新潟国際情報大学

創立10周年記念シンポジウム　2003
情報システム学科

NUIS 10th Anniversary Symposium 2003
Department of Information Systems.

地域情報化と大学の役割

Local Informationalization and the role of Universities.

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of International and Information Studies

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新潟国際情報大学開学10周年記念学術講演・シンポジウム記録（情報化関連）の上梓にあたり

新潟国際情報大学長　武　藤　輝　一

新潟国際情報大学開学10周年を記念して、平成15年６月８日に記念式典及び祝賀会が開催された。また前日の６月７日にはこの記念事業の一環として、新潟市内の朱鷺メッセにおいて学術講演会・シンポジウムが開催された。学術講演会・シンポジウムは“国際化”と“情報化”の二つの主題に関連して開催されたため、本誌には“情報化”に関連した学術講演会・シンポジウムの内容が記載されている。

Peter Droege教授（シドニー大学）の講演では、情報化が都市デザインについてこれまで果たした役割と、これから齎される成果などが話され、Edward C. Lesage教授（アルバータ大学）と国領二郎教授（慶應義塾大学）の講演ではそれぞれカナダ及び日本における電子自治体、情報化社会の現状や将来について話された。そしてパネルディスカッション“総合IT構想について”では、山口直人氏（本学助教授）の司会で中野雅至氏（厚生労働省）、河内康志氏（北陸電々株式会社）、吉岡和彦氏（新潟日報社）、高木義和氏（本学教授）の官、産、民、学４氏による講演と討議があり、新潟における地域総合ITセンターの可能性が話された後、これに関連しながら、本学教員の努力の必要性や本学学生への教育のあり方についてもご意見を頂いた。

“情報化”という広い分野ゆえに、焦点を絞ってお話頂き、ご討議頂いたが、会場の皆さんからは大変役立つものであったとのご意見を頂くことができ、本学の教職員、学生にとっても示唆に富むお話であった。演者並びに司会者の皆さんに心から謝意を表したい。

シンポジウム開催にあたって

新潟国際情報大学情報文化学部
情報システム学科長　竹　並　輝　之

新潟国際情報大学は開学10周年を迎え、記念行事の一つとして平成15年６月７日に朱鷺メッセにおいて学術シンポジウムを開催致しました。シンポジウムの統一テーマは、「国際化・情報化と大学の社会的役割」とし、午前に統一テーマに基づく招待講演、午後に２つのセッションを行いました。全体プログラムは別紙のとおりです。その中で情報システム学科は、セッション２「電子自治体の展望と大学の役割」を主催しました。このセッションでは、e-Japan戦略のもと急速に情報化を進めようとしている行政システムの現状と課題を直視し、利用者としてのわれわれ市民は、それにどのように対応していくべきか、大学の果たす役割はどこにあるのかを議論しました。本報告書は、そのときの講演及びパネルディスカッションの内容をまとめたものです。

シンポジウムには、電子政府の先進国であるオーストラリアとカナダから２人の教授をお招きし、講演をしていただきました。オーストラリア・シドニー大学のピーター・ドローゲ教授による「情報化の進展と都市デザイン」とカナダ・アルバータ大学のエドワード・ルサージ教授による「カナダにおける電子政府の現状と課題」です。講演内容は、本文を参照していただきたいと思いますが、われわれが地域社会の情報化を考える上で示唆に富んだお話を聞くことが出来ました。

国内からは慶應義塾大学環境情報学部の国領二郎教授に講演「情報技術による未来社会の構築」をお願いし、さらに地域社会の情報化について各方面で活躍しておられる方々（厚生労働省・中野雅至氏、北陸電々・河内康志氏、新潟日報・吉岡和彦氏、本学・高木義和教授）によるパネルディスカッションを行いました。コーディネータは、本学・山口直人助教授が行いました。ここでの議論を通して、地域社会の情報化の展望と課題及びその中で大学の果たす役割が議論されました。

日本における行政の情報化も、e-Japan戦略の掛け声の下、住民基本台帳ネットワークがスタートし、多くの中央省庁では電子申請、電子入札システムが稼動をはじめています。政府、自治体のホームページも徐々に充実してきているように見受けられます。しかし、コンサルティング会社のアクセンチュアが発表している電子政府の世界ランキング（平成15年４月）によれば、カナダが１位、オーストラリアは５位、日本は15位となっています。この差はどこから出ているのでしょうか。ランキング上位の国の情報化は、利用者の立場にたったシステムが出来上がっているところに違いがあるようです。カナダでは、自分のやりたいこと（例えば起業）から、それに関係あるあらゆる省庁のサービスが検索できるようにホームページが作られているそうです。日本にも、省庁や所管部署の壁を越えて、利用者が必要としているサービスを提供できるようなシステムが求められているのではないでしょうか。

一方、地方自治体の情報化はどうでしょうか。少数の進んだ市町村を除いて、非常に遅れているといわざるを得ません。特に住民サービスのIT化は手付かずなのが現状です。市町村合併特例法による合併が焦眉の急で、それが終わってからでないと情報化の検討が出来ないのが実情のようです。しかし、競争相手のない自治体では、住民からの強い要望がないと、なかなか情報化が進まないのが現実です。われわれ大学の役割は、利用者である住民の要望を反映し、真に住民が必要とする地域のIT化を研究し提案していくことにあると思います。

おわりに、本シンポジウムに参加いただいた講演者の皆様及びパネラーの皆様に厚くお礼申し上げるとともに、この企画の実現に尽力いただいた大学法人、教職員の方々に心より感謝いたします。

新潟国際情報大学10周年記念　学術シンポジウム・プログラム

＊太字部分が本報告書に掲載されております。

日時：2003年６月７日（土曜日）　９:00会場

場所：朱鷺メッセ

統一テーマ：国際化・情報化と大学の社会的役割

第１部　学術講演会（４階　国際会議室）９:30～12:00

司会：區建英（本学教授）

武藤本学学長あいさつ

基調講演

非覇権的サイバー空間の構築　アジア太平洋「共生」の条件として

武者小路公秀（中部大学教授）

特別講演

Ⅰ　グローバル化とアジア太平洋「共生」

ブライアン J. ヘッス（アメリカ・ノースウェスト・ミズーリ州立大学助教授）

Ⅱ　情報化の進展と都市デザイン

ピーター・ドローゲ（オーストラリア・シドニー大学建築学部長）

槻木本学情報文化学部長あいさつ

第２部　シンポジウム　13:30～17:30

セッションⅠ（３階　中会議室301）コーディネータ：佐々木寛（本学助教授）

テーマ：新世紀アジア太平洋「共生」の条件

小沢情報文化学科長あいさつ

報告　13:35～15:15

①　東アジアの歴史認識問題（回顧）

梅雪芹（中国・北京師範大学歴史学部副学長）

②　東アジアの国際問題（現状）

ヴァレーリ・ディカレフ（ロシア・極東大学副学長）

③　東アジアの地域協力（展望）

安栄洙（韓国・慶熙大学国際教育委員長）

パネルディスカッション　15:30～17:30

コメンテーター：芳井研一（新潟大学教授）

松本ますみ（敬和学園大学助教授）

広瀬貞三（本学教授）

高橋正樹（本学助教授）

セッションⅡ（４階　国際会議室）　コーディネータ：山口直人（本学助教授）

テーマ：電子自治体の展望と大学の役割

竹並情報システム学科長あいさつ

報告　13:35～15:35

①　カナダにおける電子自治体の現状と課題

エドワード・ルサージ（カナダ・アルバータ大学政府研究学部副学部長）

②　情報技術による未来社会の構築

國領二郎（慶応義塾大学環境情報学部教授）

パネルディスカッション・15:50～17:30

＊総合IT構想について

官（行政）からの大学への期待　中野雅至氏（厚生労働省）

産（企業）からの大学への期待　河内康志氏（北陸電々株式会社代表取締役）

民（市民）からの大学への期待　吉岡和彦氏（新潟日報社）

学（大学）の代表として　高木義和　（本学教授）

目　　次

※　本報告書では、肩書きはシンポジウム当時の2004年6月7日現在のものを表記致しました。ご了承ください。

Technology and the Evolution of the City: Transition of Paradigm - a 50 Year Outlook on occasion of NUIIS' 10th Anniversary: 1978-2028

Abstract and summary

This paper reviews the achievements on thinking about IT and cities' physical design over the past twenty-five years, and looks ahead another twenty-five years into the future. By contrasting the IT and ET urban technology issues and by positing their impending merger he examines a powerful set of urban paradigms in transition.

Looking over their evolution over this past generation, new information and communication media have emerged as being central to governance reform and urban renewal strategies.

- They can: serve as an organisational paradigm for flatter, networked administrative structures;
- be means of achieving administrative transparency, community access and participation;
- provide the basis for better planning and coordination technologies;
- serve as a rationale more flexible zoning arrangements, in supporting hybrid, more integrated living-working-recreation styles, as well as greater mobilities in living-working-recreation;
- serve as an additional challenge to revitalise inner city and waterfront areas, functionally and experientially, as mixed-use retail centres to compete with regional malls, and against the rise of mail-order and cyber-shopping;
- provide a challenge to program and package new urban development inititiaves in an layered, multiply targeted way, in keeping with the nature of the background, globalising information economy itself.

Technological innovation is a fundamental driver of urban change, be it in combat, command, control, commerce, construction or communications. Today, such innovations are manifest in advanced infrastructures of organisation and management, transport and telecommunications. And among these, the new infrastructure and communication technologies are perhaps the most captivating, having given rise to the wonders of the Fifth Sphere (MITI), the Quaternary Age (Kahn), the Third Wave (Toeffler), and the Second Machine Age (Pawley). Various versions of information technology-led initiatives continue to be embraced by virtually all of the most competitive cities.

In keeping with dilemmas dating back to the early days of the Industrial Revolution, social critics have asked if the new (information) technologies are indeed inherently liberating and beneficial to the quality of city life. The answers are ambiguous, and insider jargon and techno-talk needlessly obfuscate the underlying issues of equity, performance and empowerment.

While the new technological theme has served many urban development innovations very well indeed, 80s neo-liberalist doctrines have threatened to tip the technological policy balance against the disenfranchised. Now the pendulum appears to return, as governments around the world realise that the traditional technologies of community, those vital techniques of local survival with dignity, are in dire need of strengthening, rejuvenation and, often, reinvention. Coherent and potent policies to place institutional technology and social innovation in the service of human justice, equity and health are being pursued and indeed seem within reach.

One powerful new technological paradigm is emerging, following many of IT's transformational dynamics. This is the move from industrial, centrally controlled and single-source energy bases to a renewable, multi-source and multi-directionally networked network of power supply that is becoming a potent new prospect in the ongoing evolution of IT&T (information technology and telecommunications) into ITT&E (information technology, telecommunications and energy).

I Review: the urban information paradigm

And when people speak in everyday parlance about *networking, multi-tasking, interfacing, connectivity, humanware* etc they show that a new paradigm has taken hold. Information and information processing have become a way of thinking about science, society - and cities.

This is key: what is new is not "information" but the recent focus on information science and technology: cities have always been organised around the management of information. The very formation of cities and citadels - in Mesopotamia, the Indus Valley, Egypt or China - meant the beginning of an extraordinary, rapidly evolving history: that of the techniques for conveying social messages through the very organisation, shape and adornment of the built environment. Along with the other great advances in handling communications and information: writing, mathematics, money and other accounting systems, we also find innovations in city architecture, as the means of storing and displaying information - and of moving it, by transporting and assembling people more efficiently, and more effectively. The dense networks of roads, public places, institutions and buildings that characterise the traditional city were largely arranged to produce, control and dispense intelligence and knowledge, in other words, processed, value-added information.

Discourse was immediate, mouth-to-ear, one-to-one, and between the few and the many. Today a very large - and not necessarily shrinking -portion of the world's population still communicates primarily in this way.

With the reinvention of moveable type and the printing press half a millennium ago, the prospect of mass dissemination of stored information over great distances began to surface, and with it the slow erosion of the meaning of public space as a setting of social immediacy, and as the primary means of constructing and sharing reality.

Roughly a century ago, the telephone, as the third major layer of cities' informational systems marks the beginning of environmental virtualization in real time. It was also a century ago when rail-based transport went under way. Together, the railroad and the telephone helped bring about the puzzling phenomenon of simultaneous urban concentration and dispersal.

Next came the age of conduit-free, centrally generated and mass-consumed electromagnetic transmissions: first radio and then television. The layering notion still holds: neither mode of mass dissemination of information has displaced print, and both had a boosting effect on printed products. The spread of television not merely coincided with the final disintegration of the traditional city: it actually contributed to it with the introduction of televised lifestyles and a television-inspired mass consumer culture.

Especially in North America, the proverbial home of mass media and the motor car, the glorification of suburbia and the automobile was used to promote urban sprawl in a process that could over night transform rural land into a profitable urban commodity. Today, new media, enhanced telephony, proliferating cars and air travel continue to support at once expansive and contractive forms of urbanisation.

For about a generation now, growing electronic capability has helped bring about a fifth era, vastly enhancing information exchange within and among industries. It helped accelerate global sprawl, further articulated a hierarchy of cities in the context of the global economic restructuring process and transforms the dominant urban production regime into a world-wide assembly line, with a heavy concentration of managerial services in global nodes.

But besides these rather casual results of economic and geographic trends, we also witnessed a series of deliberate attempts to create urban settings and administrative systems whose very essence centres on advanced telecommunications and information technology. The 1980's saw a wave of highly visible initiatives presented as *wired cities, information or intelligent cities*. The notion of information-charged cities using telematic technologies surfaced more than twenty years ago both in the US and in Japan, where the information city was hailed as the home of the *advanced information society*, a phrase popularised by the Ministry of International Trade and Industry (MITI). In the United States it began with the wired city ideas and the social hopes pinned onto the technical potential of evolving broadcast television into interactive broadband cable.

The pre-1970's social engineering dreams of urban renewal very much resembled those of the city wiring efforts. Both promised the elimination of social ills, urban prosperity and peace, democratisation and modernisation - not dissimilar to the espoused aims of the pre-WW II Garden City movement.

Many of today's information cities still radiate the warm aspirational glow of equal access, but

tempered by a cooler, more pragmatic drive for competitive advantage. Approaches varied widely: the countries of the European Communities (EC), for example, showed a range of region-specific approaches, such as the *informatisation* projects of northern Italy, both on the regional scale and on the local level: see Turin's Lingotto project as an example for an inner-urban project, or the smattering of thematic developments in Germany, such as Cologne's Media Park.

It is instructive to think of the American and Japanese approaches as instances located on opposite ends of a spectrum. Whereas in the US city-based public programs were scrapped altogether and a private-sector wiring of the nation was embarked on, Japan approached the subject with a veritable avalanche of government programs, triggered by a host of ministries promoting highly information-serviced housing and industrial developments, with, among other objectives, the optimistic aim to diffuse urbanisation away from Tokyo. If this policy has had an effect on regionalisation, it certainly has not been the one that planners had hoped for: the primacy of Tokyo has intensified, not stabilised, or even receded.

The following phenomena can be associated directly or indirectly with new information-technology:

(1) the so-called Information or Intelligent City initiatives: a wide range of experiments with both wired and wireless modes of information conveyance, providing electronic services, such as public communications; security; health; education; new modes of employment, including telework and tele-monitored work; shopping and banking; city governance and management; planning and modelling; environmental monitoring; traffic control; and the networked servicing of intelligent buildings;

(2) economic development initiatives, in anticipation of, or response to new industrial models that are intrinsically information-oriented;

(3) geographical phenomena, such as an accelerating trend towards total urbanisation and the emergence of world or global cities;

(4) communities of electronic network users: telecommunities, computer tribes and other denizens of cyberspace;

(5) the entire genre of looking at urban space and buildings as informational entities, that is, in terms of image, expression, legibility, intelligibility and computable motion: as a few examples, remember aspects of the work of Lewis Mumford, Donald Appleyard, Kevin Lynch, Umberto Eco, Doreen Nelson, Venturi, Izenour and Rauch, Richard Wurman, Peter Bosselmann or Bill Hillier, and the postmodern malaise of architectural truth in a post-truth age chronicled by Martin Pawley and also Bill Mitchell.

Tales of a few Cities

When we look at the plans with which cities have recently pursued their competitive growth strategies, we are struck by their very similarity, and the fact that many of the new themes are derived from the production and brokerage of knowledge. Indeed, a good deal of the current global interest in the future of cities is coloured by the interdependent changes in global economic structures, cultural realities and technological capabilities. Let me give you a few examples.

The Australian Multifunction Polis (MFP) concept has been an ambitious plan by the Australian and Japanese governments to build some form of new city, an urban construct designed to serve many purposes - hence the awkward name. The two countries had very different ideas about this. The sights of the Japanese partners were trained on leisure and so-called lifestyle opportunities, the vastness of the Australian continent, the climate, the beaches, and the seemingly more healthy environmental conditions. For Australian governmental and industrial interests, the hopes were pinned on manufacturing a global city. The idea was to attract international investment in nine areas considered to be 21st century industries, in a way that would amplify existing Australian strengths in these fields, and respond to Asia-Pacific and global markets. Key to all this was going to be a powerful information and telecommunications infrastructure.

Target industries included: art, culture and leisure; biotechnology; education; environmental management; health; information technology; media and communications; space engineering/transportation; and tourism. To package these industrial aspirations into an appealing concept, a characteristically post-industrial theme was chosen: "environment, humanity and technology". It was meant to express a desire to "put Humpty-Dumpty back together again", and to help fuse a fragmenting world. The dream was to foster a setting of creative complexity, where serendipitous synergies could thrive, and where three urban identities were integrated: a "Biosphere City", a city somehow in harmony with nature, a "Renaissance City" of culture and leisureful learning, and a "Technopolis" of research and development in advanced fields, and served by advanced infrastructures.

The MFP concept, despite its human and ecological ambitions, was from the outset necessarily pre-occupied with the wealth-creating possibilities of new technology, despite some very promising initiatives to the contrary over the years. It finally expired as a serious project due to the withdrawal of public funds, a managerialist approach without persuasive urban visions and an unfortunately context of isolationist tactics by some rival institutions. The 1980s, however, did feature parallel initiatives that showed considerable concern with its social implications. The city of Kawasaki, sandwiched between Tokyo and Yokohama and inseparable part of the great Tokyo-Osaka linear conurbation, was once famous for heavy industry, pollution, the water trade and stout workers' solidarity. It found itself in a maelstrom of industrial change, to electronics, services and other information industries. In the mid-1980s Kawasaki's former planning staff embarked on a two-pronged strategy: on the one hand, to attract and

package these new industries together with a multitude of government programs designed to foster information city development - in part also to polish the city's tarnished image. The other challenge was to worry about what all this change meant or could mean to its people. For the first strategy, the central rail station was renewed and information-oriented office and science parks were located in industrial wastelands and under-used railroad yards.

To confront the social challenge, the city embarked on a series of civic initiatives, such as a bolstered supply of citizen centres and musea, and certain public brainstorming events. For instance, during the late '80's it served as host to the so-called Campus City Competition, which asked how the new technologies could possibly help the city's identity, and at the same time ameliorate growing societal challenges, such as those of community fragmentation, a lost sense of purpose, direction and identity. But most interestingly, the competition concept sought to challenge established forms of education and the very nature of learning. The strategy proposed by the winning entry was to closely link the physical and the informational changes of that city, to develop new resources of place and belonging, of community culture, urban nature and those promised by new knowledge infrastructures. The fundamental idea was to make all citizens stakeholders in the city's future, and focus with equal conviction on the city's "head, hand and heart", on its intellectual, physical and spiritual values.

Amsterdam has for the past 15 years searched for technological roads to a new future, which to some planners spelled state-of-the-art information infrastructures and industries, and a revitalisation of the financial services sector. Others saw in these aspirations a threat to a cherished lifestyle, the destruction of a picturesque countryside, and an undermining of the relative resilience of a diverse economy. Amsterdam has managed to sidestep the question of urban change and accommodated new investment while maintaining a physical distinction between the old and the new Amsterdam, the center and the periphery, between a 'city of place' and a 'city of flow', two cities shaped by past and present forms of globalism and a very different logic of city building. At the tail end of the 1980's global bubble, through an effort to compete with its own periphery and to shore up the inner city economically, the old city was seriously threatened by a waterfront redevelopment scheme "going global", in a frenzy of misplaced ambitions. The redevelopment plan was packaged into a knowledge and communications theme, and fizzled out when the commercial property markets collapsed and a windfall gain from unexpected North Sea gas fields filled municipal coffers across the country, and allowed the public pursuit of traditional infrastructure development.

Some people claim that the force of modern communications has brought about the fall of the wall in Berlin. As an immediate consequence of this event, the city faced great challenges of communicating between two deeply entrenched development administrations, and two very different sets of infrastructures. The urge of attracting and accommodating new industries and jobs in the very heart of the city, and primarily in information-oriented industries, has spawned hopes for a new type of urban factory: lighter and smaller, stacked and camouflaged, decentralised and automatic. Such knowledge-

based factories are envisioned in integration with more inner-city housing. The idea was that such solutions would limit the spectre of sprawling industrial zones at the city's periphery and of the environmental stranglehold of low-density residential suburbs.

Paris, with untiring vigour and unsurpassed showmanship, has long pursued its a tradition of progressiveness seen as requisite in the wooing of institutions and businesses of European and global stature. Examples of such showroom projects in the city's informational infrastructure are: the Centre Pompidou, the City of Science and Industry at La Villette and the "communication gate" of the Grand Arch at La Defense. These Great Works serve to convey the city and its aspirations, both in plain graphic articulation, and by spatially and functionally facilitating cultural discourse.

Finally, there is the city and the country that pursues a tandem globalisation and IT (information technology) strategy with perhaps the highest degree of commitment and coordination: Singapore, and its IT 2000 plan. Here a young but rapidly growing governmental body, the National Computer Board (NCB), has over the last decade pursued a nation-wide program to provide the fundamental segments of its industrial, cultural and urban life with the opportunities that computerisation and advanced telecommunications may hold, in a country that has no other indigenous resources than its own people. The agency grew to a staff of a thousand over the decade of its existence, and became in part responsible for sustaining the city's status as the world's largest container port by innovating expert-system based freight handling and processing systems and procedures. It divided Singapore's society and economy into a dozen sectors, ranging from education, transport and construction to leisure and tourism, and scrutinised these in teams of young, enthusiastic yet earnest administrators in terms of their potential scope of being computerised. In 1992, IT 2000 was elevated to a National Priority Project by Prime Minister Goh, during a celebration of NCB's tenth anniversary.

In summary, this is how the informatisation theme has related to cities and their competitive strategies. It has lent itself to bold, high-visibility themes; triggered calls for clear community development linkages; raised concerns over too rapid rates of change; highlighted the need for renewed social visions, to preserve existing cultural assets; facilitated flagship projects in attempts to strengthen ailing inner cities; led to the construction of tangible and sometimes useful icons of progress; generally lived most happily with an administrative machinery in flux or creative turmoil, and has served well many among the governing rank-and-file who are committed to vital issues.

While the basic development dilemmas are fairly well recognised, and it actually looks as if we have the technological ingredients for urban regeneration - it is still very unclear at this point if and how these cities will be able to deal with new and vexing technology-driven challenges, of which there are two kinds: new manifestations of old power struggles; and new challenges to the quality of cities in particular, but also, more generally to the quality of life, and the established societal regime at large.

To explain some of these challenges, it is useful to take a brief and polemic look at the one area that is perhaps most fundamentally affected by the new conditions: the workplace.

Barriers to a Better World

As with most other public policy issues, the goals of technological innovation in the urban environment, and especially at the workplace, are ambiguous: the most basic example is the ancient tension between the urge to control society in ever more intricate ways, and the human desire to be without constraints, to be free. The paradoxical drive to increase both level of control and the number of options is as old as urban life itself, and here lies the root of our ideas about work. Cities have always functioned as information processors, cultural incubators, and giant work houses: machines designed to confine their subjects into workplaces and regiments. But people have also always been searching for ways of freeing themselves from oppressive working conditions, to assert a softer, more human nature, perhaps recalling the earlier, relatively paradisal state of matriarchal village life.

This dilemma continues to our time. In Europe and the United States we most clearly associate it with the last great era of technological change, the Industrial Revolution. Thomas Jefferson, third US president, found himself in this very quandary, seeking to shape the nature of work in the face of innovation. In musing about intelligent forms of productivity, he much preferred pastoral peace and tranquillity to the kind of industrialisation that England began to embrace in those days. "Let our workshops remain in Europe," he wrote in 1785.

But the reality of workplaces was shaped by other forces. Industrialists like Daniel Webster saw a Manifest Destiny in new technology, to conquer nature, and societies deemed more primitive. He praised precisely the sort of working environments and technologies that promised high productivity through the logic of the machine. The idea was epitomised in Frederick Taylor and Henry Ford's accomplishments, and the expressions Taylorism and Fordism still connote both benefits and costs of scientific work management and automated production (Leo Marx). Technological faith spread in this century, especially at times of heightened concern with national defence. Today, despite fiascos and disputes, most people still equate technological innovation with societal progress. As a result, many of us have difficulties envisioning other futures than the sort of clean techno-dreams that optimistic urban engineers like to engage in.

What does this mean to our workplaces? Why should we bother to look for alternative futures? Let us play the devil's advocate. The arrival of the new information technologies has triggered dreams of a soft, humanly managed world of ubiquitous, virtual places of enlightenment, networked into a Global Village. Will these dreams come true, or aren't the workplaces of the future going to be more like cages without walls, constructed in a mutant, digital form of Taylorism, or the neo-Fordism of societal automation: ever more refined, decentralised, multinational, and, well, automatic - that is to say, of a world that is moving the process of automation from simple production, distribution and administration to the overall

management of the market at large (Hepworth/Robins)? To be more clear, let me examine information-technology related workplace dilemmas in four categories: space, time, quality and form of work.

Information technology and the space of work

In spatial terms, many countries have seen a greater mobility of workplaces and production facilities. This has sped up urban sprawl, deepened dependence on the motorcar and fossil fuel, and challenged indigenous cultures, economies and ecologies alike. This global process is reinforced by structural transformations in many regional economies, and the footloose nature of international capital in this telematic age. It results in the new hybrid regions of Southeast Asia, where untold specimens of a new foreign plant have invaded Thai rice fields over the past few years. One finds the same picture in Malaysia, Indonesia or the Philippines, and often with unfortunate effects on the quality of cities and of work conditions alike. But we should also take a glance at the numerous new so-called cities that have mushroomed in the region of Washington D.C. during the 1980s, providing the cheap sort of R&D space, conference and commercial facilities that are typical of postindustrial society. There is a tendency to segregate the work force by dividing operations into headquarter, front-office functions in the inner city, and back-offices or information labour camps in deep suburbia. And some observers report a clear trend towards new cottage industries, both as the new lifestyle of an information elite working at home, and the grimmer prospect of the home sweatshop for the less privileged.

Information technology and the time of work

Parallel to the softening of spatial boundaries, there is a corresponding dismantling of the traditional temporal structure regulating work. Yes, there can be greater freedom in choosing work hours, but this new work mobility across time and space - boosted by beepers, car radios, laptop computers, modems and proliferating networks - also means that we now have fewer reasons not to work at all times. Similarly, IT-facilitated productivity incentives, such as decentralised competitive work units, ironically often result in longer, not shorter work hours under the stress of internalised incentives rather than external enforcement.

