the private sector has led the charge towards the knowledge economy. An entrepreneurial spirit has been fostered and innovative thinking has been encouraged, leading to many novel applications of ITC and niche markets being identified and exploited. In Kiribati, however, as the foregoing sections have outlined, the private sector is weak and will remain subordinated to public enterprises for quite some time into the future. The reasons are historical, socio-cultural, economic (particularly when considering economies of scale) and political. Any change that does occur is likely to be only at the margins.

The main reasons for drawing this negative conclusion are based on characteristics of the socio-cultural and political inter-mix of Kiribati. While the Government has a policy of increased privatization it is a product of expatriate 'expert' economic rationalists which pays scant heed to local values and thus political realities. For example, to state that "recognition that future growth in the economy must be led by the private sector as the first step in developing the right "mindset" towards private business" (National Planning

Office, Ministry of Finance and Economic Planning, August 1997), is to ignore the fact that the existing mindset is embedded in a culture which has survived for hundreds of years in a resource-scarce environment by disavowing 'private' and 'individual' rights and placing communal needs before private needs. It ignores the fact that the political reality is of a government which is in power precisely because of its anti-privatization policies: it campaigned and won office on a platform of stopping the very small (but significantly symbolic) privatization on which the previous government had embarked. It is ironic that at the same time the privatization policy was being prepared in 1997/98, the Government rescinded a tender (which had been accepted) by a private investor to take over the loss-making Otintaa Hotel (the only relatively modern, three-star, hotel in Kiribati), which is owned and run by the Government.

The privatization policy appears to western minds as a rational and sensible approach to the nation's problems; but to many i-Kiribati it is revolutionary, not evolutionary. The emphasis on the private sector is interpreted as 'proof' of an attempt to make a fundamental shift in i-Kiribati society away from the community to the individual.

As noted above, i-Kiribati society is one in which communal values are accorded much greater weight than individual rights and concerns. One manifestation of this in the modern state is the pervasive role of government in many areas which only rigidly ideological socialist states have matched. Thus the Kiribati Government not only provides common services such as water, sewage and electricity, schools, the hospital and clinics, but it is also directly involved in a range of business activities which would normally be considered the preserve of the private sector. These include the import and retailing of groceries, hardware, building supplies, and fishing gear. It owns and operates the only large hotel in the country. It owns and operates the only supermarket of any size in the country. It owns and runs a construction company, a garment factory, a biscuit factory. It owns fishing boats and the only freezer down on the wharves, from which it retails the fish. It is a society where 'family' is a concept which extends to a paternalistic role for, of, and by government. The Government thus dominates the society, the economy and the formal private sector. The President was elected because he campaigned on the need to 'protect' government assets, in contrast to his opponents who advocated a degree of privatization.

An important point about this situation is that unlike most socialist states the comprehensive involvement of the government in commercial operations has not been imposed by a political elite but promoted through popular mandate, reinforced at successive elections since independence.

Attitudinal Factors

These values find a further manifestation in constraints and restraints on private business activity. It is summed up in the phrase that "one must not become too shiny" - a resistance to anyone becoming too successful and being perceived to becoming too wealthy, too 'big'. Conspicuous consumption and displays of affluence are universally condemned.

Traditionally, any person who became too "shiny" might find his house had 'accidentally' burned down while he was out fishing; or his canoe might have drifted away on a high tide during the night (although nobody else's canoe had disappeared). A successful businessman will not build a big house and if he does buy a new car he will not allow it to be washed and polished. In contemporary society arson remains a not-uncommon occurrence. This extended to the criminal burning of the Australian High Commissioner's first residence in 1989 because it was larger than the President's house and was viewed as "too shiny." Contemporary opposition tends to take different forms. For example, with regard to a successful business, people may simply stop being customers and transfer their patronage elsewhere. The Government may issue tenders to alternative suppliers even though the alternatives may be more costly, have lesser skills and less experience. In either case the result is the same - too much success may jeopardize continuing success.

Because of Government control of many businesses, competition may be difficult and in some cases impossible, particularly where price regulation also incorporates government subsidies. Government has the advantage of being able to obtain aid funds to insert new equipment into its plant (e.g. a Japanese government gift of a new inter-island passenger/cargo ferry in 1996) thus avoiding capital costs which confront the private sector. To quote one leading local businessman, Mr. Billy Schutz, "few solid business enterprises will be able to develop, thus depriving the community of the competent services which it requires."

Coupled with these attitudes is the fact that there is a strongly conservative sentiment in this society which accepts change only gradually and often with reluctance. This has both socio-cultural and psychological elements and together they constitute an environment which holds that computerization and ITC are too sophisticated and too complex for Kiribati.

Out of this grows a second prevalent attitude; if ITC is not suitable for the capital then it certainly cannot be relevant to the needs of the outer islands which are even more technologically unsophisticated than Tarawa and where only a handful of administrative centres have any power. There are no plans to electrify villages in Kiribati.

