SMEs and Government Policies on ICT

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Abstract
Small and Medium Enterprises (SMEs) are widely seen as a key facet of industrial policy. Governments are also anxious to promote Information and Communication Technologies (ICT) within private and public sector organisations (including the government itself) and the Internet and e-commerce more generally within society. Governments have a compelling need to promote and nurture use of ICT amongst SMEs and enhance their capacity to utilize ICT. SMEs themselves have particular problems of limitations of resources and expertise in harnessing the full potential of ICT and governments must seek ways to help them overcome these constraints. At the same time, globalisation is resulting both in wider opportunities for SMEs, but also dangers, particularly increased competition. This paper gives an overview of the current state of global utilization of the Internet, and surveys the range of policies and instruments open to governments.

Introduction
Many governments around the world see Small and Medium Enterprises (SMEs) as a key facet of industrial policy. Sometimes, as in the Republic of Korea it is part of a policy to fragment large (and powerful) conglomerates. In most cases the basic thrust is two-fold. Firstly, SMEs are seen as important creators of employment. Secondly, and in some contradiction to the first, they are seen as incubators of innovation, enterprise and high-tech, high-productivity. Governments are also anxious to promote Information and Communication Technologies (ICT) within private and public sector organisations (including the government itself) and the Internet and e-commerce more generally within society. This is seen as the wave of the future and one which, ramified through the ‘new economy’, is seen as essential for international competitiveness.
It follows therefore that governments have a compelling need to promote and nurture use of ICT amongst SMEs and enhance their capacity to utilise the Internet, and, as appropriate, embark on e-commerce.
SMEs themselves have particular problems of limitations of resources and expertise in harnessing the full potential of ICT and governments must seek ways to help them overcome these constraints. At the same time, globalisation is being pushed forward by a mix of technological, economic and political forces, and this results in both wider opportunities for SMEs, but also dangers, particularly increased competition. However the political framework of
globalisation, and especially the World Trade Organization, limits the powers of governments to protect domestics SMEs.

This paper gives an overview of the current state of global utilisation of the Internet, and surveys the range of policies and instruments open to governments, from financial support to programs assisting SME participation in government e-procurement. It covers government policies in the USA, Australia, New Zealand and selected Asian economies such as the Republic of Korea, India and China.

**Global digital divide**

The global digital divide is much discussed but data on it is fragmentary, of variable quality, using different, and often unspecified methodologies. The situation is changing fast and although the overall configuration is relatively clear in broad terms, with leaders and laggards fairly obvious, the date of specific surveys and reports can be crucial when considering detailed data. The number of people connected to the Internet is a case in point.

This brief paper utilizes two main sources of statistical data. The first is the latest Human Development Report produced by the United Nations Development Programme [75]. The second is the International Telecommunications Union [38].

Fig 1 shows the ranking of selected countries in the UNDP’s Technology Achievement Index (TAI). This composite index brings together data on technology creation (patents granted, receipts of royalties and license fees), diffusion of recent innovations (internet hosts, high- and medium-technology exports), diffusion of old inventions (telephones, electricity) and human skills (mean years of schooling, gross tertiary science enrolment ratio). The countries are grouped into five categories – leaders (18), potential leaders (19), dynamic adopters (26), marginalized (9) others (90). The TAI is not calculated for the last category, because of lack of data, and they are not ranked.
This is unfortunate because there are some surprising countries included, such as Switzerland and Russia. Nevertheless, the TAI gives an authoritative, and reasonably comprehensive, picture of the global divide in respect of technology as a whole.

The TAI incorporates an Internet measure, sourced from the International Telecommunications Union (ITU). The ITU provides more detailed data, some of which is used in Fig 2 which looks at figures for percentage of the population who are Internet users. Here we take the top 11 (so as to include the United States) and the bottom 10. The percentage ranges from 59.7865% for Iceland to 0.0010% for Democratic Republic of the Congo.

For reasons of space the many other measures of Internet and ICT use are omitted here but one in particular should be noted, and that is number of users. This is a very important measure because network effects, whereby the value of a network to its participants grows exponentially with the number, and critical mass are key components for market viability. Up until now the United States has had the largest number of Internet users (though users as percentage of population is more modest) and so has provided the largest market, disproportionate to its share of the global economy. English became the natural language of the Internet. However, that dominance is now slipping [72]. China, although only a small part of its population has Internet access 16,17], has a very substantial and fast growing user population [73] The Chinese language
area (China, Taiwan, Hong Kong, Singapore and the Chinese Diaspora) has its own dynamic, not merely because of rapid growth and high per capita GDP in parts, but also because of sheer size [18].