Information technology and the quality of work

Information technology brings liberties to the well educated and mobile, and they are quite exciting, especially the promise of virtual work space, or the interactive travel in educative information worlds - but, under present conditions, that is, without supportive institutional innovations, they are inaccessible to the unskilled and financially and information poor. And IT workplaces, while they are theoretically conceivable as enlightening and empowering settings, are largely less than stimulating, even inhumane, in reality. Actually, the majority of jobs in an IT culture is vulnerable to both open and indirect surveillance, threatening cherished qualities such as trust, and depriving workers of their dignity and pride (Marx/Sherizen). Moreover, IT can be an agent in the evaporation of economic systems supporting middle and lower ranks of the work force.

Information technology and the form of work

The most significant, yet most elusively IT-related future development may be the merger of work, leisure, education, and consumption - into a single, digitised life form. As consumers in our increasingly monitored societies we actually produce, on-line and in real time, highly detailed and dynamic data streams, informing the nature and direction of production. Education is on its way to become, less fundamental and more application- and work-minded: see the rise of career-oriented pre-schooling, re-schooling and corporate training. And leisure emerges as a prospering industry, promulgating a clear work ethos, in an age of increasing individual competitiveness, where non-productive leisure seems like a waste of time.

There is a fundamentally ambiguous quality in all of this: promises of a better life can lead to disappointments, if there is no clearly shared understanding of both intentions and impacts. We now know what the malaise of urban globalisation feels like: the signs of the global city syndrome range from steep land price rises to social fragmentation and cultural alienation (Sassen). On the other hand, the actual technologies that help bring about this change theoretically do offer a certain enabling potential on a wide societal scale, and make conceivable wholly unprecedented ways of developing forms of knowledge that could prove to be vital to our collective survival.

However, very few of these great technical potentials will be realised automatically. They will require public commitment; broad, generous and flexible strategies; the willingness to take risks; and most of all, lots of experiments, rigorous research and open discussion. So, as the final feature of this small excursion, let us summarise some of the critical elements to be considered in building a humanely sustainable information city. There are three important social and physical ingredients required here: a continuing and escalating struggle for the distribution of political power, now more important than ever; vitally enhanced levels of popular literacy, not simply in the use of advanced tools, but more critically in grasping the key changes transforming our communities, and the dynamics and challenges driving these; and the need to clearly structure urban investment in ways in which especially the oldest informative layers find physical articulation. What, then, are some of the detailed elements of these three innovation frontiers?

A key response to this POLIS *(power-literacy-structure)* challenge are balanced relations of power:

(1) Competitive and liveable cities succeed by encouraging diverse and fine-grained economic and social functions. There is no insignificant industry, economic activity or social group. And there is a direct analogy to natural ecologies: higher diversity means broader economic vitality and social empowerment.

(2) Competitive and liveable cities diffuse access. Uncommon efforts must be undertaken by government and industry to broadly distribute knowledge access to all parts of society, in wholly

unprecedented ways.

(3) Competitive and liveable cities innovate their institutional structures. While it is important to secure identity and continuity of place and socio-economic patterns, it is equally important to reform frozen institutions: there is a danger that a hardwiring of anachronistic conditions will occur.

(4) In competitive and liveable cities innovation is not synonymous with progress. Technological innovation does not automatically spell social improvement, although most of us have come to believe so. Ways must be found to clearly subordinate the direction of technological change to social values and shared aspirations.

(5) And finally, competitive and liveable cities make knowledge access an issue of quality of life - and hence of the competitiveness of cities and companies. Just like cities compete with one another in infrastructural terms, they also learn to compete in the ways in which they facilitate public access through the technologies of knowledge.

The second element of this strategy is to build technological literacy as a broad social goal. Competitive and liveable cities and their national and international governments (1) publicly shape clear social goals in technological innovation, especially in the organization and quality of work; (2) sponsor research and experiments that address all quality-of-life impacts of IT-inspired change; (3) foster deep institutional innovations to match the technological promise of popular enlightenment; (4) redefine educational objectives and restructure programs. For example, interesting initiatives promise to intelligently soften formal learning structures. Lastly, competitive and liveable cities (5) nurture and guard independent realms of lifelong education that are profound, broad and, in the best sense of the word, political.

The third and stabilising element of this global approach is to reshape the structure and form of cities.

(1) The leaders of competitive and liveable cities know how important it is to anchor memory in place. Local identity and territory for established communities and new groups is of absolute importance; along with oases of transience.

(2) Enlightened leaders nurture their cities as information ecologies on all levels of their performance: the purposeful nature and communal fit of their spatial form, their graphic reading, and their public networks.

(3) Wise leaders of competitive and liveable cities develop technologies to prepare for inevitable and possibly beneficial forms of slow and even negative economic growth.

(4) Sustainably competitive and liveable cities ready organisational, transport and other technologies to slow down or even reverse urban expansion on open land at the metropolitan fringe - even in times of seemingly high economic growth - by organically concentrating livable space in and around city and regional centres.

And last but not least, the most competitive and liveable cities (5) pursue planning control measures to civilise all investment energy into opportunities: to enhance the physical, "high-touch" vitality, accessibility and intelligibility of urban places and cities.

II Outlook: From IT&T top ITT&E

The age of industrialisation and its great aspirations, the global scheme of world trade and all its achievements and the very promise of universal progress - all have been powerfully boosted by the modern use of fossil fuels. A brilliant set of modern utopian visions, scientific, social, political and economic, has resulted from this, and, indeed, great achievements were made for a world-wide minority. Yet the pitfalls of the fossil fuel economy have been as overwhelming as can be expected from any Faustian arrangement of historical proportions: social development inequities, urbanisation crises, global military instability, local and regional environmental disasters, global climate change and associated costs and risks.

In a sense the rapid growth of cities throughout the late 19th and the 20th centuries was an inevitable outcome of the fossil fuel economy. Today, the growth and operation of cities and urbanised areas absorbs roughly three-quarters of the world's fossil fuel production. This is a staggering amount given that fossil fuels supply 85% of total global commercial energy use - and their use is increasing at a rapid rate. Yet economic regions, nations and cities worldwide will soon be under great pressure to find alternative sources.

Because of the fatal triad of carbon emissions induced climate change, fossil fuel depletion and mounting environmental damage due to the use of oil and coal cities will have to be powered differently. The use of renewable and distributed micro-power systems is already on the rise today but the current speed of change is much too low to meet global goals in time to avert serious crises. Besides the introduction of solar and other renewable energy technologies cities will also have to be re-engineered in terms of their transport and land-use systems, their facility and urban design principles and the very use patterns they engender.

Cities, towns and other urban communities are increasingly regarded as settings for coordinated policy implementation efforts aimed at global renewable energy technology introduction and carbon emissions reduction programs. However, substantial organizational and cultural barriers militate against immediate, wider change. Among these loom large the subsidiary regard in which cities are held in the traditional

hierarchical frames of international arrangements that deal with global issues. Another challenge is the short planning horizons and political uncertainties that prevail on the local level. In terms of policy development, measurement techniques and planning reality an extraordinary, even paradoxical gulf exists between the global nature of greenhouse gas impacts and fuel depletion prospects, and the local reality that represents both final impact and original source of globally experienced changes.

Modern globalization, in the general sense of a complex set of global economic, communications and cultural changes (Sassen), is very much driven by the profoundly fossil energy mode the world operates in. Global supply lines secure oil, coal and natural gas from the limited number of highly productive fields in production. The mining, shipping and processing of the raw material and its world-wide distribution has necessitated a vast network of logistics, military management, security arrangements and diplomatic agendas - as well as specialized economic systems. A majority of current and recent regional and local armed conflicts are resource wars, in part or entirety. The specter of violent global strife over the control of regional and global fossil fuel supplies rises in the short and medium term ((Castells 1996)).

The great 19th and 20th century industrialization and modernization drives accompanied the rise of a globally dominant fossil culture with its specific rules, values and powerful images structuring collective and individual desire. Their unique behavioral patterns are generated by the characteristics of supply and demand in a global fossil fuel fired economy. Seen in this light, the global media, information systems and telecommunications networks play an ancillary role in the processes of contemporary globalization. The fundamental *technologies of globalization* are the at once centralized and globally active power generation and petrochemical resource systems tethered to geographically limited and hence geo-strategically critical energy resource and mineral deposits. International trade rules and interpretations of national security are based on and very much support this global regime.

The result is a single terrestrial system, rapidly growing and fed by tenuous yet distant, even global supply lines. As a consequence, an increasing number of local urban areas is surrounded by formerly productive but now either suburbanized or relatively impoverished, disconnected rural and semi-rural regions. These new 'globalization hinterlands' are the former supply regions of pre-fossil villages and towns, now increasingly defunct, with their population streaming to the rising, brightly lit and comfortably powered, globally networked urban centers.

The deployment of renewable energy technologies has a potential to help bring about a time of *differentiated globalization*, marked by a distinction between largely local supplies of food and elementary goods on the one hand and the global trade in services on the other. *Postglobalism* as engendered by non-fossil production modes would be characterized by a rise of regional economies in support of urban centers, based on regional resources such as productive land for food, biomass and wind energy production. New ways of re-knitting central cities with their regional economies and related spatial structures are already being pursued by a number of communities. These are based on age-old principles

of rural urban support economies, boosting the primary sectors of agriculture and forestry: cities around the world are beginning to make concrete links between their renewable energy needs and potential regional resources capable of meeting that need. This movement is also beginning to help spawn new indigenous manufacturing and advanced industry sectors in renewable energy production, supply and services.

On the industrial side current initiatives fall into two categories; that of aiming at technology development on one side and technology use or market uptake on the other. Technology push and supply from the 1970's through the 1990's were limited to a number of limited-scale industry efforts and pockets of largely government-sponsored research and development projects. This history is marked by an absence of a significant market demand, or market-oriented policy push, given the powerful subsidies granted to the fossil energy sector. However, the international and domestic policy and pricing environment of the early 2000s is changing fast, heralding massive urban technological and practice changes and a natural integration of technology development and markets.

Energy, Cities and Technological Innovation

Cities face the new challenges largely without national guidance and some seek to go beyond individual technology applications, single structures or limited urban areas. They hope to translate international and national agreements onto the local level, despite the institutional constraints of the inherited sectoral systems. Increasingly, urban leaders seek to grapple with the issue of technological innovation, absolute and globally equitable emissions targets, the prospect of urban carbon trading and the pursuit of full integration with mainstream urban management systems.

The most hopeful visions describe entire cities as net renewable energy producers. This idea requires a rethinking of urban-regional alliances as well an adoption of increasingly firm industry promotion practices. The Australian city of Melbourne, as an example, is in the process of investing in renewable energy producers with the dual aim to reduce its fossil fuel dependency and to promote the development of more advanced industries that one day will be capable of competing nationally as well as internationally.

As motivating force compensating action on subsidies and selective pricing, even in the absence of a true deregulation of energy markets, spells a boon for technological innovation. In a technologically advanced renewable economy energy supplies no longer exclusively depend on large, centralized supply models but can unfold in a more diverse and differentiated manner, in keeping with the contemporary culture of convergence. Indeed, emerging conditions are characterized by a certain blurring of conventional distinctions between production and consumption. Traditional appliance and facility users can become net energy generators, for instance through solar systems or zero-emission, renewable-source based hydrogen fuel cells in vehicles, capable of powering homes and external machinery.

Systems convergence dynamics point to a merger of information technology, telecommunications and energy systems. While some electric utilities already lease their grids for information transmission purposes, emerging technology goes much further: future energy systems are ubiquitous and pervasive. Operating on the level of individual units, be they consumer appliances, households, neighborhoods or even city-regions, the long-range energy management paradigm is grid-free, self-sufficient and renewable.

Ubiquitous energy management is introduced here as the notion that in a renewable-energy based economy a myriad of small and medium-scale providers of energy services replaces the system of large-scale centralized ones. This system can operate both at the high end described, but also at low levels of technological sophistication. High-end technology contains vectors from information technology and telecommunications mergers to the blending of these new technologies with energy production and consumption modes residing everywhere, from personal apparel and equipment to cars and facilities. At the lower end of the scale, distributed, low-cost and low-maintenance small hydro-power and solar systems are capable of leveraging access to global information network for small remote communities even in least developed nations.

Another technological dimension of the impending energy revolution is the role the internet plays in the energy sustainability of cities. The 1994 United Nations Conference on Environment and Development held in Rio de Janeiro has firmly associated the term sustainability with a global action agenda, connoting international processes of working towards sustainability aims, especially in an urban context. The tradition of sister city arrangements was a rudimentary beginning of inter-urban networks in particular, while activist non-governmental organizations such as Greenpeace pioneered work in global networks as means for local action, giving rise to an age of 'think locally, act globally'.

A number of international networks operate today in the area of energy and the 'sustainability' of cities, and many explore the best manner in which the nature of the internet and the world wide web can be applied to productive ends. It is good to remember that the internet itself, a vital global infrastructure, is entirely dependent on fossil fuel. It may call for a strategic action plan to base it on renewable and sustainable energy sources, through the introduction of suitably distributed, even ubiquitous power supply systems.

Finally, there is a number of ways in which the technologically sophisticated management of environmental information such as local, community or point-of-emission accounting data is crucial in the making of policy. Integration of currently available information, modes of visualization and analysis (Droege 1997), the massive networking of personal computers - these are all technologies and techniques advancing at national or international levels but remain woefully unavailable or inadequate locally.

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E-Government in Canada

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1.0 Introduction

1.1 Purposes and general organization of this essay

This paper is prepared with two purposes in mind:

- To provide a selective survey of e-government in Canada with particular attention to the state of e-government within three institutions of government at the federal and provincial levels and, separately, at the municipal level.
- To selectively introduce contributions that North American universities are making to promote e-government.

I will focus heavily on the first matter and briefly address the second.

Four principal sections define the paper. Section 1 provides an introduction, includes a note on the definition of *e-government*, and a brief survey of recent research findings on Canadians' use of the Internet and the other new information and communication technologies (ICTs). Comparisons of Canadian and other nations ICT use patterns are supplied to provide perspective on Canadians as technology users. These comparisons are offered to establish the context for the discussion that follows on Canadian e-government activity and innovation. Section 2 explores e-government at the Canadian federal and provincial levels of government. This commentary considers three relevant institutions of Canadian government in which e-government is, or is likely to be, significant: the Public Administration; the Parliamentary Institution; Independent or Non-governmental Actors. Section 3 focuses on municipal e-government. Section 4 addresses contributions that universities have made to advancing and achieving a better understanding e-government. It is included at the request of the organizers of the symposium for which this paper was prepared. A brief concluding section, Section 5, completes the paper. It has been revised somewhat from the original included in the paper sent to NUIS in advance of the symposium. Indeed, all the sections have undergone some amount of revision to improve the paper.

Although presented in an academic forum, this paper does not follow the normal formal conventions of academic papers. It is more properly approached as a report, as it does not presume to posit and defend a thesis or research proposition. However, the reader will find reflective commentary on e-government offered by observers of Canadian e-government and myself. As some of this commentary reflects criticisms of the evolution of Canadian e-government, the essay is distinguished from many of the

uncritical and buoyant e-government writings found in bibliography. In reporting selected developments and criticisms I believe I do the reader a service.

1.2 A Note on definitions

At the onset I must say that what precisely is meant by *e-government*—as a matter of definition—is far from clear.[1] E-government is often used as an embracing term that covers everything from the use of ICTs for service delivery and general government to its application as a new and powerful medium for radical democracy. This said, many writers equate e-government with public administration. As a result, they divorce "e-government" by definition from more political and public policy oriented ICT applications. A number of those who focus on interest group and citizen political involvement through the use of ICTs make a distinction of their own, writing about *e-democracy* and viewing it as something separate from e-government. Through this definitional feat they too relegate e-government to matters of public administration and general governance.[2]

The trouble is that others who write about these subjects either fail to distinguish between e-democracy and e-government, using the terms interchangeably, or they favour the use of e-government or some other term, such as e-governance. It all can become quite confusing and what is especially problematic is that the definitional chaos can lead to instances in which those expounding on e-government talk past one another or fail to address the fuller context of ICT use in the public sector.

While having sympathy with the confused, and tempted to seek definitional precision within this paper, I have elected to treat *e-government* as a broad concept and to not formally define it. To attempt precision would require imposing definitional consistency upon the works of others that are imprecise in definitions. The task is far too daunting and too fraught with peril for purposes of this simple exercise. Thus, in this paper *e-government* will apply to the gambit of ICT use and effects, be it in public administration, parliamentary, or extra-parliamentary political contexts. Although this means the concept will be elastic, sense can be made of the specific focus of discussion through the organization of the paper —at least this is my hope. From time to time I will also seek precision through providing parenthetical comments concerning the specific use terminology.[3]

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[1] For other forays into this definitional matter see Silcock (2001) Banks et al. (2002) and Crossing Boundaries III Political Advisory Committee (2002), 10-11.

[2] A Canadian academic has attempted to tame the definitional turmoil through a three-part typology that distinguishes e-government, e-governance and e-democracy. In this scheme, "e-government constitutes the way public sector institutions use technology to apply public administration principles and conduct the business of government." (Riley, 2001) That is, e-government is quite narrowly defined. E-democracy according to Riley concerns the use of ICTs by citizens to effect change in public policy. It is all about participatory democracy as opposed to representative democracy. Riley's E-governance sits in the middle between e-government and e-democracy, being "the movement of governments online to electronically deliver their services and programs, provide government information, and interact with the citizen." Representative democratic institutions are subsumed in this definition and presumably the whole of the institutionalized public policy process. There is some appeal to this effort to chop the definitional lexicon into three parts. The effort, however, has the too familiar ring of older, unsuccessful academic and professional attempts to distinguish public administration, public policy, and politics. Seemingly neat distinctions breakdown when examining particulars and through this defeat the very purpose of the exercise. Moreover, upon closer examination Riley's concept (*e-governance*) is problematic in that it is described as a movement *toward* something while the other definitions exist as conditions relating to specific cohorts within the political-administrative complex of actors.

1.3 Canadians as Internet and ICT users

Canadians are among world's highest Internet users and, as will be discussed below, this predisposes them and their governments to embrace the use ICTs for public purposes with comparative vigour. According to recent survey data produced by EKOS Research, a Canadian polling firm, nearly 65 percent of Canadian households have Internet access at home. (Government On-line Advisory Panel, 2003) Roughly half of Canadians use the Internet at home.[4] (Hart-Teeter Research, 2003) According to the same U.S. study, another 14 percent of Canadians indicate that they use the Internet at work and a small percentage use it at school (3 percent). A third of the Canadian respondents to the same study indicate that they use the Internet at more than one location. When compared with five other advanced countries Canadians are positioned toward the bottom of the list in their use of the Internet at home. Still, too much should not be read into this positioning since Canadian participation is roughly on par with American, Australian and Singaporean at-home use, and these rates are not greatly distinguished from those of the highest rated nations. Canadian Internet use at work is also in the bottom half of the same six advanced states but again there is not much statistical do within this group. The most active users are the Spanish and British who record the highest levels of Internet use at home and work.

Another recent study provides additional perspective on Canadian ICT use. The World Economic Forum annually tracks dozens of variables ranging from number of radios to the presence of government on-line services in an effort to establish an international comparative index of ICT use. This year's report places Canada sixth among 82 nations. Finland is first, with the top five rounded out by the United States, Singapore, Sweden, and Iceland. Following Canada in close order are the United Kingdom, Denmark, Taiwan and Germany. Canada's particular strength on the list, a second ranking, relates to the availability of high-speed or broadband Internet services. (Akin, 2003)

To round out this sketch of Canadian use of the new communications technologies, I note that 77 percent of small Canadian firms use the Internet and almost all of the country's large firms use the Internet in their business activities. Thus, there is something of a digital divide in the Canadian business sector but by these statistics it is not pronounced. There is also a digital divide, or more accurately several digital divides, in the general population. Roughly 90 percent of Canadians aged under 25 have Internet access with most presumably using it while older Canadians are notably less likely to have access to or use this technology. There are also differences tied to income, education, literacy, and area of geographic residence. (Government On-line Advisory Panel, 2003) Canada's First Nations' peoples may

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[3] I add that I am struck that there are at least two significant reasons for the definitional imprecisely around e-government. First, it is a very new phenomenon. Second, the e-government literature is produced not only by scholars from the disciplines that traditionally address government and governance, but also by scholars and others concerned with information and communication technologies. Further, e-government (broadly speaking now) is of interest to yet others whose interest arises out of the intersection of all of this. One example of the last group is scholars and others with an interest in of information access and privacy. Given all this it is hardly surprising that when we seek to define e-government we find ourselves dissatisfied.

[4] The discrepancy between those who have Internet access at home and those who actually use the Internet at home might owe to sampling considerations. However, but there are other possible explanations including the very real prospect that some members of households with Internet access may simply not use the medium at home.

be especially hard placed on the wrong side of the divide since they are disadvantaged on all these dimensions (Alexander, 2001). In summary, while Canadians may not be the most active users of ICTs in the world, they are very close to being so. The implications of this reality for e-government are consequential since high use at home and in the commercial sector undoubtedly provide a solid foundation for e-government initiatives.

1.4 Canadians as visitors to government Internet sites

Canadians are frequent visitors to government websites. Research data collected last year by the EKOS polling organization reveal that 64 percent of Canadian Internet users had visited the Government of Canada website in the previous 12 months. (Government On-line Advisory Panel, 2003)[5] An even more recent Council for Excellence in Government (US) survey provides a slightly lower 60 percent government website visit statistic for Canadians. The U.S. study also parses the data to reveal that roughly 16 percent of Canadians who use the Internet visit government sites either *very* or *fairly* regularly. Forty-four percent of Canadians reporting in this survey either only *occasionally* or *rarely* logon to government websites. Canadians edge out Americans in this survey as the nationals who are the most active government website users. By contrast, while the British and Spanish may record the highest home Internet use, they are comparatively infrequent visitors to government websites. Only 35 percent of United Kingdom Internet users report visiting government sites. The Spanish Internet users record 48 percent.

Although now perhaps dated, a 2000 Canadian consumer technology survey conducted by Price-Waterhouse-Coopers reveals a number of reasons why the public logs on to government Web sites. Principal among the reasons offered by respondents is that site visitations save time — 66 percent. Twenty two percent responded that convenience was a factor with many government offices being too far away, while 16 percent said the needed information outside office hours. (Downey, 2001)

Canadians' comparatively high percentage of visits to government web sites undoubtedly reflects active governmental efforts to foster e-government or, more precisely, Internet-based information and service delivery. Over the past three years Canadian government has been rated as the world's e-government leader by an international consulting firm. (Treasury Board Secretariat, 2003; Accenture Consulting, 2003) With this in mind I turn to a survey of e-government at the federal and provincial levels.

2.0 Canadian E-Government

2.1 Note on the organization and focus of this section

Phillips and Orsini (2002) identify three principal institutions at the Canadian federal level of

[5] This percentage is up from that reported in 2000. A Canadian Consumer Technology Survey found that 44 percent of Canadians with Internet access from home accessed government services online. Further, this percentage was up 32 percent from 1999. (O'Brien, 2001).

government that, for our purposes, are of particular interest when considering the cyber interactions between government and citizens. The three are the Public Service (or the Bureaucracy), Parties and Parliament, and Independent or Non-governmental Actors. Similar institutions exist at the provincial and territorial level. Analysis that follows in this section will be framed in subsections that addresses e-government in each of these institutions. Institutional elements excluded from the list include the courts, local government, and the quasi-governmental sector that includes crown corporations. We deal with municipal government in Section 3 thereby covering an important feature of local government, although by no means all of it. The courts are excluded, as is any focused discussion on crown corporations and other extra-bureaucratic administrations, as a matter of expediency.

2.2 E-government and Canadian Bureaucracy

2.2.1 The Government of Canada

The Government of Canada has been aggressive in its efforts to mount and market information and services using the Internet and other ICTs. Prime Minister Chretien announced in the 1999 Speech from the Throne that Canada would become a "model user of information technology and the Internet" and that by 2004 Canada should be known as the Government most connected to its citizens in the world." (COMNET-IT, 2002, 8). The federal government has pursued its ambitious vision through two major initiatives and many smaller ones. *Service Canada* is a broad initiative that seeks to achieve significant, quantifiable improvement in client satisfaction with its services over the next five years. The government has set a five-year target of a minimum 10 percent improvement in Canadians' satisfaction with the delivery of key government services to the public by 2005. Significantly expanding e-government is a key element of the strategy. The relationship between e-government and the *Service Canada* initiative is more significant than it initially appears since the federal government seeks to develop a "seamless" model of information and service delivery. That is, the bureaucratic objective is none other than to make the federal bureaucracy less bureaucratic. ICTs greatly enhance this prospect given the felicity with which connections can be made between programs and Ministries.

The second major strategic initiative is Canada's *Government On-line* which supports the *Service Initiative* but also has its own broad objectives. By 2005 the federal government has committed itself to moving its most frequently used services on-line. These will be available ensuring choices of channels (e.g., mail, fax, telephone and in-person as well as on-line), formats and language. The centrepiece of the Government On-line in initiative is the *Canada Site* web site, http://www.canada.gc.ca. The site presents a single point of entry for information about government programs and services. The Canada Site is principally organized by "client" (Canadians, Canadian Business, Non-Canadians) with topic, event or client divisions accessed by clicking through.

Another key and related federal initiative is *Connecting Canadians*. This program was launched several years in advance of the *Service Canada* and *Government On-line* initiatives and seeks to create a richly linked nation. Arguably *Government On-line* is a part of *this* program but, in any event, the key point is that these initiatives are closely intertwined. Since the programs falling under (or which are associated with) *Connecting Canadians* are many, I list only a few to offer insight into the scope of

activities currently underway:

- *Canada On-line* seeks to connect Canadians to each other — and the world — by establishing up to 10,000 public Internet access sites in rural, remote and urban communities. Among programs comprising *Canada On-line* are those promoting computers for schools, the Community Assessment Program and LibraryNet. Broadly all of these seek to enhance the educational experience though on-line means. The Community Access Program involves other governments and the private sector.

- *Smart Communities* strives to help Canada become a leader in the development and use of information and communication technologies for community development. Smart Communities projects (which are large, community-based demonstration projects) seek to make the most of the opportunities that new technologies afford for services such as better health care delivery, better education and training, and growing businesses.

- *Canadian Content On-line* provides funding to "digitize" Canadian library and archival collections and, among other things, to develop Internet-based instructional materials. The Canadian Collections initiative is directed at Canadian firms, associations, institutions, museums, libraries, archives, educational institutions and other organizations. Early in the program funding was provided to support the Aboriginal Digital Collections program that enabled Aboriginal youth to create web sites featuring significant Canadian Aboriginal material. The material digitized ranged from preservation of native languages to information on Aboriginal businesses and entrepreneurship. (Alexander, 2001)

- *Electronic Commerce* is a policy definition exercise in which the federal government works with business, provincial and territorial governments and other stakeholders to stimulate Canadian e-commerce. Among the key foci of this initiative are projects involving the establishment of a technology-neutral taxation regime, establishment of a national cryptography policy, creation of legislation governing protection of personal information, consumer protection guidelines, and creation of a legal framework for digital signatures and electronic documents.

Readers are directed to the *Connecting Canadians* web site http://www.connect.gc.ca/ for information on these initiatives.

The Government of Canada produces a wealth of on-line services as might be expected given its stated e-government objectives. These are best viewed through the *Canada Site*. Among services available are now-standard governmental services such as income tax form submission, federal government job postings, various aids to business such as business development advice (including financing information), electronic customs, and online business registration. There are also some novel online services such as Internet and cellular phone interfaces that provide truckers (and citizens) up to date information on "wait times" at Canada-U.S. border crossings. (see http://canada.gc.ca/mobile/wireless_e.html) Commercial transport drivers find this information of great importance following the events of September 11, 2001 which occasioned heightened border security measures and often

considerable delay at principal border crossings, Internet access to pollutant release inventories is another novel federal government service. The later contains pollutant release and transfer data from over 2,500 across the country, the data are of interest to scientists, environmental protection advocates and average citizens. (see http://www.ns.ec.gc.ca/epb/air_toxics/inventories.html).