A third related attitude is ignorance of ITC developments combined with a simplistic concern that to embrace computerization would mean the loss of

control over many aspects of operations and activities. This is a Pacific version if you like of the old argument about robots taking over from *homo sapiens*, and one which has deep roots because of the society's over-riding emphasis on face-to-face relationships. Politicians, the key decision makers, assume their role because of the ability to 'win' in a contest which has more to do with interpersonal relationships than political platforms, where the *kainga* (extended family, clan) constitutes the base for election; and it is not unusual to find a substantial number of those elected who have little formal education. This may be manifested in an ignorance of and reluctance to accept new technologies, and a belief that ITC is irrelevant to the needs of the 'grassroots people.' There were senior people, including those in Government information services, for whom the World Bank team had to define the term "ITC." This lack of even rudimentary understanding constitutes an obvious barrier to its introduction.

In Kiribati there has been no use made of the Internet by either the Government or the private sector or any individual. When the World Bank team showed government interviewees that there was in fact a comprehensive Web page on Kiribati which could be accessed globally, and which had been placed there by a former expatriate resident of Tarawa currently resident in Japan, there was incredulity, concern (especially about its accuracy and its unofficial status) and suspicion. Some government officials regarded it as an 'invasion' of national privacy.

Kiribati leadership at neither the political nor commercial levels appeared to fully understand the role and potential benefits of embracing ITC. The Government did not have an enunciated policy about ITC, although it had a planning goal of achieving improved communications through 'modern' technology. However it is important to note that there are many i-Kiribati who have achieved significant levels of education and understanding about ITC. The reluctance to take up ITC cannot be attributed to an absence of any understanding about its importance nor the interconnectedness of countries and economies through the various processes of globalization. Rather we must look to the total socio-cultural environment in which these technocrats must live and operate to appreciate that until one or several of them achieve high leadership positions and have concomitant power to pursue an ITC agenda Kiribati will remain by and large outside the Net.

Information Infrastructure

In 1998 there were pockets of computers used for data bases in several different ministries (e.g. Finance, Planning, Labour, Customs and Immigration, Attorney-General's Department). For example, the Attorney General's Department had four stand-alone PCs (word processing and spreadsheet) and was supervising the transfer of all i-Kiribati and UK common law (which

forms the basis for much of the legal environment in Kiribati) to a computerized database. The Commonwealth Law Society was assisting in this process. There was no Internet connection and A-G staff operated a scanner to work through the hundreds of volumes of law reports. In most cases not only could the computers in ministries not 'talk' to other ministries where the information was essential to the conduct of their business (e.g. Customs and Immigration to Inland Revenue and Ministry of Commerce; the Planning Office for virtually all databases in various ministries), in most cases they could not even 'talk' to computers on the other side of the desk in the same ministry. Sometimes the equipment and/or software programs were incompatible. In 1998 there was not a single Limited-Area-Network (LAN) in Kiribati, let alone a WAN (Wide Area Network). The computers were in effect simply expensive typewriters and the ministries relied upon paper systems for the transmission of information.

There were surprising numbers of professional and support staff in government ministries, public enterprises, the churches and NGOs with some computer training, in the main covering specialized data bases and word processing. In 1998 the World Bank team estimated that there were 600 active computers in Kiribati and probably two to three times that number of persons with at least some computer training (Sofield, 1998).

Often the data bases held by Government authorities were 'managed' on the basis of information being 'secret' rather than a valuable source of information which should be readily accessible. Two main reasons were adduced for this secrecy. The first was the culture of the former British colonial government where the files of the government bureaucracy were simply not open to the public and where confidentiality was paramount. After independence and the replacement of the British civil service with an indigenous civil service the British bureaucratic culture continued as the accepted norm. The second is the acceptance of 'secret business' in traditional society and this translated into a prevailing attitude in Government by both politicians and bureaucrats about many kinds of Government-held information. The databases are thus difficult to access not only because of technical deficiencies (e.g. the lack of LANs), but because of cultural inhibitors. This is a marked contrast to other types of information which are regarded as public and where there is a paradoxical degree of openness (e.g. *maneaba* decision making, the radio service messages system).

Openness in Society

If a free press signifies an openness in a society which is conducive to knowledge flows then Kiribati has something of a problem. The government-dominated radio and press in Kiribati may be considered less than effective in knowledge transfer and lacking a certain credibility, particularly

on economic issues. The Government appears intolerant of independent commentators analyzing parliamentary debates and performances of government policies and politicians' actions. The government has in recent years attempted direct intervention to influence the broadcasting service and press when it has been perceived to be critical of government, although the broadcasting service has been set up as a statutory authority with legally guaranteed independence from government.

This Government-led bureaucratic secrecy is in marked contrast to the openness of communities and village based societies, where the *maneaba* is a key instrument for ensuring the dissemination of knowledge to the community as a whole. The 'service messages' system of the national radio is also a manifestation of this openness. However, it is possible to see echoes of the 'knowledge-is-power' syndrome of secret/magic knowledge where that kind of information is necessarily restricted to all but a few. It may be adduced that government secrecy is therefore not only a matter of inherited bureaucratic practice from former colonial times, nor a matter of political opportunism/expediency but also an approach to information/knowledge management which has a cultural 'fit' with traditional values about the appropriateness of disseminating information and sharing knowledge.

