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**Design as an Instrument of Public Policy
in Singapore and South Korea**

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DESIGN AS AN INSTRUMENT OF PUBLIC POLICY IN SINGAPORE AND SOUTH KOREA

Submitted by: The Canadian Design Research Network

EXECUTIVE SUMMARY

This report examines the role of design as an instrument of public policy in Singapore and South Korea. The intent of this work is to assist Canada in crafting its own approach to design by learning from the experiences of these two countries.

Design is defined here as the first step by which ideas become reality and concepts take form. In this report, design ranges across a variety of different scales — from products to buildings to entire cities — and as such includes not only the traditional design disciplines of architecture, urban design, landscape architecture and industrial design, but also emerging ones such as interaction design and experience design. Singapore and South Korea were selected for this study because they have some of the most vigorous and progressive design policies in the world. Although this report focuses primarily on these two countries, examples and comparisons are also made with other countries where appropriate.

The study is composed of the following components:

1. The Value of Design - An examination of the value of design as it impacts global competitiveness, innovation, productivity and sustainability
2. Design Capacity - A description of the design capacities of these two countries including their technological, educational and professional infrastructures
3. Policy Analysis - An analysis of the specific policies of the two countries including a comparison of their respective capacities in areas such as promotion and outreach, the role and effectiveness of design centres, the engagement and support of small and medium-sized enterprises (SMEs), and the role of the public sector in promoting design
4. Case Studies - Examples of Canadian designers working or of Canadian technologies being deployed in Singapore and South Korea
5. Recommendations - Suggestions and next steps regarding possible Canadian design policies

The overall recommendation of this report is that Canada should immediately begin the development of its own national design strategy in order to remain competitive. As evidenced in this report, design may well be the most important and cost-effective means of addressing Canadian sustainability and productivity. Branding Canada as a design nation is essential for a nation that exports 45% of its manufacturing output. Singapore and South Korea provide a striking contrast to Canada in terms of their support for design as an instrument of public policy, and these investments are bearing fruit in terms of the growing capacity for innovation and competitiveness.

While it is beyond the scope of this document to describe such a strategy in detail, the material provided here does provide a means to learn from the experiences of other countries. As Singapore and South Korea demonstrate, Canada should create a demand for high-quality design while simultaneously building the capacity to meet that demand.

Those experiences also suggest that a design strategy should have the following characteristics:

1. Its intent should be to create a demand for good design
2. It should be developed as an active partnership of the academic, private and public sectors
3. Governments should be actively involved in design promotion as an exemplary client of good design and through programs that promote design to both business (particularly SMEs) and the general public (in Canada and abroad)
4. These promotional strategies need to be of a significant and prolonged nature to effectively change perceptions
5. Canada should simultaneously increase its design capacity by creating further opportunities for design education and research (particularly at the level of graduate students); enhancing and connecting existing communities of design practitioners; and creating a pan-Canadian infrastructure to support design.

As demonstrated by the experiences of Singapore and South Korea, there is little doubt that design should be a key element of every country's research and innovation strategy. Canada must quickly address the role of design and design research in its own economic future.

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CANADA, SINGAPORE AND SOUTH KOREA

The following table provides an overview and comparison of some of the key statistics for Canada, Singapore and South Korea.

Country	Year of Data	Population	Area (sq. km.)	Population Density (people per sq. km.)	Gross National Income (\$CAD)
Singapore	2006	3,654,103	699	5273	\$30,353
South Korea	2006	50,633,265	99,268	510	\$9720
Canada	2006	32,440,970	9,976,137	3	\$25,731

Table 1: General Statistics, Canada, Singapore, and South Korea
(Source: www.internetworldstats.com)

It is clear that each country is a unique geographic entity with vastly different population densities, sizes, histories and identities. At the same time, all three countries are grappling with the realities of the 21st centuries as globalization creates a highly competitive economic environment fueled by rapid and often disruptive technological change.

Singapore and South Korea, however, have both recognized the value of design and made significant investments in design promotion as a means of coping with and even exploiting those realities. And despite the differences between these three countries, Canada is in a singular position to learn from the policies of Singapore and South Korea and craft its own approach to design.

I. THE VALUE OF DESIGN

“In a global economy, design is becoming a critical competitive advantage”

Roger Martin, Dean, Rotman School of Management, University of Toronto
Fast Company, April 2005

WHAT IS DESIGN?