2.2.2 Provincial governments[6]

Provincial governments have invested heavy in ICT systems over the past decade and continue to develop internal and public-oriented capacities. All of Canada's ten provincial governments have a Web presence and many provinces offer a range of Internet-based information and transactional services. Below, I provide a brief survey of selected provincial initiatives as described in the non-academic literature and follow on these comments with a more detailed look at Alberta's on-line efforts. The surveys are far from comprehensive but are nevertheless thought of value in what they reveal about the range and ambitions of provincial e-government initiatives.

In 2000 the Ontario provincial government, Canada's largest provincial government, committed itself to being a world leader in offering public sector services over the Internet. To achieve this the government ordered its ministries to be fully online by 2003. (Armstrong, 2000). However, the initiative is far more sweeping and sophisticated than merely bolstering the government's Web presence. Ontario committed itself to simplifying, streamlining and integrating access to, and delivery of, government services. This entails applying ICTs across all functions of government with the reasonable qualification that the application makes sense. (MISA Ontario, 2002). Estimates are that roughly two-thirds of Ontario services to individuals will be offered through electronic channels. The channels include telephone, interactive voice response, call centres, Internet, and public access terminals and kiosks

At the time, Ontario committed itself to its e-government initiative, all government ministries possessed Web sites that provided information about their services, but few featured electronic service delivery. Among services provided online back then were online traffic reports, order desk services for government publications, and a growing number of kiosks placed around the province at which motorists could renew vehicle license plates.[7]

Two years later the Ontario effort had moved ahead but not at the rate or with the ease that was envisioned by the government. (Saunders, 2002) Government officials claim that the effort is largely on track with new services introduced and a number in advanced stages of planning. . Indeed, in 2002, one estimate is that about 60 percent of Ontario government services are available through electronic channels. (MISA Ontario, 2002) This suggests the gap between reality and objective is fairly narrow. What is not clear, however, is the extent to which the government's commitment requires a shift

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[6] Canada is a federated state which, in this case, means it has two constitutionally defined orders of government. In addition to the federal government, or Government of Canada, there are ten provinces. The provinces possess separate and distinct spheres of jurisdiction within the Canadian union but also share a number of jurisdictional areas with the federal government. For example, there are separate and interrelated federal and provincial foci on environmental, transportation and cultural matters.

[7] Ontario boasts world leadership in developing an online land registration system that, in 2000, had been in the works for eight years. Under a paced roll out, the system will be introduced through municipal governments throughout the province. The system permits lawyers to transact all aspects of a land sale (e.g., negotiation, signatures, altering of agreements) from any desktop as long as they communicate their security credential. (Silbey, 2000)

between or among ICT modalities for service delivery.

The Province of Quebec introduced an information superhighway policy in 1998 that defined five main priorities including bringing the provincial government closer to citizens and businesses. (Martin, 2000) In the immediate period that followed Quebec established a single point of entry for the 200-plus web sites within the government. Similar to the federal government, Quebec has committed itself an ambitious business process re-engineering initiative that relies heavily on the promise of ICTs. The IT aspect of this requires substantial revisions to the internal and external networks and infrastructures. Key projects such as an integrated office automation and communication network are centrally managed and accessible from all provinces throughout the province.

Canada's Atlantic provincial governments have also moved toward e-government. Nova Scotia, for example, moved to rationalize its fragmented IT administration in 2000 by, among other things, affecting greater centralization of IT administration. (Himmelsbach, 2000) A newly renamed Service Nova Scotia department was given responsibility for developing and implementing the government's online services. In 2000 the new agency set a target placing 80 percent of government services on line by 2004. Tiny Prince Edward Island borrowed an idea from Alberta and has created its own internal portal that serves managers and the general public service population. (Armstrong, 2002) Managers can use the portal in a variety of ways including accessing data that allows them to compare absenteeism in their unit against that elsewhere in the provincial government. Another PEI innovation, the *GOVINFO.CA* site, was and apparently remains the only combined federal-provincial-municipal Web portal in the country. This said, the site is not an integrated portal given that it is organized in "daisy wheel" fashion. Integration of data bases and intergovernmental distribution of citizen inputs, such as address or name changes, has not been accomplished at any level of government much less between or among governments.

In the Canadian west, the Government of Manitoba recently made its online mapping system available to the general public. (Meckbach, 2001) The service can be acquired over the Internet by downloading the software using an common browser. Information available includes mining claims, permits and mineral deposits for selected regions. A GIS-based feature provides maps that contain information on mineral leases, bedrock geology, land use information, major faults and magnetic information among other things. A "metadata" catalog permits different departments to apply data over the basic GIS map structure. Saskatchewan's provincial government claims a first in its introduction of an Electronic Tax Service that permits companies to electronically file several different taxes including tobacco, liquor sales, fuel taxes, the corporation capital tax and the provincial sales tax. The responsible ministry is reportedly expanding the service to a variety of other business- and corporation- related taxes. (Meckback, 2001a)

Alberta has been one of the more active e-government provinces and can claim several firsts in Canada while also being fairly representative of other provincial efforts. The province's *Service Alberta* web site, http://www.servicealberta.ca, provides a portal to information and Internet services within the government. Interesting, and apparently similar to Quebec and at least some other provinces, the Internet portal site is not the government's official Web site.

A wide array of information is available on the *Service Alberta* through several "service gateways".

These include a gateway keying on Acts & Regulations, Energy, Health, School and Students. Another gateway is organized according to "Events in Your Life" section. So-called "life events" include finding a job, getting married, becoming a parent, and moving to or from the province. A third gateway, "Quick Links", provides direct links to information concerning a discrete number for social cohorts (e.g., Aboriginal People, businesses, parents and children, and persons with disabilities).

Visitors to the *Service Alberta* site can apply on-line for a number of services. For example, Alberta students can get an estimate of their eligibility for financial assistance, or can enter their student ID and Social Insurance Numbers to check the status of their government student loans and student loan applications. Drivers can renew car and truck vehicle registrations online using the *Service Alberta* site. Individuals can apply for employment with the provincial government and also view the status of government job competitions. Truckers can submit Oversize and Overweight Permit Applications and check on the status of these applications. Again, similar services (although not exactly the same) are available to citizens of other provinces through their provincial government web sites.

Alberta's AGent (Alberta Government Employee Net) has already been mentioned in discussion of Prince Edward Island's ICT initiatives. (Lahey, 2001). The site, which is only available to Government of Alberta employees, provides a one-stop human resources administrative portal. In 2001, government officials estimated that roughly 17,000 or 24,000 provincial employees accessed the site. Data from a survey conducted in the same year indicate that 60 percent of users strongly agreed that AGent is a valuable tool with another 29 percent agreeing to the same question. Alberta officials claim that the portal saves money in the order of CDN $1.2 million annually.

A unique service, and one that remains controversial, is Alberta's child adoption web site — a site that matches children with adoptive parents. In a three-month period beginning February 2003 the site is credited with finding homes for 48 children. (Toneguzzi, May 8, 2003) The site came under fire in its original format from various elements in the community who complained that the initial information was too detailed and thereby violated the children's privacy. Offending information has been removed but the privacy issue remains a central and sticky one affecting e-government generally. (see http://www.child.gov.ab.ca/whatwedo/adoption/page.cfm?pg=index)

In an effort to promote Internet use, the Government of Alberta launched the Alberta *SuperNet* early in 2002. Similar to and integrated with the federal *Canada On-line* initiative, Alberta *SuperNet* will make high-speed, broadband network access available to 4,700 facilities in 422 communities across Alberta by 2005. Every public library, school, hospital and provincial government office in the province will be connected to *SuperNet*. Municipal offices will have the option of connecting to the network. The construction will establish a network that includes more than 12,000 kilometres of fibre optic and wireless components. When the network is completed Albertans will have access to broad band services that not only promote high-speed Internet transactions but also access to services such as video-conferencing and other services that utilize broadband systems to realize peak performance. Albertans will be the first in Canada to enjoy this capacity. The provincial government has made this investment because believes a fully operating province-wide broadband system will provide the province with an important economic development advantage. (see http://www.gov.ab.ca/acn/200202/11948.html)

In sum, provincial governments have been active over the past several years in several regards. First, they have made efforts to bring some order to their governmental web presence through centralized web portals. Second, there have been efforts to centralize the administration of IT and ICT through pronouncement of government-wide policies if not through gaining central control over the functions. Although not reported above, this has frequently occurred under the administration of a Chief Information Officer. Third, the provinces have worked to improve backend systems IT since the weakness of these has often worked against declared policy moves toward the creation of "seamless" governmental services at the front end user interface. Efforts in the richest provinces are especially noteworthy. Whether Alberta's initiative to create the SuperNet qualifies as a back end development or not, it must be recognized as one of the most ambitious efforts to build infrastructure to facilitate felicity of communications. Fourth, while government to citizen e-government initiatives are certainly evidenced (see below for further discussion), growth in government to business services are of special note. Fifth, although a great amount of provincial government initiative has been prosaic (but, perhaps mainly so because there has been so much inter-provincial adoption of innovations) there are also a great many innovative initiatives. This, perhaps above all, bodes well for e-government in the provinces.

2.2.3 Bureaucratic efforts to involve citizens

Bureaucratic efforts to involve the citizenry by using ICTs to conduct surveys, consultations, and dialogues are certainly in evidence. However, these approaches are under-utilized and the public service is not especially experienced, skilled or (perhaps even) enthusiastic about significantly involving the public in anything much more ambitious than bureaucratically initiated citizen consultations. What is often missing is the two-way exchange that presumably marks meaningful citizen involvement. This lack of engagement may reflect the nascence of citizen involvement using ICTs. Canadian governments are unquestionably at an early stage of their development of e-government, and perhaps this means they are at the beginning of a natural progression or unfolding of greater citizen involvement that will be promoted through e-government. (Lenihan and Hana, 2002) Perhaps, but some may find this proposition dubious. Phillips and Orsini (2002) observe that in the wake of serious failures in transparency and several high profile scandals involving a lack of accountability and control within federal programs, tight audit controls have come to dominate public service external actor relationships. Simply put, federal bureaucrats are not *into engagement* these days.

There is no comprehensive survey of provincial engagement of citizens through ICTs. Yet, it is likely that the level of provincial bureaucratic citizen engagement will be no different than that at the federal level, even if many of these government administrations have not been hampered by the scandals recently witnessed at the federal level. One reason that this may be the case is that all bureaucrats within a British parliamentary-styled system face an enduring dilemma over the extent to which they can and should engage the general public in program and policy development matters. Scratch any bureaucracy and you will find a sentiment among a good number of officials that citizen involvement is a matter for politicians and not for them. Many politicians will be found to share the same sentiment even if a sharp division between political and administrative officials in matters of policy and administration is often impractical if not possible. Therefore, while bureaucrats are certain to engage the public, and most

certainly publics organized within formal policy communities, their engagement of the vast citizenry is less certain. While this might be just fine in circumstances where parliamentarians actively engage the public using the new information and communication technologies, the fact that this is not presently the case leaves a gap.

2.2.5 E-government as public administration—a little rain on the parade

For the most part the news from Canada about e-government as public administration has been good news or, if one prefers, happy news. Yet it remains that the electronic service delivery is not a wholly happy story. For example, Ontario's ambitious effort to become a world leader seems to have been slowed by a host of factors including economic downturn, security priorities following the September 11 terrorist attacks in the United States, and a variety of internal, technically related problems. Ontario is certainly not alone in it experiencing development and schedule problems. These appear to be common even if only in rare instances the cost overruns and the shortness on promise are spectacular if not scandalous.

Elements of the public have been critical of e-government or, particular e-government initiatives. Some of the critics can be discounted as being among the usual whiners and complainers, or those with a political stake in stirring up trouble. However, there are many citizens who find themselves caught in something of an administrative "rip tide" created by movement toward ICT based services and a general concomitant reduction of governmental services.

Throughout the 1990s and continuing into the new millennium, Canadian governments downsized and downloaded services. Longford (2002) uses the politically weighted term "denial of service attacks" to characterize the phenomenon. The federal government and many provincial governments argued that they simply could not afford to pay for the levels of services, and especially those that they often characterized as entitlements. Thus they cut programs, fiscal transfers, and personnel. They also invested more or less aggressively in e-government and IT. One of the great attractions of e-government is that it appeared to save money. The story is an old one of machines replacing human labour, something that was accomplished with considerable effect in North American service industries such as banking which, in part, served as models for the public sector initiatives. However, unlike the "cyberneticized" service industries, governmental adjustments have been carried out by a monopoly (government) and without the discipline of the market.

For citizens on the wrong side of the digital divide, the ability to access governmental service that have migrated in part or in whole online has been diminished. Government administrators are often acutely aware of the dilemma but saddled with diminished budgets and staff complements and with service delivery investments going heavily to online service development they too are in a quandary. Whether this problem remains over time or is simply an artifact of the transition to electronic service delivery is something to be watched. If one were to bet, it would be on a split that would have many citizens moving with greater or less difficulty to use ESD offering and a hard minority that either by preference or circumstance will not be served. The real question for Canadian public administrations is how to handle the hard cases.

Protection of privacy is a public and an administrative concern that is growing at pace with the

expansion of electronic service delivery. Both citizens and governments share complex views on the matter. On the one hand, citizens seem to be increasingly concerned that e-government will result in new invasions of their privacy by government. Part of the concern has to do with information collected that can fall into the hands of unauthorized or unwelcome users. Another, perhaps equally troubling aspect, concerns the state's ability to bring together diverse information accounts. (Longford, 2002) Canadians, increasingly like Americans, and unlike Europeans, appear to fear the power of government —an institution that has fallen from high regard over the past several decades. On the other hand, citizens reportedly want seamless and convenient government services that require considerable backend integration of information, and felicitous communication between disparate databases. For their part, governmental administrators charged with providing ICT-based services are enthusiastic about building systems that can create seamless front end interface with government. Conversely, many of their colleagues who are stewards of information and the actual producers of services, often fail to share the enthusiasm of the IT types. One reason for this may be bureaucratic protectionism, yet this is most certainly not the whole explanation. The apparent oppositionists may also have deep concerns about protection of privacy, data stewardship, and proper program management.

2.3 E-government, political parties and parliaments and legislatures

Political parties and parliaments are the second major institution through which e-government is realized (I will henceforth refer to as these collectively as the Parliamentary Institution — my terminology.). The very purpose of the Parliamentary Institution is to "organize, aggregate, harmonize and articulate interests." (Phillips and Orsini, 2002, 11) In Canada this institution does these things with considerable effectiveness. The Parliamentary Institution displays considerable Internet presence, and those within it have timidly experimented with such innovations as electronic polling (by parties). Nonetheless, it is perhaps the least open to and active in e-government matters.

2.3.1 Canadian Parliament and provincial legislatures

The Parliament of Canada's official web site http://www.parl.gc.ca/ provides a great amount of information for those learning about the nature of the Canadian Parliament, its officers and members, and its business. Visitors to the parliamentary web site can obtain detailed information on the latest debates, committee business and bills. Detailed research documents prepared for members and senators by the Library of Parliament are available through the site, as is contact information for members and senators and links to their personal web sites. Detailed information is provided on the federal cabinet and government ministries. The Prime Minister receives special attention with considerable bibliographical information provided and a listing of key officials who serve him including principal secretaries. The Speaker of the Parliament has his own web page and there are links to the provincial and territorial legislatures' web sites. Other features of the federal site include an online tutorial for students and others who wish to learn about the activities of a Member of Parliament.

Provincial legislatures provide similar information. For example, the Legislative Assembly of Alberta's web site http://www.assembly.ab.ca/ provides information on members, bills and amendments before the Assembly, details on the Assembly's business including House Transcripts, votes and proceedings and

the like. Similar to the federal Parliament web site, the Alberta legislative assembly provides various public information items including that on special events, student tours and visitor information and details on various support services. The Legislature Library is part of the province-wide network system although borrowing cannot be conducted over the Internet and the library does not produce special research reports analogous to those produced by the incomparable Library of Parliament.

2.3.2 Major political parties

Canada's major political parties all have web sites, as do the major provincial parties. These sites are often differently organized depending on whether the party is the government party or ones in opposition. The Liberal Party of Canada's web site http://www/liberal.ca/ provides considerable information on upcoming party events, government activities, government news releases, key issues (as seen through the party's eyes) and special links to such things as Liberal Caucus task forces. Information on the party's long history, memberships, donations and merchandise is also provided. So too are links to government web sites and a means to provide "feedback". The Loyal Opposition in Parliament — the Canadian Alliance Party — includes similar information to a point, but also focuses on issues key to the party's platform and on the government's shortcomings, mistakes and perceived outrages. The Alliance Party web site http://canadianalliance.ca/ also features interactive opinion polling that allows visitors to express their views on hot political issues, and multimedia presentations from the leader and key officials on policy matters that can be downloaded or run. Other federal parties replicate the general format and provincial parties more or less follow the same government party-opposition party formats. Where they differ is largely in their imagination and presentation.

2.3.4 E-government and the Parliamentary Institution

There is certainly a great deal of useful information found on the Parliamentary Institution web sites and there is no doubt that citizens can use this information to some advantage. However, when it comes to using these sites to enhance citizen involvement with the Parliamentary Institution, the immediate prospects seem limited for a variety of reasons. First, there is the very character of the Parliamentary Institution. Power in Canadian federal and provincial legislatures is highly centralized in party hierarchies and members operate under strict party discipline. This remains the case even though in recent years there has been the appearance of something resembling populism (albeit of a very mild sort) within some of the parties. Through this populism the individual member of the legislature has perhaps gained voice. The voice is nonetheless small and is predominantly exercised within the closed confines of the party caucus.

Second, according to one study, although more than half of Canadian MPs (Members of Parliament) have official Web sites, only a quarter of the members use interactive tools such as feedback forms. (Sutton, 2002) It might be that this pattern reflects the very nature of the Parliamentary Institution with its present constraints but it is also likely that elected officials either do not appreciate the opportunities provided by the new technologies or, simply, do not possess the skills to use them.

Third, just as is the case with members, it is clear that the major political parties and legislatures are neither energetic nor rigorous in the ways that they engage the public electronically. The Liberal Party of Canada and the Alliance Party web sites reveal no real attempt to engage the public using their web

sites. There is, to use an increasingly fashionable phrase, no *public space* within these Parliamentary Institution sites. The Canadian Alliance Party admittedly features an opinion survey on its site, but this is constructed in the best of "push poll" traditions asking leading questions on question of considerable emotional import. The area in which ICTs are being used to best advantage by parties is in campaigning and membership drives. (Boirns, 2002) It will be interesting to see if this use will educate politicians and their organizations to the utility and potential of ICTs.

Finally, far from aiding citizen involvement and serving to link politicians with citizens (and visa-versa) the ICTs may effect the opposite result. At the simplest level the problem of the "e-mail blizzard" created by citizens dashing off e-mails to their elected leaders often creates "piles" of correspondence that cannot be answered or effectively tallied. More significantly, it is not clear that e-surveys and public consultations conducted in their present form over the web produce especially useful vehicles for policy debate and input. (Delahanty, 2002) Longford (2002) opines that "while the Internet has proven to be a powerful means of gathering and sharing information, it is a predominantly individualistic and expressive medium which facilitates talking over listening, deliberation and the give and take of face-to-face communication." (9) Further, citing an American study, he notes that using online information sources does not correlate with political participation, save for making online campaign donations.

2.3.5 Enhancing the Parliamentary Institution though ICTs—prescriptions

Does this mean that there are no areas in which the Canadian Parliamentary Institution can be enhanced by e-government initiatives? Optimists, who include legislators among their numbers, suggest the Parliamentary Institution can benefit from embracing e-government. According to some of these e-government advocates, in fact, there is a pressing need for parliamentarians and their parties to initiate reforms that will increase the use of ICTs in the Parliamentary Institution. (Crossing Boundaries III Political Advisory Committee, 2002) Not doing so runs the risk of increasing already evident frictions that exist between the Parliamentary Institution and an increasingly populist and politically disaffected Canadian public. This public demands greater participation in policymaking and voice in important issues that include a number not being addressed by the Parliamentary Institution. E-government is thought to be especially useful in promoting transparency and accountability which are thought by "cyberoptimists" to be key in reducing public distrust of the institution.

A committee of federal, provincial and local parliamentarians convened by The Centre for Collaborative Government recently listed five goals that if pursued would improve the Parliamentary Institution. (Crossing Boundaries III, 2002) Although the use of ICTs is not strictly necessary in the pursuit of these goals, the parliamentarians all the same identified the goals as "e-government goals". Through this they indicated their belief that ICTs can and should play a central role in effecting Parliamentary Institution reform. For our purposes, the most salient goals are:

- Improvement of relations between government and its citizens — i.e., through increased transparency and accountability, and through improved communication between elected representatives and their constituents;
- Promotion of democracy through public consultation, informed debate, and encouragement of the expression of views;

- Reinforce political credibility — strengthen politicians' ability to effectively communicate the nature of their work to the public.

To move this agenda forward the parliamentarians identify several issues that the Parliamentary Institution and the nation's public administrations need to address. One is the failure to treat governmental information holdings, and the capacity for gathering and integrating information, as *public resources*. They argue that this should be addressed quickly. The parliamentarians also see the need to ensure public information is accurate and authoritative and that information overload be avoided. According to these e-government advocates, enhancing transparency and accountability can be achieved only through a major change in government culture: "governments must become much more open, much less controlling and more collaborative, less hierarchical and more horizontal, less secret and more transparent." (9)

All of this is a tall order and, perhaps acknowledging this reality, these advocates retreat somewhat to make fairly timid near-term proposals for advancing reform and e-government. They propose that politicians use the committee systems of legislatures to bring together key actors and with them "identify opportunities and ways to coordinate across organizational boundaries." Also proposed is that Canada's legislators break with the traditional style of formal hearings and promote an approach to "consultation as conversation." Under such an approach the discourse would be between Canadians and not just with government and, of course, the dialogue would be promoted online. Members of the Parliamentary Institution would participants in such discourse and, perhaps, facilitators.

Whether such proposals will be taken seriously by any government is an open question. Given the previously mentioned rigidity of the Parliamentary Institution, one is not encouraged. Opening government in the manner proposed by cyberoptimists would require the principals of the Parliamentary Institution to cede the power and influence that they fight so ardently to acquire. It would require them to give up "the game", and since it is the game that defines and motivates them as much as anything else, and since the game is played for such high stakes, the cession would be quite remarkable by any measure. Further, it is not clear whether the alternative, a more populist government, would represent an improvement over the current Parliamentary Institution.

2.4 Independent or Non-governmental actors

2.4.1 ICTs, NGOs and the media

If the Parliamentary Institution has been slow to adopt ICTs, the opposite is the case among many civil society organizations and the growing NGO networks. ICTs provide important media for facilitating communications among these organizations and networks. (Smith, 2003) ICTs appear to empower these organizations in new ways. For example, ICTs facilitate internal communications and provisions of services to members. Perhaps more importantly, ICTs allow for the creation of new "public spaces" that allow civil organizations to circumvent mainstream media when publishing and otherwise communicating their message to members and the broader public. The new technologies facilitate cheap and effective means for disseminating large amounts of information. Public participation and mobilization is also possible through use of ICTs, and possibly in uniquely efficient and effective ways. This is

especially true at the grassroots level. Further, ICTs permit civic organizations to establish forums that can foster policy discussion and debate, and educate the broader public on issues and policy alternative policy approaches. (Smith, 2003; Borins, 2002)

The matter of creating new public spaces may be an especially important development. Because the scope of the Internet is world wide, civil society organizations can use the technology to build political support both within and outside of their immediate political jurisdictions. Canada's James Bay Cree (Indians) residing in northern Quebec used the Internet to mobilize a major campaign against provincial plans to develop a massive hydroelectric project. The Cree built on the experience of other politically marginalized peoples (e.g., Mexico's Zapatistas) in communicating their message through networked global information systems and were able to force concessions on the Government of Quebec. Other groups such as global trade protesters and environmentalist have used the communication and organizing capacities of ICTs to mount protests and collective action. (Smith, 2003; Borins, 2002)

The relationship between the traditional, or "establishmentarian" mass media, and alternative media is undoubtedly complex. For example, while the James Bay Cree used the Internet to communicate their plight and political message, it was the traditional mass media that effectively communicated these to broad publics in the United States and Western Europe. In this pattern, the Internet emerges as a new source for mass media reporting and a new means for NGOs and others to shape communications that are news worthy.

2.4.2 E-government, NGOs and the media—reflections

Smith's observations suggest that e-government activity within the third institution of the Canadian political system may have limits that are only now beginning to be understood. He notes that there is little doubt that new networked citizens' movements have been successful "in opening new political spaces and projecting themselves onto a wide public stage." (18) He similarly observes that networked civil society organizations have been able to open the policy dialogue in some measure and occasionally gain places at the table in important policy discussions. An example he offers is the recent "Trade Talks with Canadians" initiative by the federal government's Department of Foreign Affairs and International Trade which is engaging civic society organizations on an experimental basis as part of the Government Online initiative.

What is not clear at this juncture is the extent to which the use of networked media and ICTs has increased the effectiveness of civil society organizations in their efforts to promote policy and social changes. And, for that matter, on the opposite side it is not clear how lasting governmental efforts seeking to engage civil society organizations will be. Civil society organizations do not necessarily trust governments in this new round of civic engagement and the actual evidence of significant policy change is scant.

New information communications technologies bring their own limitations and complications. For example, the quality of information carried by these new technologies is uneven and it might be that significant portions of the information are unusable. It will be remembered that parliamentarians identified the same "useable information" problem, but in the broad and chaotic third institution such difficulties seem exponentially more complicated. Further, the vastness of information that can be placed

before the public and policymakers may defeat cogent and timely analysis. The domination of the English language on the Internet may not be an inherent limitation of the new technologies *per se*, but this circumstance creates a barrier to many potential users. There are also the numerous facets of the so-called digital divide that must be factored into any consideration of the political reach of the new technologies. ICTs may empower those with ready access and possessing confidence in the use of these technologies while distancing and dividing these users from others without access.

Along similar lines, Smith (2003) observes that while there is potential for these new media to bring communities together it also is possible that they can intensify social and political fragmentation. Longford (2002) makes the same observation noting the phenomenon of "cyberbalkanization" in which Internet-based communities can often become obsessively focused. While it cannot be predicted what such focus means for a political system, it is likely that it will challenge the formal institutions responsible for interest aggregation and the creation of public policy solutions that service the larger population. Indeed, the distress of the Parliamentary Institution is granted but cyberbalkanization may even make interest aggregation within NGOs supremely challenging.

3.0 Municipal E-government

To this point I have addressed the state of e-government focussing on Canada's senior governmental levels. Municipal government requires separate attention for various reasons. For one, its structure fits less well within the three-part scheme used above since municipal government in Canada is largely non-partisan and is not structured following the British parliamentary institutional tradition. More especially, however, municipal government deserves separate attention because of the promise it may pose for the fullest realization of e-government. This might be true not only because municipal government is the level of government closest to the people but also because it is the level of government most directly responsible for producing services (and clearly it is in the provision of information and transactional services that e-government seems to shine).