FIG 2: THE INTERNET DIGITAL DIVIDE 2000 – TOP 11 AND BOTTOM 10

All data on ICT, and the Internet, is contestable and there are a number of different estimates published [17,22]. Countries move up and down the league table according to the source used, or the date examined. Some countries, such as North Korea, are difficult to categorize. Nevertheless, the general configuration is clear. There is a wide, and growing, disparity between countries which are participating in the digital economy and those which are not. In between top and bottom there are a number of countries, such as Russia, which have strengths in some areas but weakness in others. The reasons are complex and are not entirely explained by GDP [17] though that is the major factor [37]. No country, however poor, can afford to disregard the development power of ICT, properly harnessed. As the United Nations Development Programme argues 'While it is undeniable that many of the high-tech marvels that dazzle the rich North are inappropriate for the poor South, it is also true that research and development addressing specific problems facing poor people—from combating disease to developing distance education—have proved time and again how technology can be not just a reward of successful development but a critical tool for achieving it [75:iii]. Similarly, no country however rich, can ignore ICT, if for no other other reason than its impact on employment [36]. SME/ICT policy address both of these
issues. SMEs are seen as innovative, flexible and important engines of growth on developed and developing countries alike [16]. They are also seen as key creators of employment [25].

**Government policy options**
Government policy options in respect of increasing SME utilization of ICT may be conceptualized in three dimensions:

- SME Policy
- E-commerce/ICT/S&T policy
- SME ICT/S&T policy

**SME policy**
SME policy broadly aims to facilitate SME generation and growth irrespective of industry and ICT use, although ICT may form part of the criteria. In other words, it is not specially aimed at either high-tech SMEs, or enhancing the ICT utilization of SMEs. There is often a high degree of social policy focusing, on women, minorities and depressed areas. The US Small Business Agency is an example [70]. Services range from financing (loan guarantees, export financing, pollution control, etc), equity investment, Federal Government Contracting assistance (procurement), Research and Development, Business Information Services, Advocacy (eg seeking to ameliorate compliance costs imposed by other agencies), Disaster assistance, Veterans Assistance, Assistance for Native Americans, Assistance for exporter, assistance from small and disadvantaged businesses (‘businesses owned and controlled by individuals claiming to be socially and economically disadvantaged’), Assistance for women, empowerment zones/enterprise communities and welfare to work
E-commerce/ICT/S&T policy
This covers a wide range of policies which are aimed at enhancing national e-commerce, ICT utilization or Science and Technology (S&T), but which are not SME-specific. Dimensions include
- Infrastructure
- Tax policies
- Education
- R&D
- Standards
- B2B promotion
- E-government
- E-procurement

There is only space to touch on, and give examples, of a few of these. Whilst these measures are not aimed specifically at SMEs they are often of great importance to SMEs given their general lack of resources and expertise.

Telecommunications infrastructure provides, of course, the basis for e-commerce and the Internet. The Internet is a child of US government policy, even though Al Gore’s claim to paternity might be unsustainable; the defense industry has a stronger case. Government spending in infrastructure, whether through defense, education or R&D remains important. There is also a concern to lower telecommunications costs. Kirkman and Sachs argue that liberalization is the key to reducing telecommunications costs [44]. However, environmental factors also play a large part. The high population density of the Asian city states of Singapore and Hong Kong, and concentrated urbanization in South Korea, where high-rise apartments are common, contribute to the rapid development of broadband; Hong Kong’s use went up 56% in the first half of 2001[8], and Korea boasts the highest penetration of broadband in the world [40]. What government can do when this high density of affluent users is absent is a more difficult issue.

South Korea is an interesting example of pro-active government policy aimed at developing e-commerce and ICT usage [6]. The Government has put forward a ‘e-commerce roadmap’[29, 39] in order to ‘to lay foundation for e-Korea, knowledge-based society’ [33]. In August 2001, President Kim Dae-jung pledged 10 trillion won (US$7.8billion) to support R&D in key next generation sectors: information technology (IT), biotechnology (BT), nano technology (NT), environmental technology (ET) and cultural technology (CT) [42]. The aim is make Korea a leader in IT in Asia [42, 45,46]. Korea is not alone in this of course. Another example in a very different context is India’s promotion of IT to spur rural development [26].