Design is the first step by which ideas become reality and concepts take form. Small changes in the design phase of a project — whether for an appliance, building or entire city block — can cascade through the project, dramatically affecting cost, efficiency, productivity and long-term viability. As such, design has a direct and immediate impact on the health and well-being of all Canadians. Sir George Cox, author of the *Cox Review of Creativity in Business*, has said, “Design is what links creativity and innovation. It shapes ideas to become practical and attractive propositions for users or customers. Design may be described as creativity deployed to a specific end.”¹

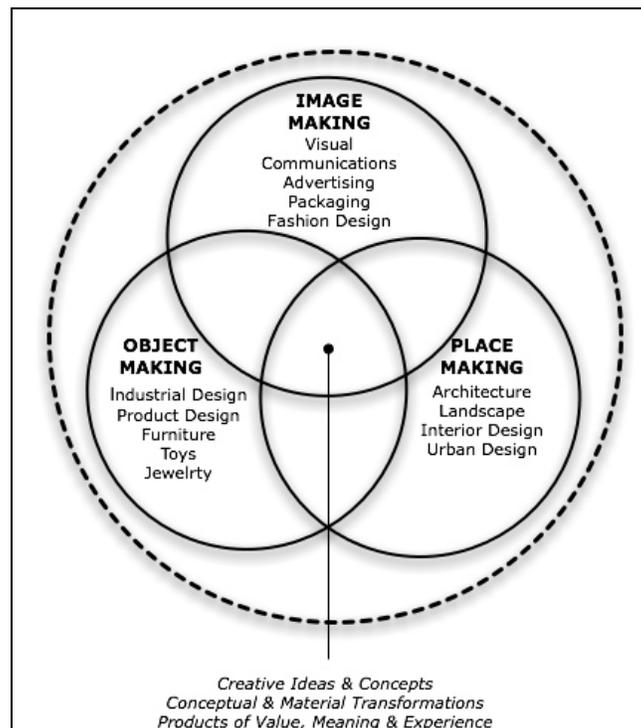


Figure 1: Mapping Design

(Source: Adapted from Milton Tan’s *DesignSingapore* Presentation)

A successful economy ultimately depends on selling goods and services, and consumers often base their purchasing decisions on subjective perceptions and considerations. As Bill Buxton has said, “Ultimately, we are deluding ourselves if we think that the products that we

¹ Cox, George. *Cox Review of Creativity in Business: Building on the UK’s strengths*, p. 2

design are the 'things' that we sell, rather than the individual, social and cultural experience that they engender, and the value and impact that they have.²”

Creating those experiences is a matter of design. Technology, infrastructure and legislation may all contribute to those experiences, but they are rarely the driving force behind a consumer's decision to purchase a product or service. Put another way, even the most innovative manufacturing processes and distribution networks in the world serve no purpose unless consumers buy the goods they produce and distribute. iPods, Blackberries, PT Cruisers, VW Beetles and Garbo garbage³ cans all demonstrate the tremendous economic power of good design. According to one study carried out in the late 1990s, South Koreans ranked brand image (44.7%) and design (29.1%) as the two most important factors influencing their purchases of consumer electronics.⁴

In fact, some studies have demonstrated that design presents a powerful return on investment. In a report commissioned by International Enterprise Singapore it was shown that while investing in banking services provided an output multiplier of 1.4 and investing in computing equipment provided an output multiplier of 1.47, investing in product and visual design resulted in a multiplier of 1.76.⁵ In other words, investing in design represents a 26% better return than banking and a 20% improvement over investing in computing.

Good design is also directly correlated with success factors such as productivity, innovation, and global competitiveness. Moreover, while they are no substitute for good design, new technologies, infrastructure and even legislation can, when skillfully implemented, provide significant advantages for those nations that deploy them first and use them to help level the playing field for small and medium-sized enterprises.

In this context, design can create value for Canada in the following areas:

- i. Global Competitiveness
- ii. Sustainability
- iii. Productivity
- iv. Innovation

The manner in which design can contribute to each of these areas is described below.

² billbuxton.com/

³ Designed by Canadian-born Karim Rashid for Toronto-based Umbra, the Garbo garbage can has sold seven million copies world wide

⁴ Chung, Kyung Won. “Strategies for Promoting Korean Design Excellence,” *Design Issues* Vol. 14, No. 2, 1998, p.4