Observers of Canadian government and politics sometimes disparage municipal government as being a junior governmental entity. Constitutionally it is true that in Canada municipal governments are creations of the provinces. Yet, this view of municipal government as a minor form of government is rapidly disappearing since over the past fifteen years municipal government has gained importance as well as capacity. During this period provincial governments have provided municipalities with considerably greater freedom to conduct their corporate business affairs. These changes have been implemented to facilitate entrepreneurial local government with the conviction that entrepreneurship will enable municipalities to better serve their citizenry. Several provinces have placed considerably greater burden on the local citizens to exercise democratic control over their local councils. In some of these provinces the citizenry can force plebiscites by petition and through the plebiscites reverse municipal council bylaws or even make local law. There is nothing analogous to these or other local democratic provisions at the senior levels of government. Furthermore, eastern Canadian provinces have amalgamated many municipal governments reducing the number of municipal governments and local elected leaders. A related result has been to increase the size of municipal units and of municipal

bureaucracies. Even though the consolidation initiatives have been taken to improve service levels, they are not without implications for local democracy and, for that matter, e-government. Among other things it is likely that larger bureaucracies possess enhanced expertise that enable them to embrace e-government.

3.1 The current state of municipal e-government in Canada

Not every Canadian municipal government has a Web presence. A 2001 survey of western Canadian municipalities of varying populations reveals that while all municipalities over 100,000 population have a web presence the percentages drop as municipal populations become smaller. Ninety percent of medium size municipalities (10K-99K population) were online while only 71 percent of small municipalities (under 10K population) had web sites. (Downey and Berhdahl, 2001) Survey work completed by researchers at the University of Alberta in 2001 provides additional insight into the state of municipal e-government. Results of our national survey of municipal chief administrative officers employed by authorities with populations less than 100,000 reveal that 99 percent used computers at work and 94 percent had Internet access at work. (Government Studies, 2002) These impressive statistics were significantly diminished, however, with reports that 45 percent of the respondents possess low speed Internet connections which effectively prevent them from accessing Internet's full potential. Still, 92 percent use the Internet for business communications. Municipal administrators report heavy use of standard search engines and frequent visits to web sites — 90 percent in both instances. By contrast few municipal officials (18 percent) use the Internet to buy or sell services or products. And, while it is clear that may officials do use the Internet for business communications another slightly earlier University of Alberta survey of Alberta municipal officials indicated that e-mail use was remarkably low on average. Respondents averaged receiving three messages per day within their office, sending three a day within their office, and receiving five a day from outside their office while sending three message a day outside. (Government Studies, 2000).

Lenihan and Hana (2002) posit three fairly clearly distinct stages through which municipalities pass as they implement e-government: *static information, transactional services*, and *online communities*. They describe the stages as a progression on a continuum. In the *static information* phase municipalities use the Internet to provide citizens with information about civic departments and the political executive and machinery, services offered, council meetings, various processes, etc. Citizens at this stage cannot use the Web site "to interact with government or the information." (8) *Transactional services* make it possible for citizens to complete transactions online. These transactions, like those performed at the federal and provincial levels, can range from being simple (e.g., paying a parking ticket online) too complex such as the multi-step process of appealing a property tax assessment. *Online communities* "are sites where information is not only posted but is available in such a way that citizens play a role in developing and elaborating it and, in the process, interact with government officials." (9) I use this three-part scheme to further examine the present state of municipal web sites.

3.1.1 Static information available on municipal web sites

Similar to sites at the federal and provincial level, most municipal web sites include quantities of static

information that can be readily accessed by the citizenry. Static information found to be initially featured on western Canadian municipal web sites includes:

- Links to community organizations
- Parks and recreation information
- Links to the public library
- Employment/volunteer information
- Public/current events information
- Contact information
- Municipal and community statistics and demographics
- Tourist information
- Business development
- City maps

(Downey and Berdahl, 2001)

Researchers reporting these findings observe that "[a]fter developing community and economic development information, municipality web sites generally turn to providing information about municipal government and municipal elections. This is currently an area of expansion for municipal web sites, and information on service payments, council deliberations, budgets, bylaws, and elections will have a greater online presence in the future." (Downey and Berdahl, 2001, 3-4) While the majority of large municipalities surveyed by these researchers provided these services, there were some notable exceptions to the rule:

- Only 17 percent of large authorities included service-payment information
- Only half or less provided voter information

By contrast, small municipalities surveyed produce much less information on governance and services. Little or no information is featured on small municipality' web sites concerning bylaws, city planning, budgets, council deliberations, emergency preparedness, environmental information, transit, and service payment. Only electronically available records of council deliberations appeared on more than a third of the smaller authority web sites. Medium size municipalities tended to fall between the large and small authorities in the information and services they provide. (Downey and Berdahl, 2001)

3.1.2 Transactional services available at the municipal level

Downey and Berdahl observe that few western Canadian municipalities offer e-services at present, although many indicated that they planned to do so. The population of the municipality seems to make a difference in the range of online transactional services offered. Large municipalities are ahead of small and medium size authorities in their provision of transactional services. However, there are some exceptions to this pattern with the smaller authorities providing more in the way of online business permits and online utility payments. Precisely why this is the case is unclear although private firms have marketed some of these services to medium and small municipalities. Perhaps this is not the case for large municipalities that may seek to develop these resources internally given either capacity or unique system integration requirements.

Among transactional services offered by western Canadian municipalities are the following:

- employment applications
- geographic information systems
- recreation programs and program registration
- online purchasing tenders
- property tax assessment/payment
- pet registration
- parking ticket payments
- business licenses/permits
- utility payments
- change of address notification
- site plan approval (Downey and Berdahl, 2001)

While larger authorities are more likely to provide such services in no instance did over half the larger authorities offer any given service listed. Other observations concerning transactional services include:

- No large municipality provided business licenses/permits, utility payments, change of address notification, or site plan approval services online.
- While small municipalities provided the range of services (save parking ticket payments), in no instance did over 7 percent of the cohort produce any one service on the list.
- Medium size municipalities provided all services except pet registration, however in no instance did over 24 percent provide any given service and in instances less than 10 percent reporting the production of an online service.

Collectively, these results underscore the still limited extent to which Canadian municipalities were producing transactional services in 2001.[8] A brief random review of several municipal web sites across the West reveals that although municipalities have added some transactional services, the progress has not been truly marked. Indeed, the extent to which Internet transactional services have not come on stream raises questions about barriers that retard the production of transactional services at the municipal level. This is a matter will be discussed in greater detail below.

3.1.3 Citizen involvement through municipal sites

While there is certainly much written about the particular promise of municipal government in generating citizen involvement through of e-municipal government, research findings are again not particularly encouraging. For example, the Canadian West Foundation survey found that very few

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[8] Readers are encouraged to consult the Municipal Information Systems Association's comprehensive report *City Hall Online: A Progress Report on Municipal e-Government in Ontario* (2002) for an Ontario assessment of the pace e-government development at the municipal level. Generally, perhaps as might be expected given its authorship, this report is more optimistic about advances at the municipal level than I am or than researchers such as Downey and Berdahl give reason to be on the strength of their research. However, there may be room for optimism. The report was produced nearly two years after the Canada West Foundation research, and events are moving quickly. Beyond this, Ontario, unlike the western provinces, extensively consolidated its municipal system in the 1990s and this has apparently bolstered IT budgets and civic administration capacity to pursue e-government initiatives. (Matthews, 2002) Ontario has also invested in aiding its municipalities to development e-government. (MISA, 2002). While this is also the case elsewhere, the commitment appears to be significant.

municipalities feature online voting or surveys. Surveys are more popular than online voting, although only 25 percent of the large municipalities conducted online surveys and miniscule numbers among the medium and small municipalities responding indicated survey use. (Downey and Berdahl, 2001) Only one municipality out of 152 responding authorities (a medium size one) reported using online voting. None reported using online videoconferencing/webcasting. No large municipal web site features citizen forums. In fact, only very small percentages of the small (3 percent) and medium (5 percent) size municipalities reported producing citizen forums. Queries concerning online consultation evinced very much the same pattern with no large and no small municipalities reporting this activity associated with their site. These findings are buttressed by a less formal survey conducted by Lenihan and Hana (2002) in which the authors observe that few municipalities have developed the means to make this happen.

Presumably, if Lenihan and Hana's suggestion of a progression is accurate we can expect to see greater evidence citizen involvement at the municipal level in the future. There are certainly legal incentives to facilitate this. Further, the heavy, rigid and centralized machinery of the Parliamentary Institution does not generally apply at the Canadian municipal level. The overwhelming preponderance of municipal governments is non-partisan and voting usually occurs within so-called free-floating coalitions. There is no such thing as an American-style strong mayor in Canadian municipal politics; in fact, Canadian mayors are extraordinarily weak politically and administratively. All of this suggests that municipal government may yet more easily yield to e-government.

However, such optimism must be trimmed with prospects to the contrary. Since municipal government is so varied, it is likely that some authorities will pursue citizen involvement while others will not owing significantly to the character of local politics and other factors. If it is going to occur, it is likely that greater citizen involvement is going to be forced through the efforts of those who reside outside the existing policy communities or local governing regime. Where the municipal circumstance may differ from that of the constitutional orders of government is that the lack of rigid party organization results in so-called "outsiders" sitting on municipal councils. These "insider-outsiders" may force the citizen engagement issue by using the Internet to pursue their political purposes and in so doing create conditions in which other municipal politician will necessarily need to follow. It will be a development worth watching.

3.2 Local civil society organizations and community web sites

Just as there are civil society organizations and media at the national and federal levels in Canada there are also local civic organizations and media. Organizations such as local and regional chambers of commerce, community leagues and sport federations, ethnic societies, and service and social clubs all participate actively in Canadian local politics. Little however is known about how these organizations use ICTs to secure voice in policy issues and to organize for local political action. Presumably, the advantage of these technologies is the same as it is for civil society organizations that operate at the higher levels of politics but this is a matter to be formally explored. (Schachtel, 2001)

Civic FreeNets (i.e., community web sites) exist in many Canadian municipalities and they provide public space for discussions on municipal and other local issues. (Shade, 2002) A few of these Web sites

meet a number of the key criteria denoting "good" electronically enhanced democracy Web sites. (see Hanselmann, 2001 for research on electronically enhanced democracy web sites) An example is Ottawa's National Capital FreeNet, http://www.ncf.ca, a site includes many newsgroup and online discussions that focus on local and regional civic issues. Perhaps the best Canadian example of a local electronically enhanced democracy web site is *Kingston Electors*, http://www.kingstonelectors.ca. This impressive site meets most of the criteria for a "good" site by providing information on council matters, contemporary civic issues, important local government services and issues relating to them, important upcoming civic events, editorial opinion, discussion forums and more. It is not known how many similar sites exist across the country or what the political efficacy of the Kingston site is in terms of influencing local public policy and promoting citizen involvement. *Kingston Electors* is clearly a labour of love and of particular interest will be whether it is sustained over the long run.

3.3 Municipal E-Government-reflections

The municipal sector currently lags behind other levels of government in providing information and transactional services and in its facilitation of civic involvement through ICTs. Similarly, it appears that members of the "third institution" of government (i.e., local civil society organizations and media) are less aggressively disposed to use ICTs to expand their voice and influence at the municipal level, although admittedly this is an observation not substantiated by Canadian research. Thus, while many hold great hope for e-government at the municipal level the evidence to date if not defeating hope certainly causes one to pause and reflect on the proposition.

I, for one, retain hope that municipal government will become a "strongman" of Canadian e-government. There are good reasons shared above to think that municipalities will do well by e-government. There are also significant obstacles. Perhaps the most apparent reason for municipalities not moving more expeditiously toward e-government is their relative lack of resources and capacity. This point seems axiomatic for the many smaller authorities that do not yet possess high-speed Internet connections. (Downey and Berdahl, 2001) Municipalities also lack of experience in developing and sustaining online transaction services. Closely related to this is the profound lack of experience in constructive facilitation of public discourse through ICTs. The local digital divide that sees many local citizens of lower social-economic status not possessing the skills or the necessary tools to participate in e-government is another impediment. (Lenihan and Hana, 2002b) Local politicians may wish to energetically embrace e-government and e-democracy but they, possibly more than their senior government counterparts, must be conscious of the technical limitations of their local constituents. The sometimes highly discrete socio-economical nature of municipal political wards in larger municipalities can produce significantly deficient constituencies. In such instances the population may be particularly lacking in the skills and appreciation that permits it to use the Internet. In smaller and remote communities this circumstance may extend to the whole community. Such conditions are certain to influence the orientations of local elected officials in some measure; after all, municipal government is for better or worse the closest to the people.

4.0 Universities and E-government

North American universities have long defined their missions as involving three interrelated functions: teaching, research and public service. The third function, public service, normally takes a backseat to the other two but under a new and transformed guise it has increasingly become important to post-secondary institutions. Indeed, in recent years instead of focusing on the division between these three functions universities have increasing come to see all three as interrelated. In the event, traditional university public service has been replaced at many universities by notions of "outreach" and most recently "engagement" or more broadly civic engagement. (Fogelman, 2002) The civic engagement concept, in particular, reaffirms the university's role as an innovator and collaborator in partnership with other social institutions to improve and perfect society. Engagement also affirms that directed research and teaching are a significant part of the university's contribution to society and an important part of the university mission. It is within this new view of the North American university's social role that university efforts in support of e-governance may receive special support.

4.1 Areas in which universities can make a contribution to e-government

North American universities have only begun to engage governments and society in the matter of e-government. Nonetheless, it is clear that universities have much to offer to advance e-government. There are nominally seven areas in which universities can make contributions to e-government:

- Hardware development
- Software development
- Information dissemination
- Modeling (including best practices)
- Technical assistance
- Research and critical analysis
- Instruction (in e-government as well as related areas such as communications and technology interface, alternative service delivery, citizen involvement)

Although these areas are by no means wholly discrete they represent somewhat different thrusts that may involve distinct disciplines and parts of the university organization. For example, hardware and software development is activity that is most likely pursued through engineering and computing science departments. Information dissemination services, best practice modeling and technical assistance are more likely to be pursued through special centres or institutes that have government-oriented outreach or engagement mandates. Research and critical analysis can occur throughout the academy. For example, as expected, political scientists wrote many of the articles consulted for this essay. However, public administration scholars, historians, sociologists, business scholars, academic engineers, communication theorists writings are also found in the bibliography.

A few examples will illustrate contributions that universities can and are making to the advancement of e-government. At the University of Alberta, contract staff working in the Government Studies, Faculty

of Extension, developed experimental software that provided an automated news subscription service for municipal Web site homepages. Municipalities received short news articles and other information referencing their jurisdictions that was placed in a reserved space on their municipality's home page. The information was automatically sent and updated over the Internet. While the software was experimental and has been retired, it provided a prototype subscription service that is certain to have important future applications.

The State University of New York at Albany, through its Center for Technology in Government has an active applied research and information dissemination program dedicated to helping public agencies with their e-government work. The Center assists public organizations by developing strategies and tools for innovative and effective use of information technology. Among publications produced by the Center is a guidebook that helps local and municipal officials understand ways of doing business on the Internet. Another publication is a short report that assists administrators in surveying their citizens' e-government needs. (Centre for Technology in Government, 2001)

The University of Alberta's MuniMall project http://www.munimall.net/ and the MuniMall Newsletter provide examples of how a university can disseminate information and findings relevant to municipal and e-government. MuniMall is a municipal government portal that contains information of interest to students of municipal government, and to local government officials. The MuniMall Newsletter is an integral feature of the MuniMall and one that enjoys considerable profile in the Canadian municipal community. It is distributed over the Internet weekly to a subscriber list of 2,000 individuals. Much of the Newsletter is devoted to displaying recent newspaper articles on municipal affairs across Canada. There is also a special section on e-government. Since the newsletter is delivered electronically over the Internet, the actual population of readers is larger (perhaps much larger) than the subscriber list, in that the recipients circulate the publication electronically within their municipal organizations.

At the University of North Carolina, the Center for Public Technology aid local governments in improving employee ICT skills, expanding local service capacity and strengthening their communities through the use of ICTs.(See http://www.cpt.unc.edu/) A similar initiative is underway at the University of Vermont through the Center for Rural Studies' E-Government Project. The Vermont project involves supporting the use of information technologies in town offices for the purpose of conducting municipal business electronically. Among the supports provided through the project are e-government training, I.T. research and e-government model policies. Technical assistance also appears to be provided. (See http://crs.uvm.ed/egpv/)

One of the services that we have developed at the University of Alberta is an online tutorial for municipal election officials. The tutorial provides instruction in elections administration and permits officials to test their understandings of practices and legislation. (See http://www.govsource.net/programs/eotp/index.nclk for description of program) This service was successfully used during the last round of municipal elections in Alberta and will be used again. At the University of Alberta we have also developed an experimental tutorial for citizens who were considering running for municipal elected office. This second tutorial provides information on the legal requirements for eligibility and other legal details. Information about organizing an election campaign is included and an online, real-time e-seminar

was held for those who had specific questions concerning the requirements and trials of elected office.

Formal university courses on e-government are now being offered at some universities. A good example of one such course is that offered at Tufts University in Boston. This offering i combines a technology and a political science component. Undergraduate students are required to analyze a web site of a major U.S. municipality, make recommendations for improvement, and defend their proposals. (Ragovin, January 2003) Instruction on e-government is being incorporated into a new course focusing on community engagement that is featured in a new Canada-wide national program for local authority administrators. The program is produced jointly by the University of Alberta and Dalhousie University. (See http://www.govsource.net/programs/naclaa/index.nclk) Elsewhere in Canada e-government courses are being introduced to school of government curricula. For example at the University of Victoria (Victoria, British Columbia) a new "E-Management" course has been introduced to the Masters of Public Administration curriculum. This course expands traditional MIS focused instruction to address the public management potentials of the new information technologies.

Finally, on this topic of university engagement, mention must be made of efforts by publicly spirited academics that offer their expertise to their communities as individual and often private acts of public service. Canada's premier community FreeNet, Ottawa's Capital FreeNet, was pioneered by two Carleton University professors and a senior IT administrator at the university. Their unique combined knowledge allowed them to see potential where others had not. While FreeNets have now become commonplace there are certainly other challenges that beckon the interested individual academic or team of publicly spirited academics.

5.0 Final comment

I revised this paper following a formal presentation at Niigata University of International and Information Studies' Decennial Academic Symposium and consequently have the benefit of hindsight and perspective. One such perspective emanates from a professor employed by Niigata University, who through his questions alerted me to the inherent "techno-nationalist" rhetoric suffused in the paper. My questioner was undoubtedly puzzled by it, or aroused by its immodesty, and politely suggested that certain of the investments and initiatives made by Canadian governments in ICT and e-government were perhaps of necessity rather than wholly visionary. Of course, he has a point. At the very least, Canada's great spaces and the separation of its population among a continent-spanning "archipelago" of urban region islands demand energetic public policy interventions that can help bind the nation. Longford (2002) goes so far as to call the federal government's e-government initiatives "The New National Dream". This term is purposefully loaded to remind Canadians that they have often looked to technological developments (e.g. the great enterprise of the transcontinental railroad, a national radio and television network, a national airline, a highway coast-to-coast) to foster and sustain the nation. In the case of the railroad, the first "National Dream", the fusion of technology, national myth and national identity is complete. The case can also be made for other technological develops. Therefore, the inherent techno-nationalist theme running through the paper is perhaps no surprise for it reflects a common character of Canadian discourse on such matters; again, a pride in technical accomplishment that is, so

often necessary technical achievement toward the enterprise of building a new nation.

Another point of reflection concerns the vexing matter of how the new technologies are changing Canadian government and might be implied by this change. Within the body of the paper I make reference to this theme several times, and cite scholars and others who are concerned over the possible effects of e-government. I do not possess the wisdom to predict how the new ICTs will change Canadian politics and governmental institutions. However, as someone who has from time to time concerned myself with the effects of technological change on politics and government, I am certain that there will be consequences. I am far from certain that Canadian political institutions will be remade in a populist image as a result of near universal adoption of the new technologies by the public—something that many appear to believe. In fact, while the new technologies may contribute to the progressive weakening of the Parliamentary Institution (a weakening that owes to many factors and which is not only evident in Canada), they may also strengthen public administration and municipal government. Perhaps this even will be at the expensive of the Parliamentary Institution and perhaps even with some dent done on democracy. The point is that there will be effects.

By way of final comment I retain the concluding remarks of my NUIS presentation. Specifically, I hold that universities can make important contributions to advance the technical foundations of e-government and to promote the adoption and use of e-government technologies and practices. The contributions in the latter areas can range across the scope of e-government to address e-service, e-governance and e-democracy. They can apply to all levels of government and address the permutation of relations between government, citizens and business. Of particular importance is the role that universities can play in aiding transitions. This includes aiding authorities and agencies in their initial adoption of e-government but also in their adoption of more sophisticated ICT applications to facilitate e-government.

Although the jury remains "out" on the extent to which e-government will transform government institutions and democracy, the question itself is an important and enduring one that requires serious attention by the academy. Many commentators see e-government in bright terms. They write optimistically about the potential of e-government. However, the proposition that e-government is *a priori* a positive force should not escape critical consideration. Therefore, while aiding the development of e-government through developing hardware and software, and providing demonstrations and assistance to advance e-government (in its broadest characterization), university scholars must also devote energy to researching and thinking about the consequences of e-government. In this there is something new but, also, something that takes academics back to one of their basic responsibilities-that of the clear—headed and objective observer.

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E-Government in Canada

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Purposes of This Presentation

- To provide a selective survey of e-government in Canada with particular attention to the state of e-government within three institutions of government
- To introduce the type of contributions that North American universities are making to promote e-government through civic engagement.

Organization of Essay

- Section 1: Introductory note on definition of *e-government*. Brief survey of recent research findings on Canadians' use of ICTs/International comparisons.
- Section 2: E-government at the Canadian federal and provincial levels of government.
- Section 3: Municipal e-government.
- Section 4: Contributions universities have made to advancing and achieving a better understanding of e-government.

1.2 A Note on definitions: the difficulty of defining e-government

- At the onset I must say that what precisely is meant by *e-government* – as a matter of definition – is far from clear.
- E-government as public administration or public management.
- E-government and e-democracy.
- E-government and e-governance.
- E-government as considered in this paper.

(1) For other forays into this definitional matter see Silcock (2001) Banks et al. (2002) and Crossing Boundaries III Political Advisory Committee (2202), 10-11.

E-government involves much more than the internet

- Transponders and other (Smart Cards) devices developed for facilitating electronic transactions.
- Linked computers and integrated data bases.
- GIS resources and their many related applications.
- Public kiosks.
- High-speed networks.

1.3 Canadians as Internet and ICT users

- 65 percent of Canadian households have Internet access **at home**.
- 50 percent of Canadians surveyed *use* the Internet **at home**.
- 14 percent of Canadians indicate that they use the Internet **at work**.
- 33 percent of Canadians indicate that they use the Internet **at more than one location**.

Canadians as Internet and ICT users (2)

- **Canadians** positioned **toward the bottom of a short list** of six advanced states in their use of the Internet **at home**; participation is roughly on par with American, Australian and Singaporean at-home use rates.
- Canadian Internet use **at home** is in the **bottom half of the six advanced states** although there is not much statistical distinction within this group.
- **Spanish** and **British** record the **highest** levels of Internet use at home and work.

Canadian Internet and ICT users (3)

- Canada is **sixth** among 82 nations in the use of ICTs.
- **Finland is first**, with the top five rounded out by the United States, Singapore, Sweden, and Iceland.
- Following Canada in close order are the United Kingdom, Denmark, Taiwan and Germany.
- **Canada's** particular strength on the list, a ranking of second, relates to the availability of **high-speed or broadband Internet** services.

Canadians as Internet and ICT users (4)

- **90 percent** of Canadians **under 25 years of age** have Internet access and are presumably using it.
- **Older Canadians** are less likely to use the new technologies.
- There are also different ties to **income, education** and area of **geographic residence**
- **77 percent** of **small Canadian firms** use the internet.
- Almost **all** of the country's **large firms** use the Internet.

1.4 Canadians as visitors to government Internet sites

- **64 percent** of Canadian Internet users had visited the Government of Canada website in the previous 12 months.
- **16 percent** of Canadians who use the Internet visit government sites either *very* or *fairly* regularly.
- **44 percent** of Canadians only *occasionally* or *rarely* visit Government websites.
- **Canadians edge out Americans** as the nationals who are the **most active government website users.**
- Over the past three years **Canadian government** has been **rated as the world's e-government leader** by an international consulting firm.

2.1 Note on the organization and focus of this section: three principal institutions of CDN parliamentary e-government

- *Public Service*: including the public administration of federal and provincial governments and related standing agencies, boards and commissions.
- *Political Parties and Parliament*: including politicians.
- *Independent or Non-government Actors*: including media and civil society organizations but not on independent inquiries and tribunals

2.2.1(1) The Government of Canada

1999 Speech from the Throne pledges:

- To be a **model user** of information technology and the Internet
- By 2004 Canada should be known as **the most connected government** in the world to its citizens.

2.2.1(2): Service Canada Initiative

- Seeks to achieve significant, quantifiable improvement in client satisfaction with its services over the next five years.
- A five-year target of a minimum 10 percent improvement in Canadians' satisfaction with the delivery of key government services to the public by 2005.
- Expanding e-government is a key element of the *Service Canada* initiative strategy.
- A "seamless" model of information and service delivery.

2.2.1(3) Government Online

- Supports the *Service Canada* initiative but also has its own broad objectives.
- By 2005 the federal government has committed itself to moving its most frequently used services online.
- The centerpiece of the Government Online initiative is the *Canada Site* website, http://www.canada.gc.ca

2.2.1(4) Connecting Canadians

Connecting Canadians comprises a great number of smaller program initiatives:

- *Canada Online*: 10,000 public Internet access sites in rural, remote and urban communities.
- *Smart Communities*: large community-based demonstration projects.
- *Canadian Content Online*: funding to digitize Canadian library and archival collections and to develop Internet-based instruction.
- *Electronic Commerce*: a policy framework definition initiative.

2.2.1(5) Examples of Government of Canada Online Services

- Income tax form submission.
- Federal government job postings.
- Aids to business such as business development advice (including financial information).
- Electronic customs.
- Online business registration.
- Internet and cellular phone interfaces to determine "wait times" at border crossings.
- Pollutant release and transfer data from over 2,500 locations across the country.

2.2.2(1) Provincial government e-government

Service Alberta website, http://www.servicealberta.ca

- Features a short list of popular topics such as Acts & Regulations, Energy, Health, School and Students.
- Other useful information available under an "events in your life" section.
- "Quick Links" that provides direct links to information concerning a number of discrete social cohorts (e.g., Aboriginal People, businesses, parents and children, and persons with disabilities).
- Visitors to the *Service Alberta* site can apply online for a number of services (e.g., students' eligibility for financial assistance or status of student loan applications.
- Alberta's adoption website – a site that matches children with adoptive parents.

2.2.2(2) Alberta SuperNet

- Alberta *SuperNet* will make high-speed, broadband network access available to 4,700 facilities in 422 communities across Alberta by 2005.
- Every public library, school, hospital and provincial government office in the province will be connected to *SuperNet*. Municipal offices will have the option of connecting to the network.
- 12,000 kilometres of fibre optic and wireless components.

2.24 Bureaucratic efforts to involve citizens through ICTs — comment and criticism

- Public administration involves the citizenry by using ICTs to conduct surveys, consultations, and dialogues.
- Approaches are under-utilized.
- Public service is not especially experienced, skilled or enthusiastic about significantly involving the public.
- Two-way exchange between public administration and citizenry missing.

2.3.1(1) Canadian Parliament and provincial legislatures

The Parliament of Canada's official website http://parl.gc.ca/:

- Provides a great amount of information for those learning about the nature of the Canadian Parliament, its officers, members, and business.
- Offers detailed information on the latest debates, committee business and bills.
- Features detailed research documents prepared for members and senators by the Library of Parliament.
- Detailed information is provided on the federal cabinet and government ministries.
- Links to the provincial and territorial legislatures' websites.