Since governments are usually the largest economic and social actor in countries – and the United States Government, despite the rhetoric, does not eschew that role – their utilization of ICT has a profound impact. They can be an important source of emulation for SMEs. If
governments can save costs by purchasing online [10, 11] so can SMEs which, even in the United States, have been slow on the uptake [54]. The US government sold $3.6billion online in 2000, through 164 websites [9,12], again a powerful example to SMEs. There are many ways in which SMEs have to interact with government, of which taxes is the most obvious example. Payment online, with consequent savings in cost and time, is but one way in which governments can stimulate SME ICT use. Governments can also provide strong incentives for SMEs to go online voluntarily to interact with it. Accessing the wide range of services governments supply, such as export intelligence and SME support services, is one example. An even more powerful tool is the use of e-procurement.

Governments are huge consumers of goods and services and e-procurement strategies can be formulated not merely to provide costs savings to governments, and hence to tax-payers, but also to stimulate SME participation. For example, the Australian government’s e-procurement strategy ‘is designed to satisfy a number of Government policy objectives including ../.. encouraging the uptake of electronic purchasing and payment by suppliers to Government by demonstrating the benefits to suppliers, especially small-to-medium sized enterprises (SMEs); ../.. In seeking to achieve these goals, the Government will be guided by the following key principles: ../.. Minimise barriers of entry to Government markets for both small agencies and SMEs. ../.. Maintain consistency with and support for relevant Government policies, particularly: ../.. ensuring at least ten per cent of purchases of each agency are from SMEs.’ [1]

Facilitating SME involvement in government e-procurement is also an important way in which governments can seek to foster local industry and yet still be compliant with World Trade Organization regulations.

The corollary of that is to facilitate SME exporting through involvement in trade portals. A recent example is Trade New Zealand’s joining of a Swedish-led government trade portal called eMarketServices.com [58].

SME ICT/S&T policy

Such is the overlap between SME and ICT promotion that specific programs aimed at promoting ICT utilization within SMEs are relatively rare. Where they exist they are usually a sub-set of a larger program. An example is the ‘E-commerce for Small Business’ program of the Australian National Office for the Information Economy (NOIE) [28]. NOIE states that ‘Small and medium-sized enterprises (SMEs) are vitally important to Australia’s economic and social prosperity. Increasing their awareness and take-up of e-commerce is a Government priority’. The office undertakes research, coordination and consultation to encourage SMEs to take up e-commerce which it defines broadly as ‘the use of computers and electronic communications networks to do business’[28]. It does not appear as if NOIE offers financial, administrative or training support.

A contrasting example is China’s ‘Innovation Fund for Small Technology-based Firms’ (Innofund) which is aimed at what we might call ‘high-tech startups’. Innofund ‘is a special government fund set up upon the approval of the State Council. As a policy guide fund, the Innofund facilitates and encourages the innovation activities of STFs and the transformation of research achievements by ways of financing. In the meantime, it works to bring along and allure
investment from the whole society so as to promote the establishment of a new investment mechanism conforming to the objective laws of market economy for technological innovations of STFs. Without aiming at profit-making for itself, the Innofund is to contribute to the national economic structure adjustment and the growth of economy, taking revenue increase and job creations as the reward.’ [3]. Innofund is apparently an agency of the Ministry of Science and Technology (MOST) and is part of China’s S&T drive, rather than being a component of e-commerce strategy.

Conclusion
This brief survey of the global digital divide and how governments might facilitate the utilization of ICT by SMEs in order that their countries are on the right side of the divide necessarily raises more questions than it answers. The global use of ICT is complex and not well documented. It varies greatly between countries and within countries. SMEs similarly are difficult to define; the common criterion of number of employees brings together enterprises at opposite ends of the ICT spectrum. [16]. The problems that SMEs encounter are relatively well known, at least in ‘developed countries’ [78]. How to address those problems, and the role of government in that, is another issue. It is part of an ongoing international research project looking at SMEs and ICT. [23]. Effective utilization of ICT by SMEs will become increasingly important for their survival and growth, even in ‘ICT-poor’ countries. And in those countries the modest, unpretentious and cheap harnessing of the power of ICT by SMEs will make an increasingly important contribution to national development.

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### TABLE 1: TECHNOLOGY ACHIEVEMENT – LEADERS, POTENTIAL LEADERS AND DYNAMIC ADOPTERS

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Source: UNDP Human Development Report 2001 [75], Table A2.1

### TABLE 2: THE INTERNET GLOBAL DIVIDE 2000 – TOP AND BOTTOM COUNTRIES

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<td>5</td>
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Source: International Telecommunications Union [38] Re-calculations are mine

1 A subject which I am addressing in a paper for the NZ Asian Studies Society conference in November 2001