⁵ *Design Singapore Initiative*, p. 24

GLOBAL COMPETITIVENESS

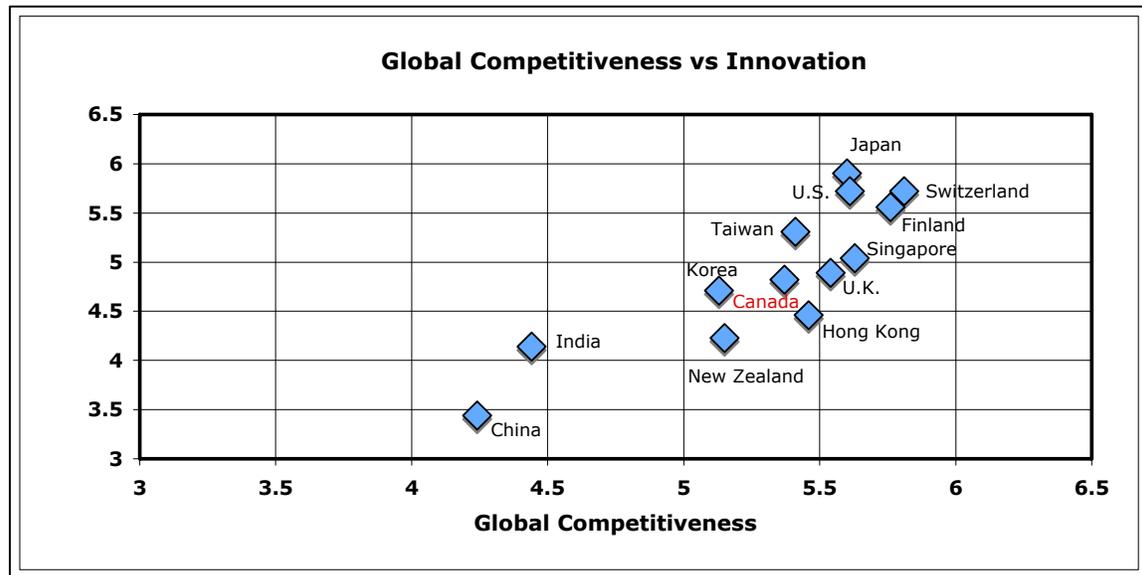


Figure 2: Graph of Competitiveness vs. Innovation for Selected Countries
(Source: World Economic Forum, Global Competitiveness Index, 2006)

Figure 2 shows the relationship between national scores in global competitiveness and innovation. The mapping of these two characteristics provides a rough indication of a nation's design capability.

Canada's rank in the World Economic Forum's Global Competitiveness Report slipped from 13th in 2005 to 16th in 2006, reflecting an ongoing, downward trend that began in 1999, when Canada was ranked 5th in the world. This trend must be considered in light of Canada's unique economic situation: it exports 45% of its manufacturing output — more than any other industrialized nation. In 2005 these exports amounted to C\$436.2 billion⁶. According to previous studies conducted by the Asia Pacific Foundation of Canada, purchasing decisions are often influenced by the country in which a product was made. If branding Canada as a “design nation” resulted in only a 1% increase in exports, it would increase our trade surplus by over C\$4 billion.

As further evidence of the economic value of design, the UK Design Council has tracked the progress of 63 firms that have been using “high-quality” design since 1994 in what is called the UK Design Index. Over the last 13 years these companies have outperformed the London Stock Exchange's FTSE Index by 200% in good times and bad.⁷

The Korean giant, Samsung, transformed itself from a electronics firm that copied the designs of others to one of the world's leading brands by focusing on design. It invested hundreds of millions of dollars in improving the design of its products, and became the first Asian firm to win more IDEA design awards than its US or European rivals.⁸ The following

⁶ strategis.ic.gc.ca/sc_mrkti/tdst/tdo/tdo.php#tag,1/15/07

⁷ www.designcouncil.org.uk

⁸ Rocks, David and Moon Ihlwan. “Samsung Design,” *Business Week Online*, November 29, 2004.

is an excerpt from the November 29, 2004 *BusinessWeek* cover article on Samsung Design that underscores the impact design has had on improving Samsung's competitiveness:

...since 2000, Samsung has earned a total of 100 citations at top design contests in the U.S., Europe, and Asia. Brokerage Hyundai Securities expects Samsung to earn \$10.3 billion on sales of \$52.8 billion this year, up from profits of \$5.2 billion and \$39.8 billion in revenues last year. (Although much of that increase comes from the semiconductor division, the company's snazzy consumer products also helped.) "Samsung is the poster child for using design to increase brand value and market share," says Patrick Whitney, director of the Institute of Design at the Illinois Institute of Technology.

[...] In the past four years, the company has doubled its design staff, to 470, adding 120 of those just in the past 12 months. And since 2000, its design budget has been increasing 20% to 30% annually. To keep an eye on trends in its most important markets, Samsung now has design centers in London, Los Angeles, San Francisco, and Tokyo, and this year it opened one in Shanghai. More important, Samsung is changing the processes and procedures in its design department and giving designers greater power to influence not just how products look but also what gets built.