2.3.1(2) Alberta Legislature Assembly website-a provincial example

Legislature Assembly of Alberta's website: http://www.assembly.ab.ca/:

- Provides information on members bills and amendments before the Assembly.
- Provides details on the Assembly's business including House Transcripts, votes and proceedings.
- Provides various public information items including that on special events, student tours and visitor information and details on various support services.

2.3.2(1) Major political parties — their Web presence (Liberals)

The Liberal Party of Canada's website: http://www.liberal.ca/ provides:

- Considerable information on upcoming party events, government activities, government news releases, key issues (as seen through the party's eyes).
- Special links to such things as Liberal Caucus task forces.
- Information on the party's long history, memberships, donations and merchandise.
- Links to government websites and a means to provide "feedback".

2.3.2(2) Major political parties — their Web presence (Alliance)

The Loyal Opposition in Parliament-the Canadian Alliance Party-website:

- Includes similar information to a point, but also focuses on issues key to the party's platform and on the government's shortcomings, mistakes and perceived outrages.
- Features interactive opinion polls that allows visitors to express their views on hot political issues.
- Supplies multimedia presentations from the leader and key officials on policy matters that can be downloaded or run.

Other federal parties replicate the general format and political parties more or less follow the same government party-opposition party formats.

2.3.4(1) E-government and the Parliamentary institution considered and critiqued

- Information features on Parliamentary Institution websites are of interest and value but truly perfunctory.
- The very character of the Parliamentary Institution limits prospective uses of e-government for citizen engagement. Power in Canadian federal and provincial legislatures is highly centralized in party hierarchies.
- Members of Parliaments do not use e-government channels (although more than half of Canadian MPs (Members of Parliament) have official websites, only a quarter of the members who use them use interactive tools such as feedback forms).
- No real attempt to engage public on major party websites.
- Used to best advantage by parties in campaigning and membership drives.

2.3.5 Enhancing the Parliamentary Institution through ICTs: proposed improvements

- Treat governmental information holdings, and the capacity for gathering and integrating information, as public resources.
- Ensure public information is accurate and authoritative and that information overload be avoided.
- Change government culture so that governments [are] much more open, much less controlling and more collaborative, less hierarchical and more horizontal, less secret and more transparent.

2.4.1(1) Functions of NGOs and the media in the Canadian system

- Non-governmental organizations (civil society organizations) and the media comprise a third Canadian political institution of relevance to this discussion
- Seek to influence policy either from the inside **within** established policy communities or "**outside**" through advocacy, influence and suasion.
- Business and industrial organizations and a host of professional organizations usually work inside the system through established policy communities
- Protest organizations and other organizations with significantly different policy agendas than those pursued with the Parliamentary Institution and the public service often work outside the system to gain voice and influence within the system

2.4.1(2) Functions of NGOs and the media in the Canadian system

- Mainstream mass media can play "a significant part in mobilizing interest, transmitting knowledge, and promoting informed debate at various stages of policy-making"
- Alternative media such as so-called "electronically enhanced websites" may do a better job promoting citizen engagement and e-democracy

2.4.2(1) ICTs and NGOs

- ICTs provide important means for facilitating communications among these organizations and networks.
- ICTs appear to empower these organizations in new ways:
  - facilitate internal communications and provisions of services to members **cheaply.**
  - allow for the creation of new **"public spaces"** and circumvention of mainstream media when publishing.
- Public participation and mobilization is also possible through use of ICTs, and possibly in uniquely efficient and effective ways.
  - ICTs permit civic organizations to establish forums that can foster policy discussion and debate, and educate the broader public on issues and policy alternative policy approaches.

2.4.2(2) ICTs and NGOs — new public spaces

- Civil society organizations can use the technology to build political support both inside and outside their immediate political jurisdictions
  - E.g., Canada's James Bay Cree residing northern Quebec
  - E.g. , Global trade protesters in Quebec City
  - E.g., Zapitistas in southern Mexico
- Mainstream media still play an important role in aiding civil society organizations to gain public prominence

2.4.3(1) E-government, NGOs and the media-limits

- There may be limits within the third institution of Canadian government that are only beginning to be understood.
- Not clear at this juncture is how truly effective civil society organizations and the networked media have been in promoting policy changes through their efforts—the evidence is meager:
  - Promoting policy change requires extraordinary political energy by civil society organizations.
  - The new technologies carry within their own limits (e.g., the question of usable information, the vastness of the information).
  - New technologies can intensify political and social fragmentation.

2.4.3(2) E-government, NGOs and the media-limits

- Not clear how lasting governmental efforts seeking to engage civil society organizations will be
  - The Parliamentary Institution is resistant
  - Bureaucratic and Parliamentary Institution roles are not sorted out
  - New technologies may actually weaken the Parliamentary Institution but create nothing in its place

3.0 Canadian Municipal E-government-the promise of municipal government

Municipal government may provide opportunity for the fullest realization of e-government

- The level of government closest to the people.
- The level of government in which the citizenry possesses the greatest formal means to influence policy.
- A level of government not encumbered by the rigidity of the Parliamentary Institution.
- The level of government most directly responsible for producing services.
- The level of government that is most entrepreneurial.

3.1(1) Municipal e-government in Canada—Web presence

A 2001 survey of western Canadian municipalities of varying populations reveals:

- 100 percent of municipalities over 100,000 population have a web presence
- 90 percent of medium size municipalities (10K-99K population) were online
- 71 percent of small municipalities (under 10K population) had website.

3.1(2) Municipal e-government in Canada—officials' use of ICTs

A cross Canada survey completed by researchers at the University of Alberta in 2001 reveals:

- 99 percent of chief administrative officers employed by municipalities under 100,000 used computers at work
- 94 percent had Internet access at work.

Other findings include:

- 92 percent use the Internet for business communications.
- 90 percent use search engines and visit site frequently

3.1(3) Municipal e-government in Canada—somewhat less than rosy functions

The University of Alberta study also reveals:

- 45 percent of the respondents possess low speed Internet connections.
- 18 percent use the Internet to buy or sell services or products

Earlier University of Alberta research (2000) reveals even less rosy statistics:

- Chief municipal administrative officials averaged receiving 3 messages per day within their office.
- Chief municipal administrative officials averaged receiving 5 a day from outside their office.
- Chief municipal administrative officials average sending 3 messages a day outside.

3.1(4) Municipal e-government in Canada-is there an adoption progression?

Three distinct stages of e-government adoption are proposed by Lenihan and Hana (2002):

- *Static information*— provides citizens with information about civic departments and the political executive and machinery, services offered, council meetings, various processes.
- *Transactional services*— citizens complete business transactions online.
- *Online communities*— information available in such a way that citizens play a role in developing and elaborating it and, in the process, interact with government officials.

3.1.1(1) Static information available on municipal websites

Static information found to be initially featured on western Canadian municipal websites includes:

- Links to community organizations
- Parks and recreation information
- Links to the public library
- Employment/volunteer information
- Public/current events information
- Contact information
- Municipal and community statistics & demographics
- Tourist information
- Business development
- City maps

3.1.1(2) Static information available on municipal websites

- Municipalities tend to provide community and economic development information first on websites

Information about municipal government tends to follow:

- E.g., information on service payments, council deliberations, budgets, bylaws, and elections
- Larger municipalities tend to be more active in fully developing static information websites

3.1.1(3) Transactional services available on municipal websites

Few western Canadian municipalities offer transactional services at present.

Among transactional services offered by western Canadian municipalities are the following:

- Employment applications
- Recreation programs and program registration
- Online purchase tenders
- Property tax assessment/payment
- Pet registration
- Parking ticket payments
- Business license/permits
- Utility payments
- Change of address notification
- Site plan approval

Large municipalities lead small and medium size authorities in their provision of transactional services with some exceptions.

3.1.3 Citizen involvement through municipal sites

- Very few Canadian municipalities appear to be using the potential of the Internet to engage their citizens according to results of a recent study:
- Online surveys are more popular than online voting, although only 25 percent of the large municipalities conducted online surveys and miniscule numbers among the medium and small municipalities indicated survey use.
- Only one municipality out of 152 reported using online voting.
- No municipality reported using online videoconferencing/webcasting.
- Online citizen forums are virtually non-existent.
- In brief, while municipalities hold considerable promise for promoting local democracy they have yet to make serious much less sustained effort to realize the potential.

3.2 Local civil society organizations and community websites

- Little is known about how local civil society organizations use ICTs to secure voice in policy issues and to organize for local political action.
- Civic FreeNets (i.e., community websites) exist in many Canadian municipalities and they provide public space for discussions on municipal and other local issues.
- A few local electronically enhanced democracy websites exist (e.g., *Kingston Electors*), and while of note it is not clear what contribution these websites make to local politics.

3.3 Comment on municipal e-government

- The municipal sector currently lags behind other levels of government in providing information and transactional services and in its facilitation of civic involvement through ICTs.
- Local civil society organizations appear less aggressively disposed to use ICTs to expand their voice and influence at the municipal level.
- While municipalities may become the "strongmen" of Canadian e-government, they face significant obstacles:
  - They lack the resources and capacity of Canada's senior governments.
  - They lack of experience in developing and sustaining online transaction services.
  - They lack of experience in constructive facilitation of public discourse through ICTs.

4.1 Areas in which universities can make a contribution to e-government

Seven areas in which universities can make contributions to e-government:

- Hardware development.
- Software development.
- Information dissemination.
- Modeling (including best practices).
- Technical assistance.
- Research and critical analysis.

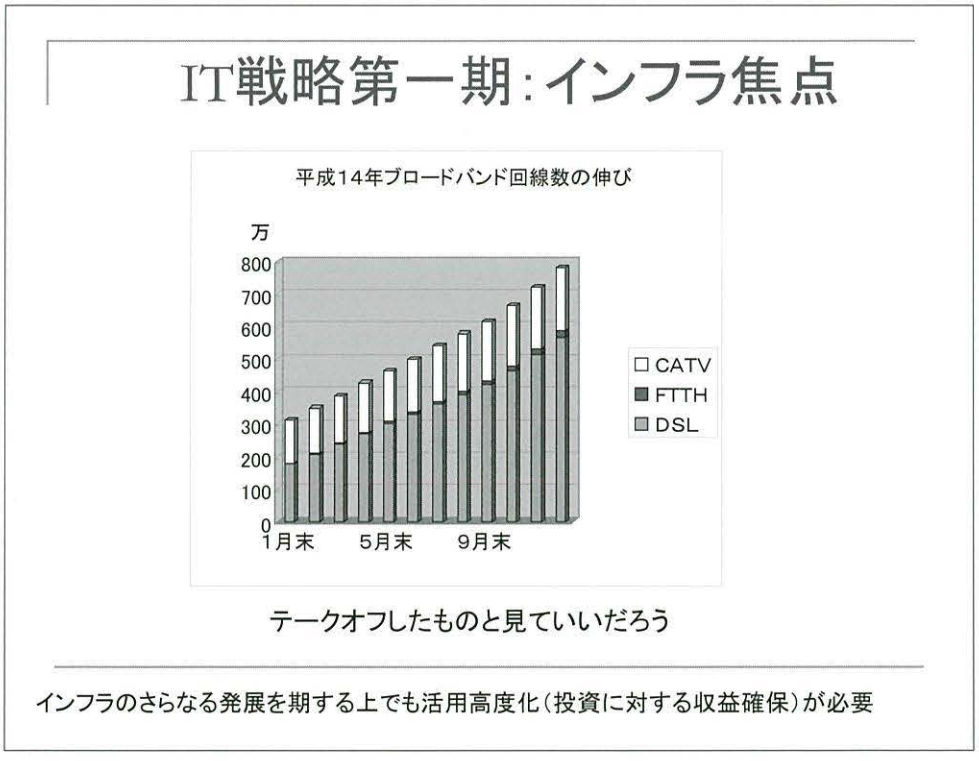
Instruction (in e-government as well as related areas such as communications and technology interface, alternative service delivery, citizen involvement).

情報技術による未来社会の構築

慶應義塾大学環境情報学部　國　領　二　郎

慶応大学の國領でございます。よろしくお願いいたします。まず、新潟国際情報大学の10周年記念ということでおめでとうございます。私は通常はビジネスのことを語ることが多いのですが、今日は、すこし社会よりことをお話するということで、情報技術による未来社会の構築というタイトルでお話させていただきたいと思います。

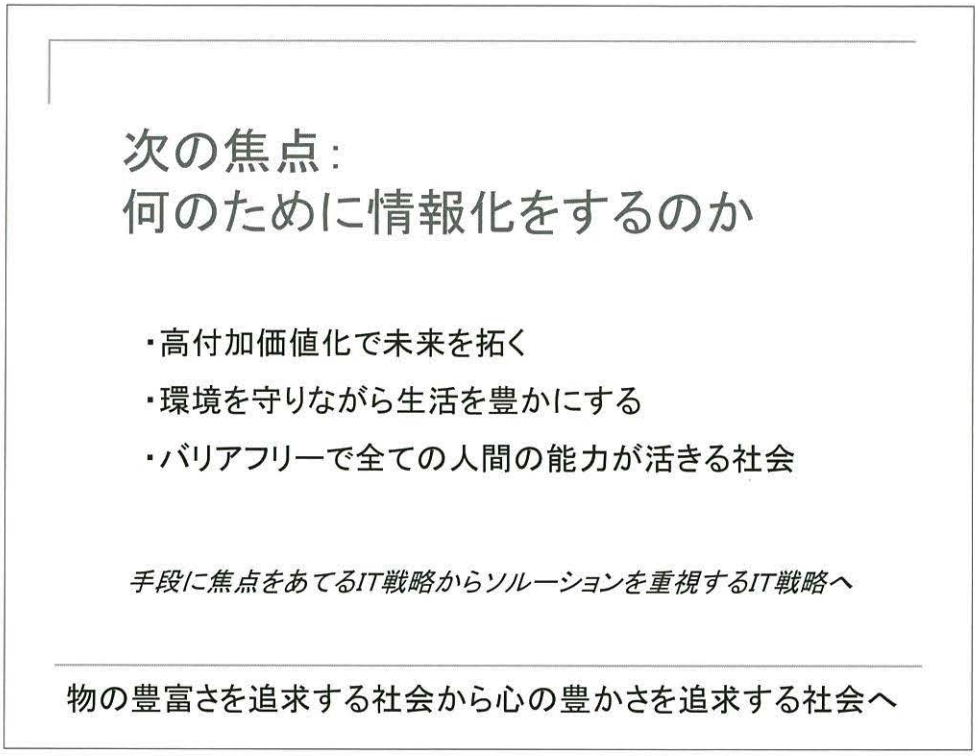
今、首相官邸のホームページを見ていただきますと、ＩＴ戦略のバージョン２というものに対する、パブリックコメントを募集しております。その原案を作る過程に関わりました。３年前にＩＴ戦略のパート１を作ったときには、なんといってもインフラの整備の話が中心だったわけです。３年前の日本の情報化、インターネットのコストのことを考えますと、一番安い常



時接続型のサービスが、３万円を超えて128キロビットしか取れないと、今考えると嘘のような状況でした。それが今は12メガというそれの100倍近いスピードのものが、1,000円、2,000円といった10分の１以下の金額ということでして、ビット当たりの単価ということになりますと、1,000分の１以下の水準になっております。具体例としてこの話が、建設業の情報化、私が比較的関わらせていただいている分野にとってなにを意味しているかお話します。10年前あるいは３年前は、比較的大きいゼネコンのオフィスと設計事務所をつなぐことは、可能でした。しかし建設業では、本当に効率化を図らなければいけないのはもちもん現場です。現場をつなぐというようなことは、現実的な問題として、余程大きな現場でないとできない状態だったのが、これが2,000円とか3,000円とかというような話になってまいりまして、無線探知機が使えるという話になってきますと、住宅建設をしているところの足場の上、こういうところにまでネットワークをつなぐことができます。これはユビキタスの考え方です。こうなりますと、本当に情報ビジネスの一つの大きな特徴は、一気通貫ということになります。途中で途切れているところがあって、一度コンピュータで吐き出した情報をもつ１回、入力するようなことがよくありますが、そういうようなことを、全部情報化できるというところに非常に大きなポイントがあると考えると、この３年間で、一気にどこでも使える状況というのができつつあるということだろうと思います。

但し、インフラの話が終わったとは全く言えず、むしろ一部分でいい状態ができただけというのが現状です。インフラの話が終ったと言っても北海道では、本当に深刻な問題で、人口のカバー率が高くなっても、実際にカバーできている地域は非常に限られているというような現象が起こってきているので、インフラの問題がかたづいたわけではないのです。ただインフラの方が安くなってしまって、儲からないというようなことになっている今だからこそ、やはり利活用を重視する必要がある。局面として、単にネットワークを張るという局面から、それを使ってどういういいことができるのだろうかというところに力点が移ってきている状況だろうと思います。インフラの話は単にインフラを張ると言っていればいいので、比較的話が簡単ですが、活用するという話になった瞬間に目的が入ってこないといけないわけです。これは結構チャレンジで、社会的に考えて、合意可能な目標が果たして形成可能なのかどうかということが大きな問題になってきます。

比較的大きいところでとれば、合意形成が可能なのではないかでしょうか。一つはあまりきれいごとばかりは言ってはいられない今の日本のこの不景気の状況から突破するために、なんとか産業を高付加価値化したい。単純にコストダウン、コストダウンと言ってリストラばっかりやっていると、どんどん縮小均衡になっていってしまう。これはいかに経済を高付加価値化



していくか、その中に情報技術をどのように完成していくのか、これは結構大きなテーマなのだろうと思います。

次に環境を守りながらそれを経済成長と両立させていくというテーマではないでしょうか。

３つ目、これも特に日本、ただ日本だけではなくてアジアの将来を考えましてもバリアフリー化、高齢化が大問題になってきます。人間の能力を活用するというのが一大テーマで、その中で、バリアフリー化ということを是非考えていきたい。道具を一生懸命つくるIT戦略からソリューションを重視したＩＴ戦略へということだろうと思います。その後ろにあるその外因的なものとしては、ものの多さを追求する社会から心の豊かさを追求する社会というようなものを作っていきたということだろうと思うのです。

具体的な話の前に情報技術というのはそもそも何をしてくれるのかおさらいしておきます。1980年代くらいまでの情報技術と、1990年代以降の情報技術を考えて、その違いはなにかということを考えると違いは１点だけでありまして、それは従来の情報技術が、中央にある情報を末端に流すことに非常に優れていたのに対して、今の情報技術というのは、末端から発信する情報のコストが非常に低いということです。先ほどルサージ先生からお話いただいた、Ｅデモクラシーとか情報共有とか“Transactional services” というようなコンセプトもすべて、技術

ネットワーク効果

- 情報を発信するコストの劇的な低下。「末端」から世界中に低コストで情報発信。

  ブロードバンド常時接続
  無線LANの普及
  トレース技術（RF－IDなど）

- オープンアーキテクチャの採用で、断片化され、散在していた力がネットワーク上で巡り合い、編集されて新たな価値を生む。単独の企業の中だけではとても果たし得ないような爆発的なイノベーションの連鎖反応が社会的に起こる。

インターネットだけではない

電子タグ：バーコード以来の大物？

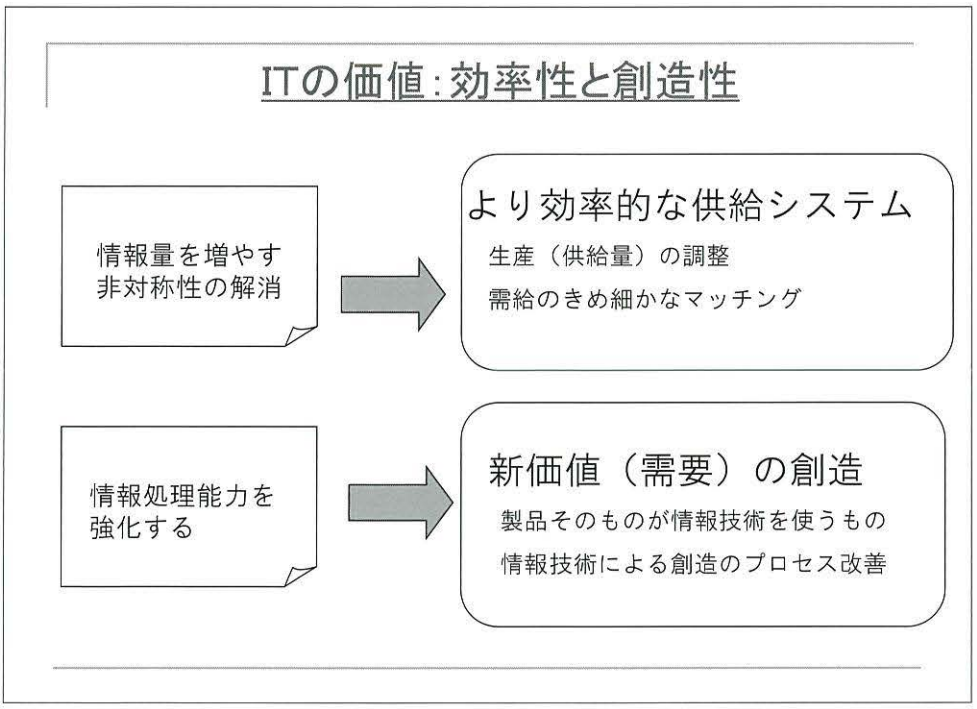
- 個体識別
  発番機関コード＋企業コード＋製品コード＋シリアル番号＋？
- 無線読み取り
  倉庫の中で一括読み取りも
- インターネットと組み合わせれば全ての商品の位置情報が分かる。トレーサビリティ店舗だけでなく家の中まで可視化？
- ロジスティクス、資産管理、食品・医薬品安全管理、リサイクルなど応用は無限
- 差異化個体単位で安価に行える。「xxファームのxx番の木で取れた果実を○○さんが、絞ったジュース」

プライバシーをどうする？
モノの追跡と人の追跡。どこでインターフェースを取る？

的な背景としてどこからでも情報を発信ができる、垂直的に１回中央に全部情報を集めるのではなくて、水平的に情報共有ができるということが大きな背景になっているということだろうと思います。インターネットだけではなくて、最近非常に大きな次の技術が始まってきているということころにも、注目に値します。それの一つの象徴が最近新聞等で取り上げられることが多いＩＣタグとか電子タグとかＲＦＩＤという情報技術です。バーコードだけで、日本の流通の構造を革命的に変えたと言っていいのではないかと思います。それまでほとんどブラックボックスだった、店頭を可視化する技術です。それができることによって、従来はメーカー主導だったサプライチェーンが、大型の小売店が主導する、いわゆる言ってみればデマンドチェーン、川上と川下の逆転現象が起こりつつありますが、これは大きな流れの中でインターネットと同じです。今まではＰＯＳでお店の中がブラックボックスだったのか、可視化してきたのが、今や消費者の手元までが、さまざまなかたちで情報化されるという時代になってきているということです。今の段階ではすこし抽象的ですが、これはすこし頭に入れていただいて、後からもうすこし具体的な話の中でこの話をしていきます。この辺の背景に産業の方が高付加価値化を、どう考えていったらいいかということであります。

産業の高付加価値化

ＩＴが生み出す価値というものに、大きく分けて効率性を高める方の話と、新しい需要を生み出す新しい話と、おおまかに言って２系統の方の話があるのではないかと思います。ＩＴ不況だと言われてはいますが、客観的にみて効率化の投資は、企業もこの２、３年はかなり積極的におやりになっていらっしゃるというのが実態だろうと思います。というのは、コストダウンをきちんとやって収益率を高めると、収益率を高めることによって株価が上がって、資産価格があがって日本が経済的な不況から抜け出すと、このルートはやはり非常に重要なシナリオとしてちゃんと残しておかないといけないということだろうと思います。このパターンには大きく言って２つのものがありまして、一つは生産とか供給量の調整の情報技術を使ってやる話です。サプライチェーンマネージメントなんていうのが代表例でありまして、これは店頭、要するに川下の情報を川上と非常に迅速に共有する。製造業等において非常に危ないのはどういう局面かというと、非常に人気のある商品が川上、工場レベルではまだ売れていると思い込んでいるときに、実は店頭では売上、人気が落ちてくるというような現象です。その情報が川上にくるのが遅れれば遅れるほど、実は売れていない商品をヒット商品だと思って大量生産してしまったりして、それをやると後からいわゆるサプライショックがくるわけであります。ということで、川上と川下が情報を共有するようなもの、それから需給のきめ細かいマッチングが



重要となります。ここで「需給のマッチング」について、念頭においているのは、どちらかというと生産量はある意味でフィックスされているようなものを、最適な一番欲しいと思っている人に的確に供給する、抽象的に言うと分かりにくいと思うので、例えば、座席の予約システム、航空券の予約システムのようなものは、供給量は決まっているわけですが、これを最適アロケーションを行うとこういうようなタイプのものです。こういうようなもの通じて、さまざまなかたちでいろいろなしくみが立ちあがってきていて、それはそれで非常にすばらしいわけです。このように上の方をやらないと、企業は競争ができないのです。ただ上の方だけやっていると経済全体で考えるとデフレになってしまうわけです。価格がどんどん下がっていくという現象になるので、いかにして新しいビジネス、新しい付加価値を情報技術を使って作っていけるかというような下の話となります。これにも２とおりくらいあって、一つが製品そのものに科学的な情報技術を適応することでおもしろい商材を作っていくことです。例えば携帯電話なんていうのは大分、勢いがもう止まってしまいましたが、明らかにあれは貯金をおろしてでも欲しいと思える商材を情報技術で作った例です。もちろんそういう意味では、ロボットですとかいろいろな新しいものをどれくらい作っていけるとかということです。２つ目の情報技術による創造のプロセスの改善の方につきましては、商品そのものの中に情報技術が入っていなくてもプロセスの中に、例えば、三次元ＣＡＤを使うことによって、作ったり壊したりシュミ

高付加価値化戦略

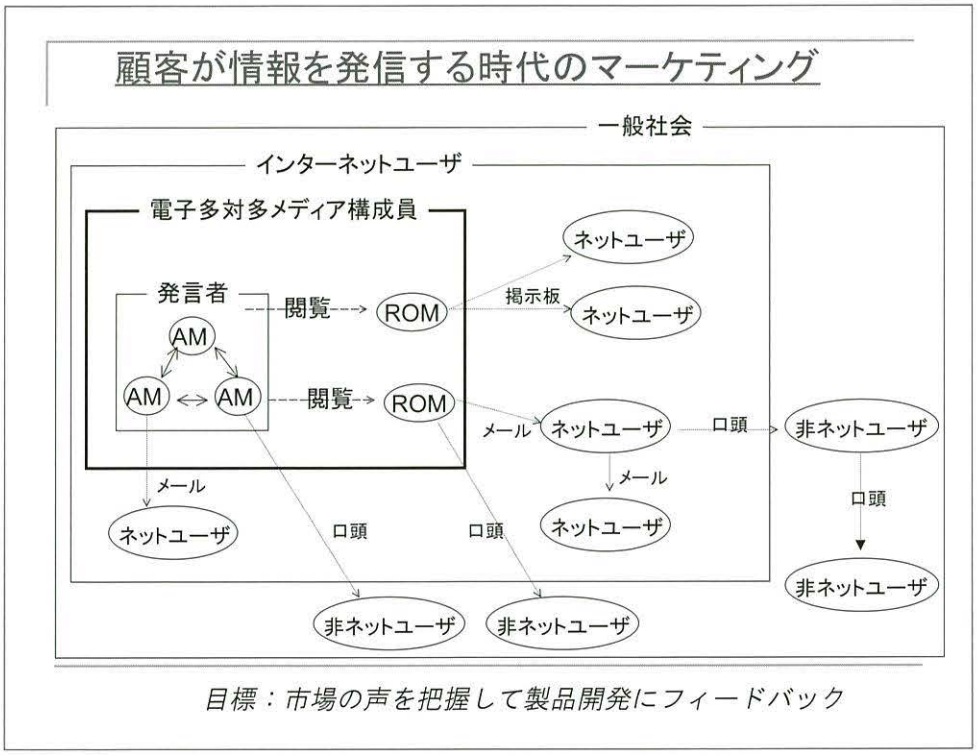
提案：日本を製品開発とテストマーケティングのハブにする

・感度の高く、厳しい顧客
　日本の顧客が納得した商品は世界で通用する
　実はネットワークが大好きな日本の消費者
・柔軟性の高い製品開発ネットワーク
　製造業も情報化、ネットワーク化