Teaching and Learning Institutions

Education is a top priority for the Kiribati government. It has a range of institutions dedicated to transferring knowledge in ways that will contribute to the education and training of their nationals for productive employment. Word processing courses are taught but there is no national policy on ITC in the context of national education goals. It was of interest that out of a 1998 combined input of more than AUD\$7 million aid for the education sector from Japan, Australia, New Zealand and the European Community, none of it was for the provision of computers or associated training in ITC.

There was no computer training provided in any of the Government schools. The Tarawa Teachers Training College provided no training in computer use for its annual intake of around 70 trainee teachers. However both the Catholic Church and the Church of Jesus Christ of Latter-day Saints had equipped secondary schools with one PC classroom each and they had provided relevant training for four teachers. The Tarawa Technical Training Institute (TTTI) had a well-equipped computer training lab with 20 PCs and offered one-week word processing courses and standard software training courses in addition to computer training provided as part of its general programs.

It is worth noting that the Medium Term Strategy for the education sector had defined goals and objectives according a high priority to teacher training, classroom upgrading and the provision of teaching aids and textbooks, but

there was a complete absence of any reference to Information Technology and Communications training.

By the same token, language is not perceived as a barrier in itself. In Kiribati, English and Gilbertese are used as the languages of instruction in schools, and English for written Government communications (although not necessarily for Parliamentary debate) and for business. Since English is the language of international technical literature and most communications on the Internet, competency in English can contribute to the access necessary for the knowledge economy to flourish. While only a relatively small percentage of the population possesses a high standard of English competency, fluency in English is sufficient for many more to be able to access technical literature in English and international communications on the Internet.

Inadequate Infrastructure

An area of major constraint to development in general is the inadequate provision of infrastructure and infrastructural services. Power supply is erratic and failures occur regularly (this is of course of particular relevance for any move into ITC). Telephone services are poor (50 faults per 100 lines) and international calls especially are expensive (Sofield, 1998). Utilities costs are high. These deficiencies reflect to a significant degree the lack of incentives for performance in the public enterprise sector, government policies which act as constraints on efficiency, a lack of accountability, and a lack of prioritization in aid programming. Telecom Services Kiribati Ltd, the government provider, has a monopoly and has spent more than three years so far investigating in a desultory way whether it should provide an Internet connection for the country. At present the only way in which i-Kiribati users may access the Web is by placing a long-distance telephone call to a server in Australia, New Zealand or Fiji and paying the normal rates of AUD\$12 per minute for a long distance telephone call (Sofield, 1998). The inadequacies in the power supply and telecommunications create fundamental barriers to greater application of ITC and must be addressed before any real progress towards a knowledge economy can occur. A further disincentive in Kiribati is that computers, associated hardware and software are classified as luxury items and attract a 25% import tax. This obviously affects their affordability and constitutes a depressant to the use of ITC.

Conclusions

The case study of Kiribati demonstrates the key role which socio-cultural factors may exert over the use and adoption of ITC. In Kiribati the imposition of western value-laden support for ITC runs counter to the society's preference

for a paternal form of government, central control over the media and an emphasis on community rather than the individual. This accords with some of the findings from the first International Conference on Cultural Attitudes Towards Technology and Communications (Ess and Sudweeks, 1998). Contrary to the vision of a Utopian electronic global village where everybody will be able to talk to everybody else wherever they are, in Kiribati the reality is very different. There are major infrastructure deficiencies which contribute to the lack of ITC use in Kiribati, but it would be a false assumption to conclude that simply solving problems of electricity supply and inadequate telecommunications facilities would usher in an electronically wired Kiribati able to communicate both internally and externally at the tap of a computer keyboard. There are deeply entrenched culturally bound values which are far more significant in determining the future of ITC in Kiribati.

Postscript, March 2002

A search of the WWW revealed two web sites for Kiribati which had Kiribati as their origin (there are now several web sites on Kiribati written and posted by expatriates living outside Kiribati in countries such as New Zealand and the United States). Of these two sites only one was active and was posted by the private entrepreneur operating Kiribati's retail computer equipment outlet. Interestingly his web site also hosts the home page of the Kiribati Ministry of Tourism. In response to my query to him as to how Kiribati may have moved in the past three years to take up the technology of the knowledge economy, his answer (after eighteen failures over six days to make a connection) was as follows: "Telecom Services Kiribati Ltd did need some pushing but eventually gave in and started with Internet services at the end of 1999. The server at TSKL has a bank of 32 modems and leases a 128kb backbone to Australia. There are over 400 users in Kiribati. Charges are A\$ 32.00 per month and A\$ 8.00 per hour. The service is very poor since a couple of modems are broken down and one needs to ring approx. 10 times until connection is made." (10 Feb 2001). It would seem that while Kiribati responded initially to the 1998 World Bank initiative, it did so only reluctantly and, as the present state of the service demonstrates, it has been less than enthusiastic in embracing the technology. Indigenous socio-cultural values remain as an impediment to its further development and ITC remains in a pre-embryonic state in Kiribati.

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