SUSTAINABILITY

Natural Resources Canada has determined that some 30% of the greenhouse gases emitted in Canada come from the heating and cooling of buildings. Other sources suggest that when the additional greenhouse gases embedded in the manufacture of building materials is factored in, this figure rises as high as 48%.⁹ Vancouver-based architect Peter Busby estimates that the building industry alone could reduce its greenhouse gas emissions by 50% at minimal cost. As the issue of global warming grows in importance, Canadian expertise in this area may become a valuable export.

PRODUCTIVITY

Simple design measures such as improved daylighting have been shown to significantly increase productivity and reduce absenteeism at companies such as Lockheed and Boeing. One building with enhanced daylighting at Lockheed Martin's sprawling office complex in Sunnyvale, California has been said to save them US\$500,000 each year in reduced energy costs and decrease absenteeism by as much as 15%.

Other measures, based on new technologies, can also improve the productivity of the design, manufacturing and construction industries. Rapid prototyping equipment can help speed the flow of designs from "file to factory," and collaborative communications tools can allow teams in different countries to co-design and peer produce products and assemblies. Co-design and peer production refer to the idea of distributing these activities across a distributed network of specialists who combine their expertise to create, develop and refine products more quickly and efficiently. Most important, of all these tools and capabilities can be shared across broadband networks so that they are accessible to both SMEs and large corporations. Processes as well as products lend themselves to good design.

⁹ www.architecture2030.org/building_sector/index.html, 1/15/07

INNOVATION

Table 2
Innovation Domain Report Card

Rank	Country	Grade
1	Switzerland	A
2	Sweden	B
3	Finland	B
4	United States	B
5	Germany	B
6	Netherlands	C
7	United Kingdom	C
8	Belgium	C
9	Denmark	C
10	Ireland	C
11	Japan	C
12	Austria	D
13	France	D
14	Canada	D
15	Norway	D
16	Australia	D
17	Italy	D

Source: The Conference Board of Canada.

Table 2: Innovation Domain Report Card

(Source: How Canada Performs: A Report Card on Canada)

The country is doing dismally in the critically important area of innovation, and the implications of that failure ... show up in the absence of creative policy and investment decisions across all the other domains.¹⁰

Without innovation, Canada's economic, environmental and social systems stagnate and our performance deteriorates in comparison with that of our peers. Our competitors are not standing still.¹¹

How Canada Performs: A Report Card on
Canada

Canada's mediocre standing in the area of innovation continues to hold back its economic performance. Most recently the Conference Board of Canada gave Canada a "D" in innovation and ranked it 14th out of 17 countries. The Conference Board, however, relegates design to a relatively minor role in terms of its impact on innovation, and instead focuses on measures such as scientific articles and venture capital. Yet it makes a strong (if implicit) case for design when it states:

It is only through innovation, insists the OECD, only through the development and exploitation of new products, processes, services and systems, and only through the constant upgrading of the quality of what a country already produces, that countries can sustain growth and productivity.¹²

Again it is worth re-stating that consumers do not purchase products because of scientific articles or venture capital. Rather, as one Finnish study commented " ... perhaps it is not worth even trying to separate innovation and design, because they strongly influence each other.¹³" It should be noted that Finland, with a population of only five million people, ranks fourth in the world in terms of innovation and second in the world in terms of overall global competitiveness. As noted earlier, Canada's rankings in the categories are 13 and 16 respectively.¹⁴

¹⁰ Conference Board of Canada, *How Canada Performs*, p.i

¹¹ Ibid, p.4

¹² Ibid, p.2

¹³ Linström, Maarit and Martti Nyberg. "ETLA," *Designfacts*, Volume 1, p. 1

¹⁴ World Economic Forum, *Global Competitiveness Rankings 2006*

QUALITY OF LIFE

Design also impacts our quality of life. Healthier, more stimulating and more accessible environments; products that are a delight to use; and services that are both functional and engaging are all the result of good design. While these parameters may not represent a quantifiable return on investment, in the long term they may well embody the true value of design.

Good design provides the means to make Canada more sustainable, productive and competitive in the global market. Investing in design can generate direct and immediate returns for all Canadians. Good design translates into more energy-efficient, environmentally-friendly and effective goods and services, which in turn can lead to an increase in Canadian exports. Because of these benefits, design should be an essential part of Canada's ongoing economic and innovation strategy.

II DESIGN CAPACITY

For a nation to realize the value of design, it must have the capacity and resources to support a culture of design. The key components of such a culture are:

1. Opportunities for design education
2. Communities of design practitioners
3. A technological infrastructure

The current capacities of Singapore and South Korea in each of these areas are described below with comparisons to Canada and other nations.

OPPORTUNITIES FOR DESIGN EDUCATION

Both Singapore and South Korea place a high value on education and design education is no exception. Like all professions, the training of a highly qualified designer begins in childhood, and access to design education programs in elementary and secondary schools is essential.