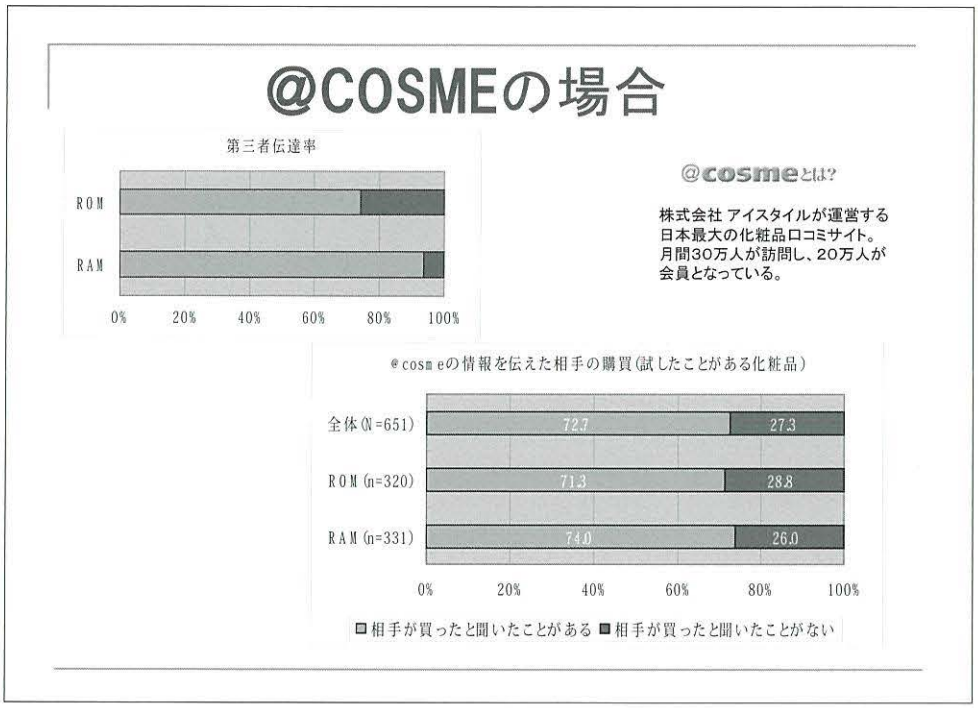
顧客を価値の生産者として捉えることで日本の製造業も復活する。（消費者と呼ぶのをやめよう。）

レーションがたくさんできることによって、より魅力的な商品を作ることができると思います。というようなことを通じて、よりいいよりお金を出したくなるような、新しく稼いでくれるような製品をどれくらい作れるかというのがこのストーリーであります。この原理を踏まえて、次の映像は私の御提案です。日本を製品開発をテストマーケティングのハブにしましょうという御提案です。製造開発だけで考えますと、これは技術立国の話でありまして、それほど新しくないのですが、加えて申し上げたいのがマーケティング的な要素と組み合わせていきましょうというところです。これは何を言っているかといいますと、最終的に日本を他のところと差別化することができるのは、やはり住んでいる人間であるということです。そういう目で日本人というものをみますと実は捨てたものではなくて、ある分野においては非常にありがたい存在だと思います。つまり、何か新しい商品、ウォークマンみたいなものというのが歴史的にあるわけです。「何か変なもの」というと作ったひとに怒られるかもしれませんが、おもしろいものを出したときにとりあえずおもしろいと試してみてくれる国民がいるわけです。これは住んでいると当たり前に感じるかもしれませんが、これは極めて世界的にみてもおもしろい特質だと言えるのではないでしょうか。最近、分かりやすい例としてよく使っているのが、写メールというものです。カメラ付き携帯電話なのですが、あれは言ってみれば経済のウインブルドン化現象を象徴している。イギリスのボーダフォンが日本で最初にやり始めて、本国でやる前に

日本で写メールをやってくださいまして、大ヒットしたので開発費をそこで吸収してそれを海外に持っていくということでした。あれが日の丸会社ではない会社がやったから悔しいという説もありますが、それは了見の狭い話であって、是非、世界中の国の会社に日本の市場を使って、日本の国民を使ってそういうことをやっていただけるのがいいのではないかと思うのです。というのはあれをやるからデバイスがここでなければならないし、テストマーケティングを行うならば、生産地が近くないとできないのです。幸いにして、未だに世界の金型の４割を作っている金型産業がここにあり、それ以外にも試作品を作るとかという意味では、世界に冠たるインフラストラクチャを持っているわけですし、ここの分野についてはアジアの他の国々の、すくなくとも労働賃金が安いというところにかんしてはほとんど関係がない、高付加価値の分野であって、最初の１万個を作るくらいの金型をここで作っておいて、そこから先は予算体制に入ったときにもっと大きな市場があるところに金型ごといってしまう。これはもうしょうがないのではないか。いかに最初の１万個を作る場所としてこの国を選んでいただけるか、世界の中でこの国を選んでいただけるかという辺りがこの国の経済の未来にもなりますし、それが我々がアジアの中で、一つの大きな役割分担のネットワークの中で担うべき役割なのではないかというようなことを考えているわけであります。そうなると、顧客を消費者という呼ぶことをやめなければいけない。作られた価値を消費する消費者ではなくて、ある意味で彼らが生み出してくる情報をいかに吸い上げて編集して価値に直していくか、その辺のコンセプトだということになってくると思うのです。こうなってきますと、マーケティングのシステムとしてＩＴをどれくらい使えるかというところが非常に大きなポイントになってきまして、それが先ほど申し上げたことで、実を言うとバーコード、ＰＯＳ、“Point of Sales system”です。店頭まで情報化して店頭から上がってくる情報というのを組織化するようにしたのがＰＯＳですが、今やユビキタスで携帯がありＲＦＩＤがありという話になってきますと、実際にものが使われるという現場から情報が上がってくるような仕組みというものができてきますし、その情報をどうやってつかまえるかという辺りが、こういうような仕組みを作ることを考えるうえでも大きなポイントだという話になっています。今ネット上でROM（読むだけで書き込みをしない人）の研究というのを一生懸命やっております。というはのは、ネット上で情報がどう伝播しているか、商品に関する口こみの波にはどう流れていくかというのを研究しているのです。今までのネット研究というのはどちらかというと、発言している人がどんな発言をしているかという研究が多かったのですが、見れば見るほど黙って読んでいる人達が非常に大きな役割を演じている。ここにいらっしゃる皆さんももうほとんど、なんらかのかたちでメーリングリストとか掲示板をご覧になっていらっしゃると思うのですが、大抵黙って読んでいるだけというも



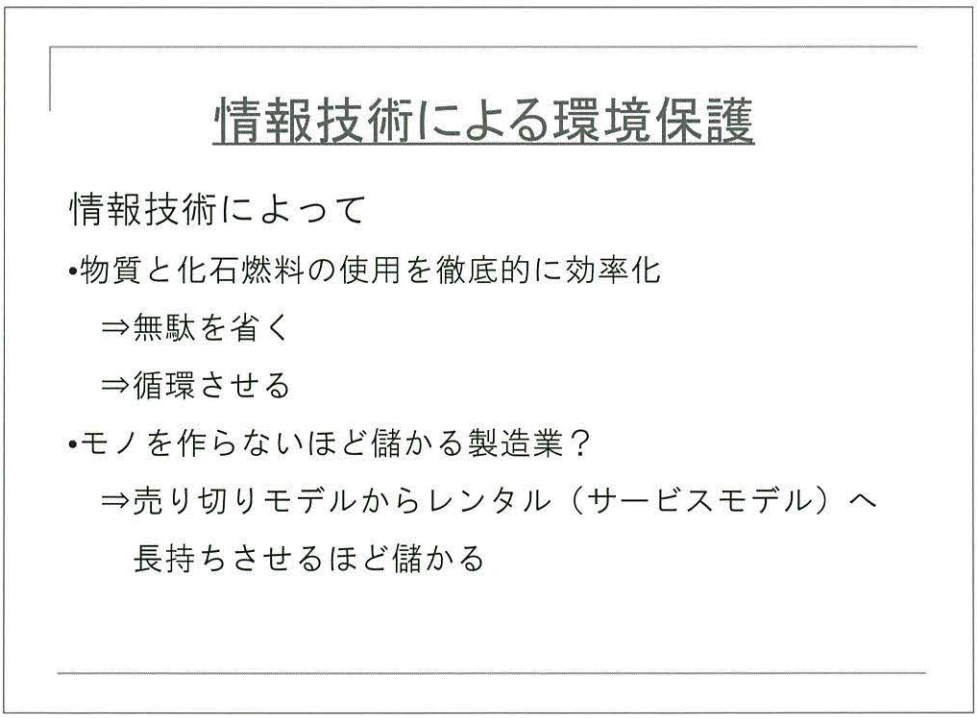
のがおありになると思います。ただし、読んだ内容を第三者に伝達するというような、例えば２ちゃんねるに書き込むというのはなかなかしないですね。しかし２ちゃんねるに書いてあることを飲み屋かなにかでしゃべるとかということはよくあるのではないですか。これでお分かりいただけたでしょうか。そういうもののような影響力を考えないと、表に出ている情報とか表に出ているメンバーだけでは全然、表れているインパクトが違うという問題意識があります。例えば、@コスメという化粧品のサイトがあります。化粧品の評価サイトとしてはもはやドミナントな、影響力のあるサイトなのです。このサイトにおける第三者伝達率についてですが、黙って読んでいる人だけでも７割以上がそこで読んだ情報を他者に伝達しているというのが上の図であります。しかも、そこで読んだ情報に基づいていいと言ったものは、いいと伝えた相手の、これも70パーセントが実際にそれを買っているのです。このサイトはややお化けサイトとも言える影響力が強いサイトなので通常のもっと一般的なサイトでこの調査をやりますと、この数字が半分くらいずつになるわけなのですが、いずれにしろこのようなかたちで、情報がいろいろ伝播していくという方法をつかまえてマーケティングすることができます。ここで先ほどのＲＦＩＤの話をもう一回させていただきます。今までのバーコードというのは一つの同じ種類の商品には同じバーコードが付いているわけです。これに対して次世代のタグは、１個



１個にユニークなシリアル番号がふられて、かつ電波で読み取ることができるとそういう代物です。バーコードというのはお店の入口と出口で認識することができるので、引き算をすると在庫がいくつあるのか分かるという仕組みですが、それに対してＲＦＩＤを使うと、ただ今現在何がどこにあるかが一発で分かります。今日大学関係の方が多いので、こちらの例えの方がいいかもしれません。パソコンなどの備品で、役所のお金で購入すると年に一遍くらい経理からどこにあるか報告書をと言われるではないですか。それが来た瞬間に研究室を閉じて学生を片っ端からつかまえて、あのときに実験に使ったものをどこへやったという尋問をしないといけないというはめに陥ります。あれがなくなるということです。これだけで大変なことです。世の中から備品管理の類いがなくなったり、棚卸しがなくなったりする。プライバシーの問題があるので、むしろ本人に能動的にやってもらわねばなりませんが携帯電話であなたの買った商品をぴっと読み取らせると、キャッシュバックしてあげますとかというようなマーケティングができるわけです。それは単に買ってくれることに対するプロモーションをするだけではなくて、製造番号何番のものがどういう経路を辿って、どの消費者に辿っていったかというのが分かるというような話になります。そういうようなお客の生み出している情報を、ユビキタスの情報技術を使ってつかまえることによって、付加価値の高い製品作りにフィードバックをかけていく、こんな高付加価値化の戦略があるのではないでしょうかというのが御提案です。

環境と経済成長を両立させる

先ほど、冒頭で申し上げましたテーマの２番目ですが、環境と経済成長を両立させるような経済システムを作っていくことです。他のテーマについては割合に日本を意識しているわけですが、このテーマについては世界の問題として大変重要です。これに対して情報技術がどうやったら貢献できるのだろうかということを考えたい。早い話が２つだけで、無駄を省く話と循環させる話だけです。先ほどのサプライチェーンマネージメントは的確に情報を獲得することによって無駄につくるものを減らしていきましょうということで、「無駄を省く」範疇に入ります。循環させるというのがユースリサイクルの話でありまして、一旦どこかにいってしまったものを再利用をしていくということで、先ほどのＲＦＩＤの類いが再度ここでも注目に値します。情報がないとゴミ、情報があると資源になったりするということです。こういうようなものに張り付けてごみ箱にきちんと入っているものが、データベースでマッチングさせると「それは捨てるなごみじゃない欲しい人がいる」ということができることを意味しています。このような技術を活用しながら、再利用が可能な経済というものをどのように作るかといういう話だと思います。経営学者としての、ここでの大挑戦はものを作らないほど儲かるモデルです。この話も、ものを節約して無駄をなくせばなくすほど、日本のものづくり製造業が儲からなくなるのではないかというところが結構深刻な問題です。そこのパラドックスを突破しない限り

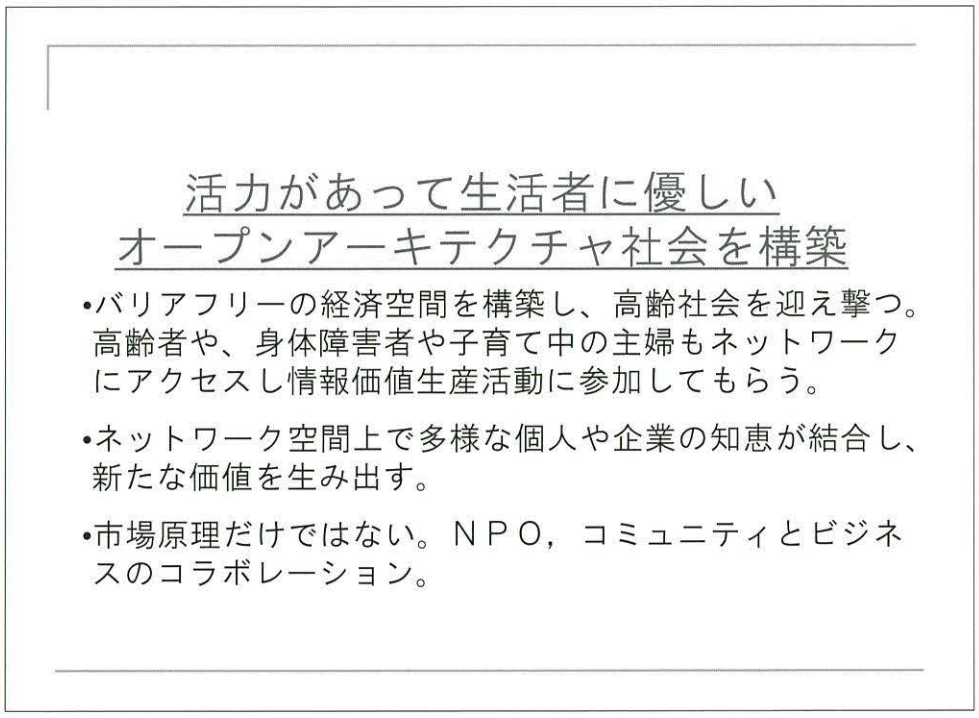


においては皆本気にならないということです。ものを作らないほど儲かる製造業のモデルというのがあるのかということですが、これについては完全なソリューションを私は持っていません。しかし一例としてレンタル制があげられます。私はキャリアの最初を電電公社で始めました。電電公社というのはその頃は電話機はレンタル制でした。黒電話レンタル制というものです。２階から投げ落としても壊れない電話とかというものを作っていまして、無駄とオーバースペックの象徴のように揶揄されていたのです。ただし、レンタル制にするとそういうインセンティブが働くことは間違いがありません。なんといってもかけつけるのがコストがかかってしまうので、製造のコストを20パーセント余計にかけることによって、50パーセントの寿命が伸びたり安定性がよくなるのと、その方が得だということであります。そんなにいい仕組みになるのであれば、なぜ他のものにもレンタル制を適応できないかというと、レンタル制というのは管理コストが非常に高いわけです。というのは例えば、どこで利用されるか把握していなければいけない。月々請求書を送らなければいけないので、その請求を送る相手に引っ越されるともうだめになってしまうのです。なので管理コストが非常に高いビジネスモデルであり、電話でなぜできるとかというと、電話機は電話をネットワークからはずしてしまうとほとんど価値がなくなってしまう。引っ越したときは届出をしないと機能が停止してしまうから、その辺の問題が起こりにくいので、成立したのです。今までは普通の家電製品ではそんなことはいかなかったのですが、情報家電の時にはつながってくるのです。それは本当か嘘かすこし疑問なのですが、電気ポットをＩＰで使えるということを僕の周りではやっているのです。安否確認のためにネットワークにつなげるのです。すくなくとも冷蔵庫みなたいものはこれからほぼずっとつながるということは十分ありえるわけでありまして、世の中に長持ちさせて大事にするほど儲かるビジネスモデルというのはあることはあります。

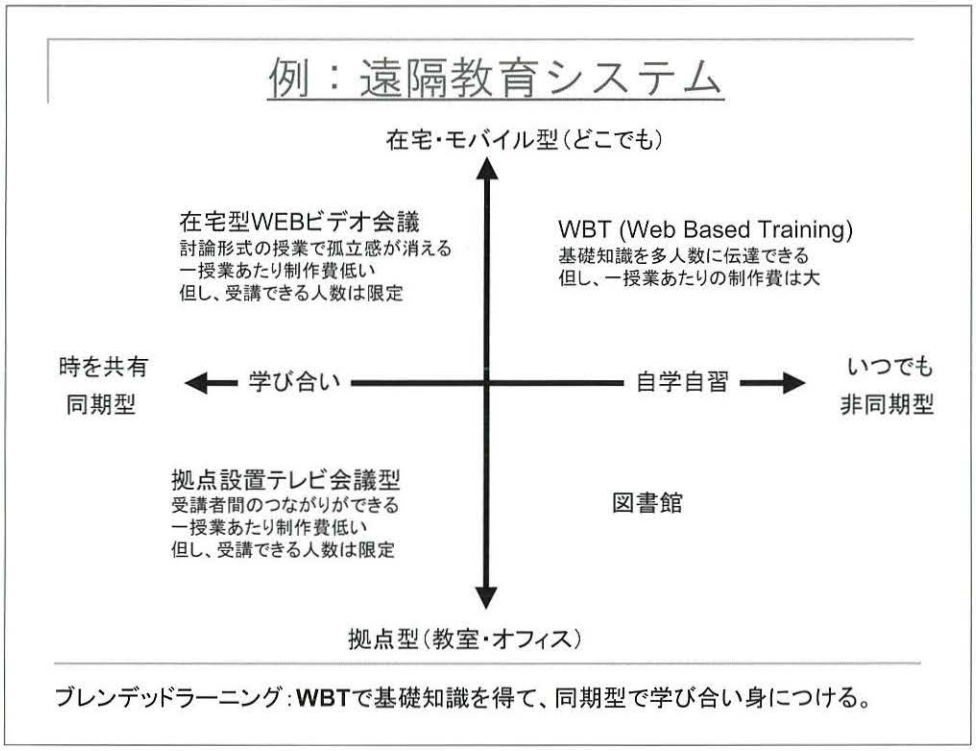
バリアフリー空間で能力活用

他にもいろいろ工夫をして考えたいという話であります。バリアフリーで能力を活用する経済を作っていかなければいけません。これももうお題目自体としたらほとんど反論がないのではないかと思います。ここから先は具体的にどのように実現できるかという話です。また私が個人的に取り組んでいる自分の話に強引に持ち込んで恐縮なのですが、私自身は遠隔教育を一生懸命やっております。e-ラーニングといいますといわゆるウェブベースで蓄積させている情報を見るとか、幾つか電子メールでやれるというが多いのですが、私は長らくネット上で教育を成立させようとすると、余程参加型のものにしないと、心理的に切れてしまうという問題意識を持っています。リアルタイムでディスカッションを成立させるというようなタイプのもの

を一生懸命やってまいりました。在宅型で去年まではＩＳＤＮを使っていました。今年は、ＡＤＳＬを使用しています。これも画期的なのですが、ＡＤＳＬにつながっているのが履修条件といって募集をかけても文句を言われない時代が来ました。しかしこれはほんのこの１、２



年です。これは社会人向けの外部コースとしてやってまいりましたが、実をいうと内部の学生の方に受け入れられやすいということもよく分かりました。１限の授業をこれでやると早起きしないで済むと好評でした。そうすると圧倒的に受け入れられるということがよくあります。この辺のところは、たまたま自分が教育の世界にいるので教育、教育という面もありますが、もう一つ実は大きな動機があります。SOHOの研究をやっていますときれいごとはいっぱいあるのです。在宅主婦が働いて社会参加できるというのもきれいごとの一つです。典型的な簡単な仕事を低賃金でやらせている実態がある。そうでないと労務管理ができないからです。非常にプロフェッショナルな仕事か非常に典型的な仕事か両極端で、プロフェッショナルな仕事ができてもほんの一部の人がいるただけてあって、おおむねは典型的な仕事に集中しています。その中で特に、再教育とか訓練の仕組みがないといつまでたっても単純労働です。遠隔で仕事をしてもらうためには、遠隔で訓練ができないとサイクルとしても完結しないという問題があるのです。あともう一つは実は先ほどから申し上げている、労務管理の手法、遠隔による労務



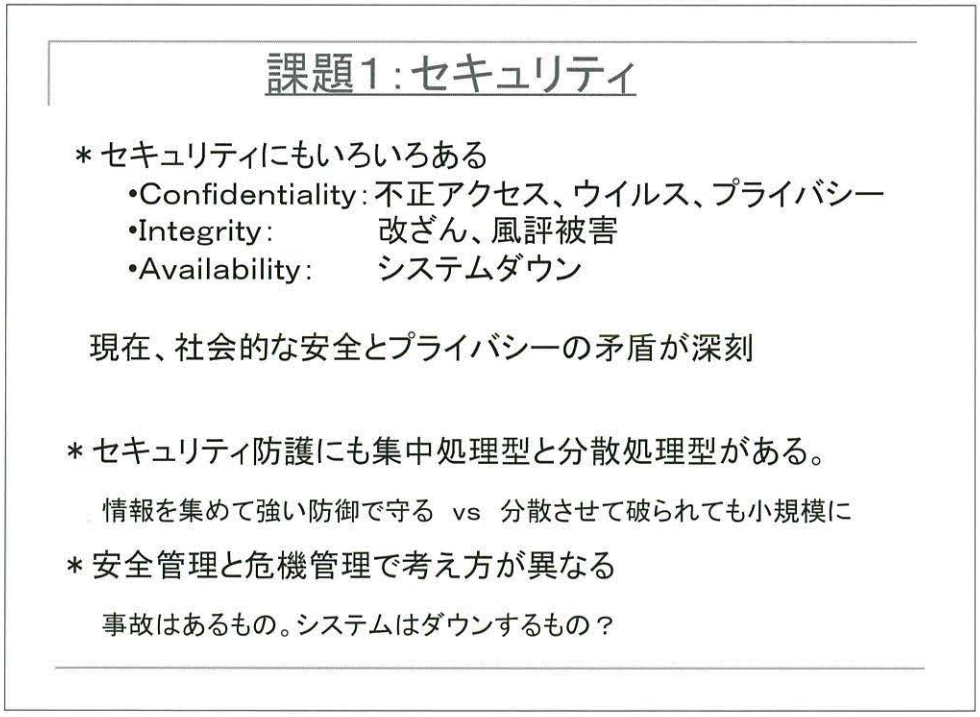
管理の手法を確立する必要があります。その辺にもＲＦＩＤとかＩＣカードが使えないかと思っているのですが、いずれにしろすこしまだこの辺の、ネット上で人間の能力をフルに発揮していただき、開発をするというサイクルを作るには抜けている重要な幾つかのリンクがあって、これが大きな問題です。

課題１：セキュリティ

今もう既に課題のようなことを申し上げましたが、とにかくこういうような社会的なゴールの実現に向けて動いていく時にその中で考えなければいけない課題のようなものがいくつかあります。プライバシーを守るという話と社会的な安全を守るという話とどうやって両立させるべきだろうかというのが、テロなんかと関連して非常に重大なテーマになっているのでしょう。さらに電子政府においては、住基ネットが抱えているプライバシーの問題をどう考えていけばいいのか。

システムダウンの問題に関して去年から今年にかけて実行のシステムで結構大変な思いをしたわけであります。恐らく我々は社会に対して理解を求めないといけないのではないかと思っています。システムというのはダウンするものだという認識を持っていただかないといけない

のではないでしょうか。落ちたこと自体を責め立てると小さな事故を報告しなくなってくるわけです。これはＩＴだけではないと思います。問題にすべきは、トラブルが起こるから事前にどういうような想定をし、その想定に対してどういう対応をし、もし予期しないトラブルが起こったのだったらどういう対応をしたのか、そこのレベルで力をそそぐべきであって、落ちたか落ちないかというところに力をそそぐほど、トラブルかくしが起きます。これも先生方皆さん似たような御感想ではないかと思うのですが、開発していくレベルで考えるとシステムなんていうのはたまに動くものではないですか。動いたといって拍手をするものであって、完全だなんて思えるというのはないわけで、そういうふうになってくるとセキュリティの問題も集中させるのか、リスクを分散させるのか絶対安全なものを集中してつくるのかというあたりの発想のバランス感覚が変わってきます。正解は多分ないと思うのですが、バランス感覚の問題になってくるのだろうと思います。



課題２：知をめぐる協働構造の確立（特にインセンティブ）

もう一つ、これは経営学者的にいうと、要はデジタルコンテンツ等、ビジネスモデルを作れないと、レコード産業がどんどん減収していくとか、ナレッジマネジメントシステムなんてい

うのもテクノロジー的にいい仕組みを入れても、書き込むインセンティブ、腕っこきの営業マンの人が自分の取っておきの取引先のまる秘情報を共有掲示板なんかに載せないというのがあって、大枚はたいて買ったナレッジマネジメントシステムの中身が空っぽということはよくあるわけです。これは根っこのところは一緒で情報を公開して共有するインセンティブが非常に小さい、ところがネットビジネスは情報を共有して公開する仕組みであるというこの矛盾です。これはほとんど先ほどの伝達性のパラドックスと同じなのですが、この辺のものの経済、製造業でものを１個２個と作って１個２個と売っていた仕組みと少し違う収益の仕組みも作っていかないといけないという話です。この絵だけで２時間くらいしゃべってしまうのですが、理屈だけ申し上げますと、なんらかの希少性、原理から言うとそもそもどこがポイントかとい

課題2:
知をめぐる協働構造の確立（特にインセンティブ）

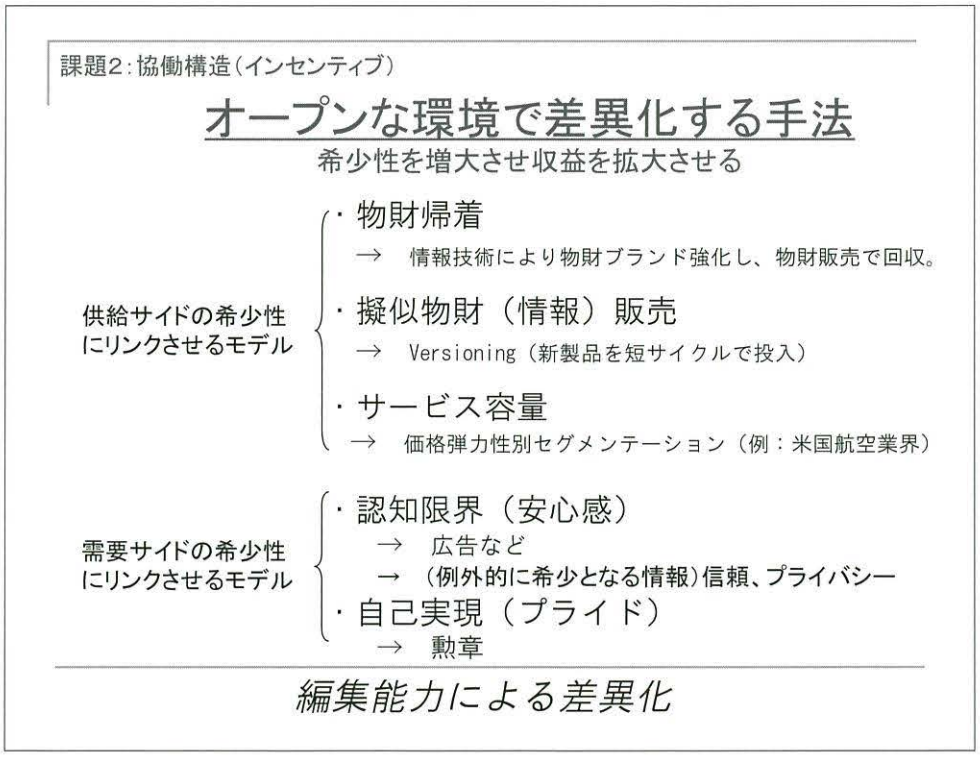
- 物質と化石燃料の消費拡大による生活向上の戦略から精神的充足による幸福を追求する戦略への転換。
- 但し、誘因設計が大きな課題。複製費用（限界費用）がゼロに近いため情報はネット上で無料になってしまう傾向がある。
- 人間の知的な創造性発揮の場をどう提供するか？

この問題を解かないと2年内にブロードバンドバブルがはじける！！

うと、お金というのは貴重な財を交換する媒体だというところなのです。わざわざただの紙に過ぎないものを印刷する枚数を減らして、あたかも価値があるかのごとくアピールするということであります。本当は価値がないとかというと怒られてしまいますが、ただしそれを共通の物差しとして希少な財Aと希少な財Bを交換する仕組みなのです。ところがネット上のビットにはほとんど希少性がない。最近水とか空気にも希少性が出てきているので、水なんていい例で、希少性を作り出すことが、ボトルに詰めこむとできる。経営学者的にいうとなんらかのか

たちで情報が売り出す価値を希少性のあるものとリンクさせる。またはサービス容量とリンクさせる。というのは、サービス容量は、飛行機の座席等です。それからもちろん情報そのものを希少にさせる。例えばコピープロテクトをかけたりして、お金と交換するモデルにのっけることは不可能ではありません。この話がとてもおもしろいのは、供給サイドの希少性と同時に需要サイドの希少性というのがありえて、その代表的なのが顧客の認知限界、認知する能力の限界がありまして、これはひょっとすると情報過多の時代には一番希少かもしれないです。

この辺の情報が生み出す価値、何が問題だというとアナログの時代には情報とものがバンドルされて切り離れなかったのに、情報だけが比較的切り離れて勝手に流れるようになったときに、情報の価値というものをお金に直す方法というのが難しくなってきたということでありまして、大学で情報システム学科を卒業させても食えないことになりかねない。



課題３：インフラもまだ満足していい状態ではない

最後にインフラの話がありました。これは先ほど申し上げたので、ＡＤＳＬのおかげで状況は一変したのです。ブロードバンドという意味では日本はひょっとすると世界の最先端も夢ではないなというのは、あと１、２年くらいのうちに１番と言い張れるようになるような気がし

課題3：インフラもまだ満足していい状態ではない

- ADSLは貢献大だが、まだ片方向ブロードバンド。真の参画型社会や力強い知識産業を実現するためには双方向、ユビキタス、ブロードバンドが必要
- デジタルデバイド（地域間格差）の拡大。電話も維持不能に。次の電気通信事業法改正時にユニバーサルサービス（相互補助を行っても守るべきミニマム）の定義が問題となるであろう

課題3：インフラ

次世代インフラの設計思想

- ベストエフォート型と帯域保証型の仕組みの上手な組み合わせ
  - ネットワークとしての強みと弱みの補完
  - 大企業とコミュニティの組み合わせ
- 物理層の共同利用
  - ユニバーサルサービス目的で敷設されたファイバーの上に商業的により品質の高いサービスが展開され、収益を稼いでインフラに還元することで、ユニバーサルサービスも財政負担少なく提供

ていっているわけです。ただし、片方向ブロードバンドに過ぎないので、我々が目指したい参加型というモデルから考えると足りない。何よりデジタルデバイドが逆に広がっているというところが大きな課題で、過疎地をどうやってつないでいくかというのが大問題になってくるでしょう。電話に変わるユニバーサルサービスというものを一体どういうふうに考えていけばいいか。この前の仙台の地震があったときに携帯電話がパンクしました。緊急通信をどうやって確保していきながらかつ、社会として必要な情報の共有を行なっていくか。これはやはり民主主義国家として続けたいのであれが根本なわけであります。片側で競争のおかげでブロードバンド化が急激に進んでいるもう片側で、そういった必要な情報ネットワークというのを全員に提供するという使命をどうやって満たしていくか、その辺の議論もこれからやっていかなければいけない局面がきているのだということだと考えております。これで終わらせていただきたいと思いますが、いずれにしろ、なんとなくかたちだけでき始まってきたところに、仏様にどうやって魂を入れるか、そういう局面に今来ているのです。

第二分科会

第二分科会は、「電子自治体の展望と大学の役割」をテーマとし、日本国内はもちろん、情報化の分野で研究と実践の両面とも先進的地域であるカナダとオーストラリアから専門家を招き、学術報告と討論を行った。ＩＴ最先端国家を目指して策定されたe－Japan戦略では、電子政府・電子自治体の実現が重点政策分野のひとつとして取り上げられている。その実現においては、官産民（行政・産業・市民）と大学が一体となって進めることが有効であると思われる。本分科会では、地域づくりとＩＴについての問題提起、海外の状況と電子社会の理念の再整理を行った上、大学の地域貢献として、大学が主体となって設立・運営を目指す地域総合ＩＴセンターへの道筋について、官産民の諸角度からパネルディスカッションを展開した。

パネルディスカッション

パネルディスカッションに先だって行われた講演による、地域づくりとＩＴについての問題提起と、海外の電子政府・電子自治体の状況および電子社会の理念の確認を受け、新潟国際情報大学の地域貢献の一つの柱として、大学が主体となって設立・運営を目指す地域総合ＩＴセンターへの道筋について、官産民の諸角度からパネルディスカッションを展開した。パネルディスカッションの参加者は官産民学の各界の代表で構成され、官といして前新潟県総合政策課長の中野氏、産として北陸電々の河内氏、民として前新潟日報メディア情報センターの吉岡記者、学として本学の高木情報センター長が参加した。最初に各自の関わりのある内容の概要を紹介した後、日常の生活における情報化についてそれぞれの立場からの主張を展開した。そして新潟においてわが大学がどのようなかかわりで自治体を支えていけるのか、さらに新潟国際情報大学の地域総合ITセンター構想に対して期待される内容について討論を行った。その結果、情報技術だけでなくビジネスも理解できる人材の育成、学生による地域貢献モデルの開発、地域に密着した情報コンテンツ（インターネットを使ったサービスの内容）の開発、産学が連携したビジネスモデルの創造、地場の優良中小企業に対する信用機能付与機能サービス、およびITによる地場産業のサポートなどが、地域総合ITセンターが担う主な役割であるとの結論を得た。（高木）

司　　会　　山口直人　（本学助教授）
パネラー　　河内康志氏（北陸電々株式会社代表取締役）
　　中野雅至氏（厚生労働省〔前新潟県庁情報政策課長〕）
　　吉岡和彦氏（新潟日報社）
　　高木義和　（本学教授）


司　会
山口直人


パネラー
河内康志氏


パネラー
中野雅至氏


パネラー
吉岡和彦氏


パネラー
高木義和

（山口）

朝９時半よりお越しいただき、長い時間お聞きいただきまして、大変ありがとうございます。午前中はかなり概念的、大きなお話が続きました。午後は、少し具体的な話題や、センセーショナルな政治的な話題をお話しいただきまして、徐々に皆様の頭の中は整理されてきたのではないかと思っております。本当にお疲れのことと存じますけれども、今から５時半まで、パネルディスカッションでございます。私ども新潟国際情報大学の10周年記念ということで、私どもが新潟地域のために何かお役に立てることはないかという姿勢で、壇上におられます官、産、民の代表者からの御要望なり御意見あるいは御指導をいただくというようなスタンスで設けました。今日は皆様の御協力をいただきながら、10周年記念事業にふさわしい、何らかのサジェスチョンをいただくようお願いを申し上げるところでございます。

新潟国際情報大学の教員をしております山口でございますが、新潟の電子自治体の関係で何度かお目にかかっているとは存じます。このシンポジウム全体のテーマを「国際化情報化の大学の社会的役割」というテーマにしたわけでございますけれども、この最後のパネルディスカッションでは、新潟地域、新潟県、新潟において、新潟国際情報大学への御期待に沿って、具体的にできることは何でもしたい、しましょうというような姿勢で臨んでまいりたいと思っております。今までのような概念的なあるいは学問的な意味づけということではなくて、生の声と申しますか、普段の問題につきまして１時間の議論をお願いしたいということでございます。

最後に、本日御登場の方々を御紹介するべきところでございますけれども時間を節約いたしまして、それぞれの皆様にまず先端的な新潟県における情報科学、あるいは電子自治体というようなテーマに基づきまして、10分程度でお話をお願いいたします。各界の代表というような立場で来ていただいてございますので、自由に御発言いただく中で、大変恐縮でございますけれども、御自分の関わりのある内容を御紹介いただきます。それではまず中野さんからお願いいたします。

（中野）

中野でございます。私は今、厚生労働省の官房国際科というところで課長補佐をやっています。この４月まで３年間、新潟県庁で総合政策課長をやらせていただきました。

私がいた時はちょうど、ＩＴという言葉が出てきて、大型コンピューターの管理といったような仕事から、政策という言葉をつけるにふさわしい仕事の領域へと変化する時代に、３年間課長をやらせていただきました。その際やったことというのは、山口先生がおっしゃられたような電子自治体、それから地域情報関係のことで、情報ハイウェイを作ったり、あるいはコンピューターを職員１人に１台配って、ナレッジマージメントといった形で行政のスタイルそのものを変えていくといったような大きな話の中でやってきたわけでございます。それなりにできたとは思うのでございますが、やはり先ほど国分先生の話にもありましたが、なかなか自治体が思ったように機能しない、機械をいれてもなかなかそう思ったほど十分動くわけでもないということがありました。

その中で自分なりに感じたことはお金をいくら投資しても、なかなか地域に還元されていかないという問題です。電子自治体が注目されたころには、お金をいくらつぎ込んでもコンピューターを入れればそれでいいんだっていうことだったんですけれども、同時に地方自治体の場合も財政事情がきつい中で、そもそも道路工事を削ったり、あるいは必要な部署を削ったりしてまで、例えばコンピューターを入れる必要があるのかという声がありました。コンピューターを入れた際に、職員には価値が還元されても、実際の地域社会にはどうやって還元されていくんだといった声が非常に強くなってきました。ＩＴの果

政改革でもいいんですけれども、それよりもむしろ住民サービスの向上において、大学が情報提供をされたりあるいは共同研究をされたり、さらに進んだ段階ではコンサルティングとか、そういったものにコミットしていただければいいんじゃないかと思います。

最初に言うべきでしたけれども、今日は私は市民の代表ということらしいので、職種を越えて、すごく気楽な立場で言っています。私は結構そのあたりのことを知らないのかもしれませんけれども、それは御勘弁願いたいと思います。大学のレベルでどういう教育がしていただけるかというと、やはり学生さんのレベルとか、研究者のレベルとか、あるいはコースリターンのレベルとか、いろいろな方向があろうかと思います。いろいろな形で大学が社会に貢献していただくというのはあると思いますので、それを是非検討していただきたいということです。

もうちょっと時間があるようなので言いますと、今私が勤務しています小出町、小出郷といわれる地域は、たまたま来年の11月に町村合併をすることが決まっていまして、六つの町と村が一緒になるんですが、それと平行して6町村内の各庁舎の出先機関を光ファイバーで結ぶという計画が進んでいます。国領先生も地域間の格差という話をされていましたけれども、まさに今、地域間格差是正事業の対象になりました。その中身は、六つの町村が一緒になるわけで、六つの役場はそのまま残るんですが、庁舎を光ファイバーで結んで、その六つの役場ごとに機能を分担させる分庁舎方式をとるといっているんです。その光ファイバーで結ぶというものが前提になっていまして、実際にもう発注も済んだ段階になっています。けれども、そこで住民の方が思っている、じゃあそれで私らの暮らしがどうなるんだということについては、誰も説明をくれないわけです。こういう光ファイバーを引かれれば、インターネットも繋ぎやすくなるとか、業務が簡略化されるということはわかるんだけれども、じゃあ私の暮らしにはどうか。うちで寝ているおばあちゃんはどうなるのか。うちの若い東京に行っている子供はそれで帰ってこれるのかというようなことについては、全く話がないわけです。それを簡単に何とかせいというのも無理のある話だとは思いますけれども、例えばそういったところでいろいろな立場の人が声を合わせて何かしら回答を、夢物語でもいいから考えていけるようになればいいんじゃないかなと思っているわけです。例えば国際情報大学さんが、その小出町に来てやってもらえたらこんなうれしいことはないわけですけれども、地域的に離れているということもあります。近いところでも結構ですから、例えば新潟市とか、そういったアドバイザー系の貢献があれば、とてもいいことなんじゃないかと思うんです。

あと逆に、今小出町には県央大学の学生さんが、たまたま国領先生と同じ学部みたいですけれども、学生さんが自主的に小出町の町づくりに参加しようという方が、まだサークル単位なんですけれども、いらっしゃいます。

なぜかというと、小出町には小出郷文化会館という文化ホールがございまして、その運営にあたって、ただ会館ができただけではつまらないから、初期の段階からボランティアの住民が関わって、その文化会館の目的とか、コンセプトとかも含めて考えるといった、全国的には珍しいといわれているところなんです。そこに、そういったことができた小出町ならば、町づくりにも同じ手法ができるんじゃないかということを学生さんたちが考えて対処しているんだそうです。

繰り返しになりますけれども、その小出でできたことが、決して難しいことではないと思うんです。先に箱物があって、これから中身を考えようという構図は、この地域の性能と似ていると思っています。ですから、これからやっとできるその光ファイバー網をどう使うかというところでは、市民が中心になって、そこに大学の方も是非協力応対ができるような形ができればいいなと思っています。そんなことを思って今日伺いました。とりあえずこれで終わります。

（山口）

ありがとうございました。では、高木先生。

（高木）

新潟国際情報大学の高木です。今日は大学がどのような貢献ができるかという課題なんですけれども、そもそもこの課題が決まった経緯というか、バックグラウンドとしましては、新潟国際情報大学が中央銀行の跡地を取得しまして、新潟中央キャンパスとしたことにあります。そのキャンパスでは、今みずき野のキャンパスにないインフラ環境を持っていることが大きく違います。みずき野キャンパスには、赤塚というＮＴＴの局から電話回線が来ているわけなんですけれども、大学のある位置ではＡＤＳＬが使えないんです。大学でインターネットを使えるのは、サイネットという文部科学省の回線に、新潟大学へ専用回線を作って44メガという早さで接続できているからです。大学がインフラ整備をやっているわけです。

ところが、新しい新潟中央キャンパスは新潟の市街、中心地にありますので、ここでは第一線の情報インフラを考えています。それはみずき野のキャンパスと新潟中央キャンパスを１ギガという回線で結んで、二つのキャンパスを一つのキャンパスとして使おうという構想です。それプラス、インターネットへの接続コンディションが良くなるということで、もう少し広いインターネットの活用というのを考えた場合には、中央キャンパスから使用制限のあるサイネットと違う回線に出るという可能性もあるわけです。その可能性が大きいということで、新しい新潟中央キャンパスには、１階、２階、３階、４階、５階まで光ファイバーを張り巡らせています。みずき野と新潟中央キャンパスの間でテレビ会議といった設備を入れようということを想定しています。で、そういった能力を大学の中だけに止めず、外に向かって情報を出したいという希望があります。

とりあえずは中央キャンパスというのは授業に使う、あるいは大学の施設として使うというのがメインですので、４年生の卒業研究指導といったことをメインにスタートするんですけれども、将来的な構想としては新潟中央キャンパスを使って、例えば生涯教育とか、それから地域に対する貢献を考えているわけです。こういった機能を盛りこむことができれば、非常に大学としても好ましいのではないかというふうに考えています。

ところが、実際にコストという面から考えてみると、例えば専用回線で、サイネットではなくて普通のプロバイダを通して外へ出ようとすると、100メガという回線を確保するのに月100万円単位のお金がかかるんです。とりあえずはＢフレッツというような安い回線で外へ出て、将来もっと下がるまで待たなければいけないという現実はあるんですけれども、どちらにしても新潟中央キャンパスを地域の情報拠点として利用できるように設定したいと考えています。そういった参考にしたいというのが、今回パネルディスカッションをお願いした意図であります。

実際に、どういうことが地域あるいは生涯教育で私たちに可能なのかというのをちょっと考えてみました。教育というのが私たちのベースになるということから、情報リテラシーという言葉があるんですけれども、そういったところからまず入るのが必要じゃないかと考えています。県内の議会関係者の勉強会に参加させて頂いて話す機会があったんですけれども、その時に中央から来られた方の話し方を聞いていますと、住民という意識が全くなくて、中央と地方をどう結ぶかとか、あるいは市町村の組織の中でどううまく使うかという話がメインだった気がします。大学の方にもマンパワーなどの制限とかがあるため一気にはできないと思いますが、行政としてなかなかできないような部分を、大学としてサポー

トできれば非常に好ましい形になるんじゃないかと思います。

それと情報リテラシーという言葉はいろいろな定義があって、どの定義を取るか難しいんですけれども、今回お話するのにちょうど適当じゃないかなと思ったのが、1998年に、情報力という言葉を説明した文章です。基礎的な情報リテラシーというのは、効率よく有効に情報にアクセスできるというのがまず一つ、それから批判的かつ適切にその情報を評価していく、それから三つ目が現実的かつ創造的に情報を使用することができるであります。この中で、三つ目の現実的かつ創造的に情報を使用できるというあたりが、具体的に大学として貢献できるような内容ではないかというふうに思います。

それで、例えば大学でITの講習会をやったことがあるんですが、大体講習会というと、ワープロと表計算が主になるんです。そして、その講習を受けるんですけれども、結局そのワープロとかエクセルを使いこなせない。そこで、私が一番あっと思ったのは、実際にやりたいのは年賀状だったりするので、年賀状だけの講習会をやってくれという要望でした。つまり何をしたいんだ、情報を何に使うのかというところを明らかにした上で、あるいは個別にどういうことをしたいんだというものを明らかにして、それをどのようにＩＴ技術を活用して解決していけばいいのかといったアプローチで、私たちが協力するというのが、一つの考え方として成り立つのではないかというふうに思っています。

（山口）

一通り御発言をいただきまして、これから筋書きを作らないといけないのであります。それぞれ長い時間御発言をいただいた方がおもしろいお話になるかと存じますけれども、こういう場でございますので、少しテーマを具体化したいと存じます。皆様の共通の御発言というものを考えてみますと、私事を申し上げて恐縮でございますが、４月始めから機会をいただきまして、オーストラリアに住まいをいたしておりまして、このために一時的に日本へ戻ってまいりました。今まで私は電子自治体の研究者といいますか、行政の出身として、当事者であったんでありますが、オーストラリアに住むということに関して、行政手続きを電子的にやるとか、そういう自分自身の経験の場を非常に期待したようにありまして、その正確なお話を申し上げたいわけであります。

実際の移民とか居住ではありませんので、行政手続きというのはないわけでありまして、法的機関との情報のやりとりがないので、いまだに体験はできないのでありますけれども、じゃあどうだったかというと、電気だとかガスとか水道、こういうものは全てウェブだけで全部用が足りました。電気会社さんとか水道会社さんとかガス屋さんに電話をして、慣れない英会話で難しい交渉をするのに非常に脅えていたんですけれども、一切なく、全てウェブだけで解決しました。普通に家を借りて、電気、ガス、水道、電話全部……普通に生活をするという行為はすべてウェブだけで、インターネットだけでできたわけでございました。電子自治

司会　山口直人

体の研究をしていた身の上からしますと拍子抜けというのもあったんであります。けれども、そういうことで感ずることというのは、皆様の共通の話として申し上げますとウェブを入れることがいかに充実したものになるかということになろうかと思うんであります。

私は長年情報化計画とか聞きますと、情報化というものは当然整備というところに、かなり力が入ってきまして、何に使うのという話と、インフラは欲しいという話がいまだに、なかなか説明がつかないけれども、先に整備をやっちゃおうというようなところで、高速通信問題でありますとか専用回線でありますとかというものをどんどん入れてきたという経緯があります。何に使うの、じゃあどうなるのという話は後でするよというようなことを、10年前には自分でも公言した思いもありまして、大変胸が痛むところもあります。最近になりましてやはり受けがいいのはコンテンツというものが重要であるかというようなことになったという意味で、昔がえりということもありますし、新しい段階に入ったということもあります。地域情報化、市なんとか問題というものも考えますと、やはりインフラとしての通信基盤の状態と、そのウェブを展開するコンテンツの問題ということになろうかと思います。

先ほどのオーストラリアの身の上話も申し上げますと、行政に対する手続きを電子的にしましょうということで、メールで何度か御指導いただいたんであります。ＯＡであろうとかＦＡだとかＨＡなんていうオートメーションの一貫で、ＧＡというふうに並べていいじゃないかということを申しますと、ガバメントというのは人間がやるものだから、とてもオートメーションにできないという御批判をいただくわけであります。けれども、じゃあオフィスであろうとファクトリーであろうとホームであろうと、人間のやりとりでだめならオートメーションにはならないだけに、手続きだとか行政のというような部分であれば、それをオートマチックに、オートメーションに行いましょうというようなこういうことが、もしかすると日本が頑張ろうとした電子自治体とか電子政府になったのではないかと自己反省も含めて考えます。

何を申し上げたいかというと、あまり力んで電子自治体とか電子政府というような決断、大きなシステムではなくて、通常のウェブベースで、普通の生活上必要な行為を賄うための一つのアプリケーションぐらいにするものだということを体験を踏まえて感じたこともあります。そこで、テーマに少し絞りまして、コンテンツと問題として、電子政府、電子自治体というような、燃えているというか、大きいというか、そういう中小概念ではなくて、もう少し市民生活でありますとか、日常の生活というものに対しての情報化という新しい局面で、もう少し具体的にそれぞれのお立場からおのおの御主張をいただきたいと思っています。中野さんからお願いします。

■

（中野）

コンテンツがなかなか充実しないというのは、民間ベースでもなかなかコンテンツ産業は発達しないということが今の現状です。私もコンテンツ産業の何人かを呼んで話を聞きましたが、大手の関連会社の名前だけでコンテンツビジネスをするのは非常に難しいとおっしゃいます。行政の場合はコンテンツはないといいますが、電子自治体がそもそもなんなのかという話から入らなければいけないと思うのです。電子自治体というのは我々実務社会で非常にはっきりしていまして３つしかない。１つはフロントオフィスの電子ができる。これははきりしています。フロントオフィスへ行かれる、これが最も注目されていますが、自宅に居ながらにして全ての行政手続きができるといったようなものでございます。これはほぼ完成の域に入っていまして、来年４月くらいから恐らくどこの自治体でも自動的に電子手続きができるようになるというふうに思います。ただ一部は非常に手続き面で書類を多く出さなければいけ

ないといったものがあるものですから、全てできるとは思いません。


パネラー　中野雅至氏（官）

フロントオフィスはまず間違いなく片付くと、次はバックオフィスで庶務的業務と呼ばれるもので、例えば職員が主張に行ったときに旅費をどうするとか、有給休暇をとったときにどうするかといった、これも民間でやられているようにほぼ決着が付く問題です。最後に、絶対的な問題として残るのはミドルオフィスという部分で、いわゆる企画部分ですね。企画をしていろいろな人にばらまいて、コンセンサスを築きながら一つの政策を築き上げていく。これはホワイトの労働そのものですけれども、この部分は恐らくどんなものを投入しても行政機関ではなかなか合理化するのは難しい。実感として、電子自治体でコスト削減によって、その果実を示せと言われても非常に難しい。特に公務員の場合というのは義務保証規定がありますから、ざっくばらんに言ってしまうとくびにはならない。民間企業みたいにリストラしたことによって株価が上がってＩＴの効果だというような前例が東京にありますが、公務員の場合はまずそれはない。

コンテンツという部分で僕はあまり悲観的にはなっていなくて、大抵のものはできるのではないかというふうに思っています。難しいことがあるとしたら、やはり社会制度そのものという感じがしています。医療の分野なんか一番典型です。技術的にはできることははっきりしています。これは新潟大学の大学病院と厚生連佐渡病院とがんセンター等が遠隔医療のシステムを作りました。入ってもらった業者には非常にえらそうなことを言ったりして、相当もめながら作り上げていったのですけれども、やっているコンピュータが好きなドクターからみれば、非常に優位だというか使いやすいシステムだということでした。自分一人でなかなか判断が難しい事例を、実際に大学病院とかがんセンターの専門の先生に送ってもらってみてもらってそれで措置ができる。ここの部分で力を入れれば、お金を行使すれば人の命が救えるとまでは言いませんけれども、相当サービスとしては上がってきて、これははっきりしています。ただ、問題は現場のドクターの意志でありますとか、ナースの意志でありますとか、あるいはもっと極端に言ってしまうと、これだけの患者を抱えてて１分間に何人もの患者を診なければいけない状態の中で、そもそもドクターにコンピュータを強制するのはいかがなものかという社会制度にいきついてくるわけです。

コンテンツを充実するというのは、僕なりに解釈すれば、いくらでもかたちだけは充実できるのですけれども、実際にはその周りの社会制度そのものそれも一緒に変えていかないと、とてもではないけれども追いつかないというのがコンテンツです。民間企業に対していえば、多分コンテンツ産業の値下げ構造そのものの見直しとか、本格的に恐らく始まっていくでしょうから、すぐになるとは思わないにしても、やはり知的産業社会になる部分で、これは当然起こりうることだというふうに今思っています。以上です。

（河内）

ルサージ先生がおっしゃっているのというのは、住民自治の考え方というかそういうような観点が電子政府だという話で、山口先生のお話というのは、どちらかというと、行政サービスとか、いわゆるサービスを受ける受けられるという話だという感じがしています。コンテンツという話が出て、行政サービス的な話だというのがはっきりしました。

先ほどの國領先生のお話に、ビットはお金にならないというのがありましたね。これがすべてを物語っていると思うのです。実際に管理者する技術とか、コンテンツを作る技術は皆もっているのです。