Primary and Secondary Education

One key strength of design education in Singapore is that secondary school students are exposed to design through a “Design and Technology” course that is compulsory in lower secondary school levels and optional at upper secondary levels. In Korea some 67% of public schools require early education in design.¹⁵

Challenges still remain, however, to the teaching of design education in the public school system. Korean teachers point to the shortage of educational materials and a lack of professional materials as the two key obstacles to design education in that country.¹⁶

Post-Secondary Education

In Singapore, five polytechnics and two specialized art schools provide diploma level education in design. In 2001 some 2,300 students were registered in these design programs. The two specialized art schools, the LaSalle-SIA College of the Arts and the Nanyang Academy of Fine Arts (NAFA), also work in partnership with foreign universities to jointly offer degree courses in design.

The National University of Singapore (NUS) offers bachelors in architecture and industrial design and masters degree programs in architecture, urban design and industrial design. In comparison there are 10 universities in Canada that offer degree programs in architecture. The industrial design program at NUS is relatively new and produced its first group of about 20 graduates in 2003. In collaboration with the Technical University of Eindhoven, NUS also offers (through its Faculty of Engineering) a Masters in Rapid Product Development and Design Technology.

Modules in design are also part of the courses offered in engineering at both NUS and the Nanyang Technological University.

¹⁵ KIDP, *Korea Design Report*, p.17

¹⁶ Ibid, p. 17

In Korea, the last forty years have seen dramatic expansions in post-secondary education infrastructure and enrolment. The number of universities more than doubled from 70 in 1965 to 163 in 2002, and the number of colleges increased from 48 in 1965 to 159 in 2002.¹⁷ According to one source there are now 230 institutions teaching design in Korea.¹⁸

Excluding architecture, in 2002 there were close to 64,000 students studying design at Korean colleges, some 49,000 studying design at Korean universities and 6,500 students enrolled in graduate programs in design.¹⁹ In total there are now more than 100,000 students in Korea studying design, with the largest portion of those studying graphic design

This admirable growth in design education in Singapore and Korea, however, pales in comparison to growth in China. Five years ago that country graduated only 1,500 industrial designers annually. Today it produces 10,000 at some 400 schools offering design courses. These 400 institutions represent a 2,000% increase in the number of Chinese design schools since 1980. In recent years Tsinghua University in Beijing opened a 60,000 m² design facility, and the Guangzhou Academy of Fine Arts added an eight-storey building that will help it expand its number of industrial design students fivefold to 3,000.²⁰ It should be pointed out, however, that many of these graduates are finding it difficult to find work and that many of the best students seek a period of study abroad.

Challenges and Trends

Both Singapore and South Korea are re-examining design education as they move towards a more interdisciplinary and comprehensive approach — although each country is adjusting its focus from a different direction. In Singapore, design has been a part of a technical education, but now,

The challenge is to move towards a more holistic, multidisciplinary design education to develop design professionals who can position design more strategically as an integration of the aesthetic, business, technological and sociological concerns. At the same time, to embed design in the teaching and learning of other disciplines and capabilities, such as in business and engineering schools.²¹

Korea's design education, on the other hand, has shifted from a purely art orientation to a more interdisciplinary approach that combines art with humanities (such as design marketing), science (such as multi-media design) and engineering.²²

A key challenge that all three countries face is the education of graduate level design researchers — particularly the need for PhDs. While the Conference Board of Canada gave Canada an “A” in terms of overall education, it received a “D” in terms of the proportion of the population granted a PhD (in any discipline) in the reference year. In this respect Canada

¹⁷ KIDP, *Korea Design Report*, p.19

¹⁸ Rocks, David and Moon Ihlwan. “The Flavor of Korean Design,” *Business Week Online*, January 24, 2006.

¹⁹ KIDP, *Korea Design Report*, p.20

²⁰ Rocks, David. “China Design,” *Business Week Online*, November 21, 2005.

²¹ *Design Singapore Initiative*, p. 2

²² For example, in 1986, the Korean government started an industrial design program in the engineering faculty of the Korean Advanced Institute of Science and Technology, one of the world's top 100 technology universities and Korea's leading research institute.

was not alone — the United States, Japan, France and the Netherlands all received the same failing grade. Finland, Sweden and Switzerland all received “A.”

This scarcity of advanced degrees is even more pronounced in the design professions. Without a critical mass of graduate students, design research cannot gain credibility let alone fulfill its potential. To meet this need, a growing number of institutions, including Canadian colleges such as the Emily Carr Institute of Art and Design, now offer masters degrees, a trend that is mirrored by the growing number of institutions in Korea and Singapore offering masters degrees in fields such as graphics arts and product design.