でもどうやって運用して、今の行政システムにどうやって当てはめ、どのくらいコストをかければいいのかというのを分かっている人が今いないのが問題だと思っているのです。正直申し上げると業者はやりにくいのです。コンピュータ１台だったら、例えば10万だったら10万といいますね。でも行政サービスの、例えばコンテンツを作ってそれを運用し続けるというのは、要は人件費の固まりですからそれに対する対価は、結構重要な話だと思うのですが、10万人の自治体でも100万人の自治体でも、ほとんどコストが変わらなくなる構造ができてしまうのです。これがコスト計算を難しくしている原因で、ウェブコンテンツがうまく上がらない原因にもなると思っているのです。

今までの行政というのは当たり前ですけれども、10万人の自治体と１万人の自治体だったら、例えばロッカーの数、受付係の数が違いましたよね。ところがブロードバンド環境になると、10万人も１万人も手間暇が変わらないです。ですので、これは大学にお願いするしかないのでしょうけれども、今のウェブサービスにどのくらいのコストをどうやってかけていけばいいのかという指標を作るかたちになっていくと思うのです。例えばうちの会社ですと、60人くらいの会社です。大手メーカーで何万人もいる会社がありますね。今までだったらいろいろな事務手続きとかに、大きい会社だと手間暇がかかったのです。ところがウェブサービスに移行するとほとんど手間が違わないのです。たとえて言うと、60人の会社のシステム管理者は一人でいい、１万人の会社でも一人でいいということはないと思いますけれども、ほとんど手間がかからない。多分この辺が今ネックになっていると思うのです。それで自治体を合併させてそれで効率を上げましょうというのも一つの考え方かと、業者からいくとそういうふうには今思っています。

（山口）

吉岡さん、お願いします。

（吉岡）

いろいろなことがあり難しいのですけれども、中野さんのおっしゃった遠隔地医療のことで、すこし聞かせていただきます。ＩＴがもたらすメリットとして医療というコンテンツはすごく分かりやすくて、住民もそれに対しは理解を得やすい分野だと思うわけですが、例えばその県のモデル事業に佐渡の方がどれだけ介入をされていたのかというところを私はすこし知りたいのです。こういうモデル事業があって、こういうＩＴ技術を導入すると例えば、病院、診療所に行かなくても健康診断ができるようになりますということをやっていたとします。それについて患者の立場から、あるいは僻地地域のドクターの立場からナースの立場から、それはすばらしいことだという議論になるのか、あるいは忙しくてやっていられないという話になるのか、そういったことを誠に聞こえがいいことは恐縮なのですが、住民の立場から考える機会を与えると、そのコンテンツも意味に重みを増してくるのだろうと思うわけで

す。自分の生活にかかわってくることであれば皆さん真剣になって考えるのだろうと思うわけです。

パネラー　吉岡和彦氏（民）

コンテンツの項目をあげることは行政のサイトでも民間でももちろん可能ですし、その意味ではコンテンツに差はないのかもしれないし、中野さんもおっしゃるとおり大変なのはコンテンツをあげることよりも、状況を変えることだというのもそのとおりだと思います。状況を変えるために、例えば大学がその提言をするというのは、私は賛成です。先ほどルサーズさんは大学が新しいモデルを提案すべきということをおっしゃられていましたけれども、大きな話にならなくても、例えば具体的な事例を研究対象とするだけでも状況はすこし変わるのではないかと思っています。

ここに学生がやってきてフィールドワークをして、実際のまちづくりにＩＴがどういうふうに貢献したのか、あるいは貢献しなかったのかというようなことからでもいいのではないかと思いました。今日もし興味のある学生がいらっしゃれば、現地に行って学生の目で研究対象にしてもらう、もちろんそこから発展して地域貢献といったものにつながることに賛成なので。そういったところから大学にかかわっていただくと良いと思いました。

（高木）

大学がモデルを作って経営する。ウェブのコンテンツです。ある面では大学としては取り組みやすいと言ったらいいと思うのですけれども、ただ疑問に思っているのが、住民といってもいろいろな住民の方がいらっしゃるわけですね。平成10年の通信白書に情報リテラシーを調査した結果が紹介されていますが、その内容は留守番電話を自分でセットできるとかビデオを自分で留守録音ができるとか、ファックスを送信できるとかこんなことから調査しているわけです。

実際に住民という立場に立ってみると、私たちが考えているＩＴのレベルに、大学で今教えているレベルに至っていない人たちというのは恐らく大半ではないかと思うのです。大学でモデルづくりということになれば、レベルをあまり気にしなくても、その先のことをとにかくやっていれば、一応大学に期待されることはクリアできるとして受け取っていいのかというところが疑問です。地域サービスということを考えると、本当に住民の人はなにを要求しているのか、なにを必要としているか、あるいはそこまでいかなくても、どんなことに困っているのか調査することが必要なような気がします。例えばマーケティングですと市場調査から入りますね。このようなことは大学生にやりにくいので、どちらかというとモデルづくりの方がやりやすいのですけれども、もっと地道なところというのも要求されているような気もしてくるのです。これが頭の中で整理ができない点です。

■

（司　会）

それでは、ここで、話題をもう少し整理してまいります。コンテンツという言葉は、通常のウェブの

画面そのものというイメージを昔は持っていましたが、ここではサービスの内容でありますとか、本題的な意味とか、そういうものをすべてひっくるめてコンテンツという言葉で表わします。どうも司会が下手で恐縮でございますけど、どうも昔のコンテンツにまた戻るところもあります。誤解をいただいているところもなくはないのですけれども、目指すものはいいデモクラシーであるとか、政治そのものを電子化しようという、目指ものはそういうところであったわけですが、それを電子制度や電子自治体と考えたのかどうかという自己反省が必要なようです。

そうではなくてきちんと棲み分けをした中での行政サービスも、ある意味では片方向のだと思うんですけれども、手続きが簡潔するというようなことも、電子自治体のサービスと考えられます。利用者がウェブに向かって手続きなりリクエストをすれば、それはそれでサービスが完結するという意味で、双方向ともいえます。コンテンツの充実といったときには、もっともっと深い双方向性の使いかたがあり、もっともっと地域社会への貢献がなりますよというものだったと思うんです。それらをすべてひっくるめて一言でコンテンツの充実でありますとか、電子自治体の推進とかいったのではないか思います。

新しい本来的なウェブ、インターネットを前後しますけれども、日本の場合はＩＴといっておりまして、インフォメーションテクノロジーというものですが、今日お聞きの皆さんはご存じかと思いますが、ＩＣＴという単語でＩＴの間にコミュニケーションというのがきちんと入っている場合があると想います。この辺でも多少意味合わせが違うのかなという気がするわけであります。その目指すものというので、コンテンツという一つの渡りとして、これからの情報化社会に、インターネット、ウェブというものを活用して市民の普通の生活をより良くしていこうという目的のために、コンテンツの充実とこうことを申し上げたつもりだったわけです。それが需要がないから、需要がよくわからないから供給しない、できないというジレンマもなくはないし、あまりウェブだけに頼ったものを想定すると、電話だとかファックスしかない人達がかなりいますので、差別になってしまうのではないかという問題もあります。けれども、これまで苦労をして今日に至って、これからもっとよくなるんだろうなという内容をテーマにして電子自治体、あるいはコンテンツの充実とこういうことを申し上げたかったわけであります。

そういう整理をさせていただいて、新潟においてわが大学がどのようなかかわりで自治体を支えていけるのかというようなことを、一言ずつ話しをいただければありがたいのですが。

（中　野）

ちょっと難しいんですけど、基本的には三つあると想っています。ややもするとこの分野、実際政策に生かすときに、じゃあどうすればいいですかと聞いても、なかなかぴしっとした答えが返ってくる先生というのはそんなに多くありませんよね。その場合、特に国際情報大学の場合には山口先生はじめ実務経験のある先生が非常に多いということで、そういった面で期待しているのが一点です。それから二つ目は人材供給、人材を創出してほしい、地域にＩＴ産業がいくら起こってもそこを担えるような人材がいなければだめだ、特に人材に一番我々が求めているのは、ＩＴ用語とビジネス用語、あるいはＩＴ用語と行政用語こういった二つをマッチングできる人間がほしい。

僕も当初赴任してきたころ、僕は社会政策をやったものですから、難しいカタカナ言葉ばっかりで、まったく何をいっているのかわからない。結局よくできる人という、この会場にもそこらへんに座っていますけど、よくできる人というのはＩＴ用語とビジネス用語、ＩＴ用語と行政用語、二つかませてこれを使ってこういう政策をやりましょう、こうなるといいですよみたいなことを言える。この二つをマッチングできる人材が欲しい。これは国際大学の先生なんかもおっしゃってますけど、やっぱり今売

れているのはＩＴとビジネス二つを兼ね備える人で、そういう人が欲しい。これは事業のニーズでもあるといえる、そういう人材に、新潟国際情報大学の場合には実務課の先生も多いものですから、ぜひ協力してもらいたい、それが２点目です。

それから３点目は産官連携の中心になっていただきたい。これは僕が痛感したことなんですけれども、各都道府県、各市町村参加のメイン組織はいっぱいありますけれども、成功したものはありません、日本の場合にはほとんどありません。市民運動とかかっこいい言葉はいろいろ出てくるんですけれども、参加型というのはほとんど成功しない。これはやっぱり行政指導で、形だけやっておきましょうと、お金は例えば企業とか研究所から集めて、１、２回マット会議をやって、あとは流しましょうみたいな感じで長話をして、コンピューターで印刷というのが非常に多いんです。そういったときに我々としては、企業とぴしっと一線を画さないといけない。あそこの企業に情報が漏れたとか、ここには話したのにここには話してないとか、あるいはプレゼンをそこの会社は聞いたのにこっちは聞いてないといわれたものですから、我々は今年もよく知らない人にいったんですけど、絶対に企業とは密着するなと。

一線画してくれという話ははっきりさせました。そうなってくると、なかなか産との連携をいわれても取りようがない。非常に動きづらい。こういう技術がある中小企業があるのにといわれても、そこにいってわれわれの立場ではなかなか聞くこともできない。その点、学校の場合非常に動きやすい。特に法制度も含めて、文部省の規制の緩和もされてますし、だんだんそういう状況が整っているものですから、特に産官連携の中で力を出して欲しい。

今までは教育とか研究とか一本だった人も多いと思うんですけども、教育、研究だけでなくて、そういった中で産官連携活動のなかで自分なりの持ち味を出していく、そういった先生がたくさん出て来られると我々としては非常にありがたい。この３つがわたしが新潟国際情報大学に期待するものです。以上です。

（河内）

だんだん話が具体的になってきましたが、わたしが最高に期待しているのはたった一つです。お金儲けをしてください。今までこれができなかったからだめなんですよ。なんかそれはどっか相いれないものがあるんじゃないかと思われるかもしれませんが、違います、絶対そんなことはありません。今、中野さんのおっしゃったとおり、人の育成の件ですね。企業として今現在どういう人材を排出してほしいかというのははっきりしてまして、ストーリーの書ける人なんですよ。今までの産業というのは何でもそうでしたけれども、この部分はお前に任せたから技術ばかでいい、あるいは行政ばかでいい。今の中野さんの話とまったく一緒です。それはそうじゃなくて、自分はこういうストーリーでこういうことをやる、じゃ、こういう技術を身につけてこういうふうにと、ストーリーを最初から最後まで書ける人が、今地方で最も求められる人材だと思います。これができない限り下請け社会からは絶対に脱却できません。

パネラー　河内康志氏（産）

それと、これも地方の事情だと思うんですけれども、いかにプロパーをちゃんと教育するかということを次に考えほしいんですよ。これはすごく難しい問題です。今日はたまたま企業の立場で話をいえというからこういう話をしてますけれども、あちこちいろんな団体に出入りしていると、そこに集まってくる人間というのは、言葉が悪いのですがやくざものが多くなるんです。それはどういうことか。まず100%間違いなく、同じ組織にずっと最初からいる人は、なかなか仲間に入れなくて、そういうストーリーを語れないんです。

現時点でに新潟国際情報大学を見ますと、非常に地元の学生さんが多い大学です。そのまま高校も新潟にいた。そのまま大学にきた、さらに新潟の企業に入ったと。終身雇用がいいとか悪いとかわたしはいう気は全然ないんですが、そのままずっと転職や転勤しなくても、あたかも違った組織に入ったような疑似体験ができる、それは多分この大学が一番得意とするところだと思うんですよ。今、中野さんがおっしゃったように、企業からきた先生が大変多いと、いろんなご経験されてる先生が多い。それをいかにして伝えていくか、このあたりを重点的にやっていただきたいと思います。

（吉岡）

お二人の御意見伺えばもうたくさんと思って、付け加えることもあまりないと思うのですけれども、まったくおっしゃるとおりで、大学は教育機関であるわけですから、人材を育てるということで、スキルを持った学生さんを育てて世に出していただくということが、基本的に期待するものだろうと思います。それと、現在、大学に持ってらっしゃる人材という資産を、県などに派遣していただく、アウトリーチというのでしょうか、大学の機能を、あえて大学外のところに生かしていくというをしていただくことです。

あと、あるいは、先ほど、学生さんの研究材料にして欲しいということを言いましたけれども、もう一つ例えば、今日のように大学の研究者の方が講演をなさる、あるいは国を越えて講演をなさる、これも立派な大学の機能であると思います。もちろん、個人的にやってらっしゃるという場合もあるでしょうけれども、大学の研究者の方が、専門分野を学外で教えてくださる、こういったことをどんどん新潟県内で積極的にやっていただければ、いいのではないかと思います。その上で、その産学連携に進めばいいかなという気がしています。本当に私なんかも思いついたことを言っただけなので、実際には困難があると、確かに思いますけれども、研究会とか学会ですね、一緒になって地域を作っていくという、モデルケースをどこかで作っていただきたいと、だんだん声が小さくなっておりますけれど、思っています。

（高木）

今、発言いただきました中で、ＩＴの技術とビジネス、その両方がわかるような教育という件に関しましては、カリキュラムでは、情報システムというのを理解した上で、さらにその組織と経営、あるいは企業の組織、そういったところの知識も身につけるようなコースというのも配置しております。

産学の連携につきましては、官、産、民と学というふうに考えていたのですけれども、産学連携ということであれば、先ほどモデル作りの話になったのですけれども、大学からモデルを提言するというだけでは、現場のことを知っている教員が多いにしましても、現時点の現場の声というのは、必ずしも反映できない部分があります。ある程度、大学の方で提言するにしても、それを産の方と一緒に、例えば一方的に教えるということでなくて一緒に勉強をしていこうという、そしてそこに学生さんが入って学

生さんの力も利用していくという、そういった形の連携の形が非常に理想的であるというふうに考えています。

それから、自治体との関係からいいますと、先ほどのWebコンテンツというのは、どちらかというと一方通行で、その情報を受け取ったら終わり、あるいは、リクエストしたら終わりというのが多い。情報というのは、そもそも発信するだけではだめで、受け取る人がいて、その情報を受け取った人が自分の知識の中に、受けとった情報を取り入れていく、あるいは、その情報を使って何かの目的に対して判断をする、それが本来の情報の役割であるわけです。そうすると、やはり、コンテンツといったものは、単に便利になるというだけのものではなくて、その情報がサイクルを描くといった形のコンテンツの開発ができると好ましいのではないかというふうに考えております。

それから、お金をもうけてくださいということなのですが、まだ現在の段階では、直接事業と結び付くというようなアイディアがないのですけれども、ビジネスモデルを実施をするとか、ビジネスの最初の段階で大学が関与できるという可能性があるのではないのかという気がします。

あと、さきほどのアウトリーチとうかがったのですけれども、教員の人材の活用といった可能性というのは、教員の方としても確かにやりたいという熱意のある先生がかなりいると思います。けれども、現実の教育にだけで、なかなかそこまで力が回らなかったというのが現実です。だけど、そういったことが期待されているということであれば、なるべくそういった観点から、教員が自分の時間の割り振りを考えていくというのも、重要になると思います。

（山口）

時間もわずかになってまいりまして、最後に一言ずつお話しをいただきたいのでございますけれども、大学が、もし地域総合ITセンターというものを目指そうといういった時に、具体的にどういうイメージ、どういうものをお考えなるかなということをお話しいただければと思います。地域総合ITセンター、カナダのＩＣＴセンター、総合ＩＴＣセンターのようなことになると思うのでありますけども、それを、我が国際情報大学も目指すというようなことに関しまして、手短で大変恐縮でございますけれれども、御期待を具体的にお話し合いいただければと思います。

（中野）

すみません。どういうものかよくわかないのですけれども。具体的に建物の中は複合的な施設になるであろうかと思いますけれども。１つだけお願いしたいのは、特に情報政策課長の最後数カ月に思ったことは、中小企業とか地場産業の力を、もっと電子自治体に使いなさいとか、地域情報系に使いなさいとか言われた時に、やっぱりどうしても我々現場にいると、大手の方が確実です。入札とかやっても、やっぱり大手は低いお金を出しますし、確実に大手になる。なかなかこう意図的に、意図的にそんなことやるともちろんは我々逮捕されますので、意図的にある企業に振り分けもできない。市民という立場からというよりも、むしろ我々、私の立場からいうと、中小企業をサポートしてあげてほしい。

中小企業でも技術的に非常に良いところがいっぱいあるのですね。１人１人の話を聞いて、ああ面白いなということがいっぱいあって、この人手伝ってあげたいなと思うのだけれども、私の立場からいくとできない。そんなことやると何をやるかわからないので、全然やらないのですけれども。何が言いたいかというと、中小企業の技術とか見えない、なかなか実際取り上げられない技術とか良いものを、大学の名を使ってサポートしてあげてほしい。

つまり、入札案件なんかに入る場合も、例えば、国際情報大学と新潟県の○○企業と、ちょっとベンチャーの学生が入るとか、そういったかたちで信用機能付与機能を付ける。

世間には無名だけれども、実際には実力持っている、そういった人とか、ものとか、組織とか、そういったものに信用機能付与機能を植え付けることが、その地域総合ITセンターの中の１つソフトとしてしっかりほしい。例えば、どんなものでもいいと思うのです。そこにＩＴの企業が入ったりとか、そこに１つの産業が起ころうがなにしようが。むしろ、そのコンテンツだとかソフトの中でその認知度を高める機能を、やっぱり信用機能付与機能を、積極的にやってほしいというのが私の希望です。

（河内）

今、中野さんからありがたいお言葉いただいて、力強い限りですけれども。それはそうと、私も地域総合ITセンターという組織がわからないです。じゃあ先に言っちゃいますけれども、一体何がしたいのかということです。すべてＩＴに、もちろん情報技術に絶対かかわってるわけですから、何がしたいかという明確なビジョンを示していただきたいのです。

それは先ほどお金儲けしてくださいと、私が言った話と関係します。なぜか。極論から言うと、お金儲けのために、どういうふうに何をしたいのか、そのために、じゃあＩＴというのがものすごく使われる道具ですから、そうしたところで、何ができて、どういうことができてという、そのストーリーをそれこそ書いてほしいわけです。理想論から言うと、先生方ももちろんですけれども、できれば、学生さんからもそういう話が出てほしい。そうでなければ、今、民間企業が作ってる、あるいは自治体が作ってる、通信会社が作ってるような、データセンター的な組織になっておしまいです。

もう１つだけ付け加えさせていただくと、目的がはっきりしていれば、おのずと運用スタイルがはっきりします。これがポイントだと思います。作って終わりということは決してないと思います。そこをやっていただければと思います。

（吉岡）

そうですね、最初にそのセンターの機能に期待するものとしては、やっぱり、市町村の役場や、地域の担い手の方に教育をしてもらう、あるいはそういう行政や市民レベルで中心になろうという人を集めた塾といいますか、ＩＴ経営塾などです。先ほどのボランティアですというような人達がやっている、一人暮らしのお年寄りとかを呼んで強化するというようなことではありません。ＩＴに関するものを戸塚ヨットスクールじゃないけど、短期間集中して何か教え込むというような場所です。おそらくそれはそういう目的意識を持った人達が集まる場所になるでしょうから、そうすれば、その同期生などいろいろな壁を越えて横のつながりができていくような感じじゃないかと思います。

その機能の進歩として、今で言う社会人留学とでもいうのでしょうか、いろいろな立場の人が利用できる地域総合ＩＴセンターをもっていただければ、そこを出たのですか、あなたも、というようなかたちで戻ってからの活動に箔が付くというか、そんなような存在になっていただいたらなというのが希望です。

（高木）

前向きの御提言どうもありがとうございます。やはり大学ですので、第１は教育ということになります。想定されるような内容といたしましては、やはりＩＴ技術の教育、それは学生に限らず、社会人と

か地域を含めたＩＴの教育です。そのときには、手段じゃなくて、目的別の教育といったものが１つ考えられるのではないかと思います。

それから、情報の教育に関して、e-ラニングの教材、こういったものを開発していくことが考えられます。それはその大学だけではなくて、例えば高校の中でも良いし、それから企業の中でも良いことになります。それと、その共同開発といったところにも、企業が果たせる役割があるというふうに考えております。

パネラー　高木義和（学）

信用機能付与機能というのはできるかもしれない。私達にとっては良い概念です。例えば、先ほど塾とおっしゃいましたけれど、大学の外の企業の人と勉強会みたいなことを行い、ビジネスモデルを作って実際に実行するときに、そういった信用機能付与機能を働かせれば、一緒にそこで取り込めるかもしれない。取り込めるはずです。それから、長期のデータとかリサーチがあったのですけれど、例えばデータベースのようなものを作って、１つのテーマについて長期にデータを取っていく、そういったものも機能１つとして考えていくことができます。先ほど地元の中小企業の地場産業への信用機能付与機能という話だったのですけれども、既にうちの教員の中でそういった企業の為に、サーバを立ち上げるということをやられてる先生もいらっしゃいます。

具体的にどんなことができるか、もう少しこれから詰めていかなければならないと思います。今日いろいろ御提案いただきましたので、これらを参考にして考えさせていただこうと思います。

（司会）

司会の不手際で大変恐縮でございますが、定刻の就業時刻となってしまいました。御質問のある方ございましたら、お１人だけいただければと存じますけれども、いかがでございますか。

（谷江）

信州大学の谷江と申します。１つだけ印象としましては、ＩＴの動きに行政がついていっていないのではないかという気がします。というのは、ＩＴを使うベースとして、今、日本で何が一番一般に普及してるかというと、私は携帯電話でないかと思います。そうすると行政がサービスするにしても、例えば一番市民が使っている携帯電話をターゲットにしたようなサービスを、というような発想にはいかないのでしょうか、ということに関して何かコメントがいただけないかと思います。

（司会）

御質問ということでございますでしょうか。

（中野）

携帯をターゲットにした行政サービスがないことはないです。ただ、今、谷江さんが言われたように、

携帯を主として考えると。それは確かにありません。大体、コンピューター、でありますとか、ＰＣでありますとか、そういったものを前提にしています。なかなか携帯電話の方に情報を届けるというのを主体的に考えて、何かをやるというのではなくて、たいてい、私の記憶では、まず一通り終えた後に、じゃあ携帯電話対応型の何かも考えましょうかというのが実感です。これは確かにそうです。それで、それは物理的に携帯電話にしちゃえというのも限界があったりとか、あるいは、本当に確かに使っているのだけれど、ピコピコピコピコ、メールってやるような人は、行税サービスを本当に欲しいような人かということもあって、なかなかこう声としても上がってこないです。携帯電話対応型の何かをもっとしてくださいという声が、そんな思ったほどは上がってこない。実際問題としては、そういうこともあって、おそらく遅れているというのもあると思いますけれども、御指摘のところは、多分、一部本当だと思います。

（谷江）

どうもありがとうございました。

（山口）

それではこれをもちまして、これでディスカッションを終了したいと存じます。長い時間お付き合いいただきまして、大変ありがとうございました。また司会の不手際で申し訳ございませんでした。どうもありがとうございました。

地域情報化と大学の役割

Local Informationalization and the role of Universities.

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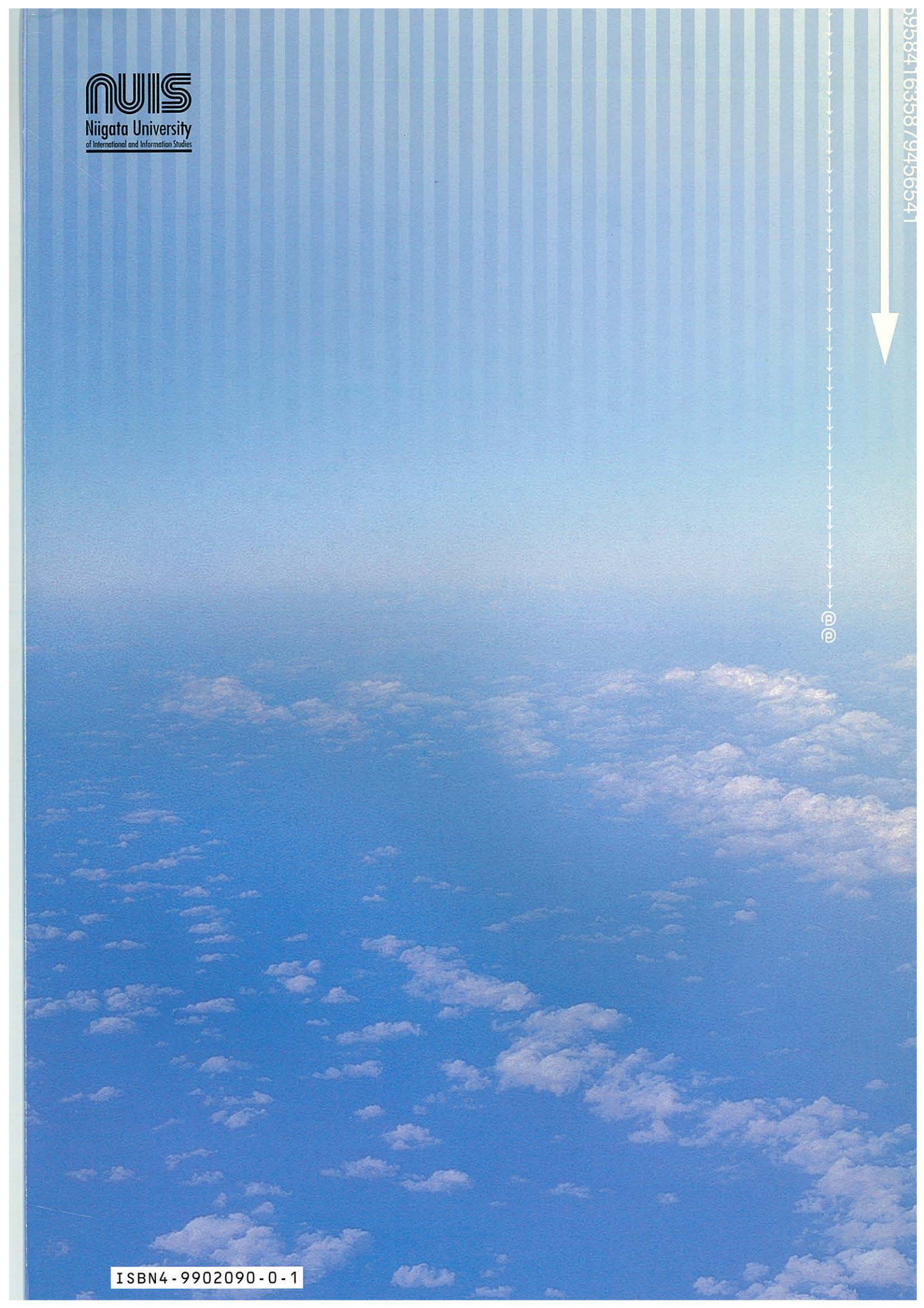

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