In Canada, only two architecture schools (the University of Calgary and McGill University) and two other universities (the School of Interactive Arts and Technology at Simon Fraser University and the Faculté de l'aménagement at the Université de Montréal) offer PhDs in design. PhDs at the School of Interactive Arts and Technology at Simon Fraser University are multidisciplinary and may combine art, design, media and information technology, while those at the Faculté de l'aménagement, Université de Montréal are also multidisciplinary and may include architecture or design. In addition the School of Architecture at the University of Waterloo will soon announce its new PhD program.

The Nanyang Academy of Fine Arts is currently planning Singapore's only design-related PhD program, in visual arts, through a partnership with Loughborough University in the United Kingdom. In South Korea, KAIST offers a PhD in Industrial Design; the Graduate School of Techno Design at Kookmin University offers a two-year doctorate in design studies; and the International Design School of Advanced Studies at Hongik University also offers a PhD in design.²³

International Partnerships

Universities and colleges in Singapore and South Korea pride themselves on their partnerships with foreign universities. In Singapore, the Design Spazio/Domus Academy of Milan and the University of New South Wales in Australia both offer programs. In addition, Sheridan College of Oakville, Ontario will soon be opening a campus in Singapore. In Korea, the Korean Institute for Advanced Science and Technology has collaborative agreements with institutions such as Carnegie Mellon University and the Illinois Institute of Technology in the United States, Tsinghua University in China, Chiba University in Japan, the Technical University of Delft and Simon Fraser University in Canada. Canadian design schools are relatively unknown, however, in the Asia Pacific region, and they should consider more active promotion in Asia Pacific countries.

International Reputations

In 2006, *BusinessWeek* assembled an expert panel to rate the top design programs in the world.²⁴ One Canadian (Rotman School of Management, University of Toronto) and two Korean (Hongik University School of Design and Korea Advanced Institute of Science and Technology) institutions are included in this list. In comparison the list includes two programs from India, four from China, five from the United Kingdom and thirty-three from the United States. While the bias towards American institutions implies that this ranking

²³ This is a representative, not exhaustive, list of Korean institutions offering PhDs in design.

²⁴ See <http://bwnt.businessweek.com/dschools/2006/>

should be viewed with some skepticism, it does suggest that Canada, Singapore and South Korea could improve the perceptions of their design education programs.

Implications for Canada

Because of the quality of its design education programs and because of the desire of the best design students in the Asia Pacific region to study abroad by many of, Canada could be well-positioned to export (and capitalize on) its expertise in this area through partnerships with existing institutions both here and abroad. As the *BusinessWeek* panel demonstrates, however, this will not happen without active promotion and engagement. At the same time, Canadian design professionals should note that in the future they will face increased competition from the thousands of designers that are now being educated in Asia Pacific countries.

COMMUNITIES OF DESIGN PROFESSIONALS

One of the most important factors that determines the design capacity of any nation is having a critical mass of designers. The following table is an approximation of the number of designers of particular kinds in Canada, South Korea and Singapore.

	Canada		Korea		Singapore	
		% of Population		% of Population		% of Population
Population	32,440,970		50,633,265		3,654,103	
Architects	7,820	0.024%	10,140	0.020%	1,469	0.040%
Architecture Students	2,547	0.008%	12,000	0.024%	617	0.017%
Industrial Designers	6,710	0.021%	28,367	0.056%	186	0.005%
Interior, Graphics and Fashion Design	293,470	0.905%	83,202	0.164%	4,863	0.133%
Total (excluding students)	308,000	0.949%	121,709	0.240%	6,518	0.178%

Table 3: Number of Designers by Discipline in Canada, Singapore and South Korea

(Source: These numbers have been compiled and calculated from a number of different sources and should be regarded as approximations only. The statistics on architects in Canada, Korea and Singapore and on architecture students in Korea and Singapore come from the website of El Col·legi d'Arquitectes de Catalunya — see <http://www.coac.net>. The number of Canadian architecture students comes from statistics gathered by the Canadian Council of University Schools of Architecture. The figures for other Canadian design professions are from p.31 of *Designing the Economy: A Profile of Ontario's Design Workforce*. The overall number of designers in Korea was provided by the Korean Institute of Design Promotion, and the breakdown by discipline was calculated from percentages provided in the *Korea Design Report*. The figures for non-architectural designers in Singapore come from p. 24 of the *Creative Economy*.)

This data is useful in understanding the respective foci of each nation. Canada leads the other two countries in terms of both the number of designer and as a percentage of the general population. This is largely accounted for by our large number of interior, graphics, fashion and other designers. Singapore has the highest percentage of architects and not surprisingly, Korea, with its focus on product design, has the highest number of industrial designers. As of the last design census in 2002, Korea had 8,383 designers working in over 1,200 design consultancy firms.²⁵ Currently Korea has over 2,500 independent design

²⁵ KIDP, *Korea Design Report*, p.28

agencies.²⁶ Excluding architects, but including both in-house and independents, there are now some 112,000 designers employed in Korea.²⁷

On the other hand, as indicated by the statistics for architecture students in each country, Canada lags behind the other two countries in terms of the percentage of students it is educating.

Equally important to a vigorous community of design are the organizations that support design. These include both professional organizations and government agencies. In general, each discipline in each country has its own professional organization. In Canada these are often subdivided further into provincial organizations. For example, the Royal Architectural Institute of Canada provides an umbrella association for the profession in Canada, but regulation occurs with provincial organizations such as the Ontario Association of Architects. At times this arrangement can complicate inter-provincial relationships and the movement of professionals between provinces.

In Singapore, the DesignSingapore Council has an Industry Development Panel that includes the Association of Accredited Advertising Agents, the Designers Association Singapore, the Interior Design Confederation, the Singapore Furniture Industry Council, the Singapore Institute of Architects, the Singapore Institute of Landscape Architects and the Singapore Institute of Planners. The Council itself reports to the Ministry of Information, Communications and the Arts.

In Canada there is no parallel to Singapore's multidisciplinary approach to design integration, and particular aspects of design fall under the auspices of various ministries. Architecture, as a fine art, is part of Canadian Heritage, for example, while product design is now being studied by Industry Canada. In Korea these different design disciplines are also administered by different ministries. The Ministry of Commerce, Industry and Energy (MOCIE) oversees product and other forms of design while architecture falls under the Ministry of Construction and Transportation (MOCT).

Challenges and Trends

Boundaries between the design professions are blurring. Designers, particularly architects, often move between disciplines, and design is increasingly becoming an essential part of every business. In this respect, Singapore's integrated approach to design may suggest the most promising avenue to the future. Problems such as global warming, for example, demand an interdisciplinary approach that includes not only designers but other professionals as well.

Implications for Canada

Should Canada decide to develop its own design policy it will need to find an appropriate "home" for design within the federal government. A balkanized approach to design too often leads to competition between agencies.

²⁶ Sources: Lee, Kun-Pyo. *Korea, Design Research, and KAIST*. Presentation to CDRN, Donggaen, May 10, 2007; Personal communication, KIDP President, May 2007.

²⁷ Personal communication, KIDP, July 2007

TECHNOLOGICAL INFRASTRUCTURE

Access to tools and infrastructure is an important element of the design capacity of a country. Singapore, South Korea and Canada all have similar technological infrastructures for design. At the same time, it should be noted that in all three countries these infrastructures are modest compared to other disciplines such as medicine or physics.

A comprehensive technological infrastructure for design should address the following four general components, each of which is discussed in detail below:

1. Computing capacity in terms of hardware and software
2. Access to input and output devices
3. Connectivity
4. Operating costs

Computing Capacity

In research and educational institutions throughout Singapore and South Korea, designers employ personal computers and the Windows operating system for the majority of their work. Not surprisingly, they also use commonly-available graphics and design software packages such as Rhino, AutoCAD and Alias Studio (a Canadian product until bought by Autodesk in 2006). As in the rest of the world, little evidence was found of the use of mainframe computing for use in computationally-demanding design problems such as energy analysis.

On one level, the generic nature of this working environment facilitates the exchange of files, data and information with countries around the world — but it also underscores the lack of innovative software development for design professions and research. At the same time, this also presents an opportunity. Using an open-source approach (where software is developed by a community with no one entity controlling or owning it) it may be possible for design researchers in various countries to work together to create new, open-source modules in critical areas such as energy simulations, structural analysis and physically accurate lighting.

Access to Input and Output Devices

Input devices include items such as scanners (which can scan both two and three-dimensional objects). Output devices include anything from printers to CNC (Computer Numerical Control) milling machines that can carve three-dimensional forms from a solid block of material.

In both Singapore and South Korea, the level of use and development of such equipment is similar to that found in equivalent Canadian institutions. Educational institutions such as KAIST (Korean Advanced Institute for Science and Technology) and the Singapore Polytechnic provide access to equipment such as small Roland milling machines or Z Corp deposition printers, which deposit layers of a granular material that is gradually built up into a complete 3D object.

One area of development with possibilities for partnership is the area of sensing and interactive technologies. Sensing and interactive technologies refer to the use of small, computer-controlled devices that respond to light, touch or sound that can be embedded in objects as small as an appliance and as big as a bridge in order to give them “intelligent”

behaviour. Innovative work is occurring at KAIST (in the research of Dr. Tek-Jin Nam) and in the Centre for Experience Design at Singapore Polytechnic under the direction of Liang Lit How.

(Already some partnerships with Canadian organizations have been developed in this area. Dr. Nam, for example, taught a sensing workshop at the Mobile Nation Conference in Toronto in March of 2007.)

Connectivity

Internet usage provides a useful benchmark of both a country's technological capacity and its ability to actively participate in global design projects. As the following chart demonstrates, very high (and roughly equal) percentages of the populations in Canada, Singapore and South Korea are connected to the Internet.

Country	Year	Internet Users	% of Total Population	Price in CAD per 100 kbps
Singapore	2006	2, 421,800	66.3%	.38 ²⁸
South Korea	2006	33, 900,000	67%	.08 ²⁹
Canada	2006	22,000,000	67.8%	1.06

Table 4: Internet Connectivity

(Source: www.internetworldstats.com except where noted)

In both Singapore and South Korea, consumer bandwidth is both higher and less expensive than in Canada by a considerable margin. Based on the price of 100 kilobits per second, Canadian Internet service is almost three times more expensive than the same service in Singapore and more than twelve times more expensive than service in South Korea. This provides both those countries with a competitive edge in the deployment of new bandwidth-intensive online applications such as immersive and interactive 3D design systems.

Operating Costs

Too often these components are only considered in terms of their capital costs. Operating costs, however, often exceed capital ones over the lifespan of a program or project. Subsequently, the availability of skilled personnel who can operate equipment and maintain facilities is frequently the determining factor in the success of any infrastructure. In this sense, technological infrastructure is highly dependent on its associated communities of education and practice.

Canada, Singapore and South Korea would all benefit from exchanges of students, faculty members and practitioners as a means of improving and developing the highly-qualified personnel required in all three countries.

²⁸ Source: www.ida.gov.sg/Publications/20061213190359 (Pricing of Residential Broadband Service Plans in Singapore, May 29, 2007)

²⁹ Source for both South Korea and Canada: *digital life*, ITU Internet Report, 2006, p. 23

III POLICY ANALYSIS

"The centre of gravity, energy and growth of the design market is shifting from North America to Asia."

Professor Patrick Whitney, principal of the IIT Institute of Design
China Daily 12/06/2005 p. 11

Investing in Design: A Global Perspective														
Country	Global Competitiveness Rank	Global Competitiveness Score	Innovation Rank	Innovation Score	Program	Status	Cost (\$CAD)	Includes or Addresses						Notes
Canada	16	5.37	13	4.82	None									
Finland	2	5.76	4	5.56	Design 2005!	In progress	\$40.9 million			•				• 2001-2006
India	43	4.44			National Design Policy	Approved 2007			•	•			•	•
Japan	7	5.6	1	5.9	Japan Design Foundation	Since 1983						•		
New Zealand	13	5.41	8	5.31	New Zealand Design Strategy	In progress since 2003	\$10.1 million						•	• A design council is being considered
Singapore	5	5.63	9	5.04	Design Singapore Initiative	In progress	\$7.3 million annually		•			•	•	•
South Korea	24	5.13	15	4.71	National Design Policy	In progress			•	•	•		•	• 3rd Five Year Plan will be completed in 2007
					Korean Institute of Design Promotion	In progress	\$45 million annually							The KIDP is a major part of the Korean design strategy
United Kingdom	10	5.54	12	4.89	U.K. Design Council	Since 1944			•	•	•			

Table 5: Comparative Design Statistics and Activities

This table lists ranks indices and the components of the design strategies of various nations.

This section outlines how other countries from around the world are investing in design. In particular it focuses on Singapore and Korea, with comparisons to other countries in the Asia Pacific Region that have already articulated or embarked on national design strategies, such as China, India and New Zealand. The common elements of such strategies include:

1. National Design Policies
2. Design Infrastructure: Centres and Networks
3. Engaging SMEs
4. Design Education & Training
5. Branding, Marketing and Dissemination
6. Design Knowledge Management
7. The Role of Governments
8. The Role of the Private Sector

Each of these elements is described in detail below.

NATIONAL DESIGN POLICIES

Many of the countries of the Asia Pacific region have, or are building, national design strategies.

In 2003, the government of New Zealand announced it would invest over C\$10 million in a five-year strategy to disseminate information about design, assist businesses to make better use of design and improve the quality of design education.

In 2002 the government of Taiwan announced a Cultural and Creative Industries Development Plan as part of its Challenge 2008: Taiwan Development Plan with a goal of using innovation, design and branding as a means of upgrading and enhancing Taiwanese business.

India has prepared a National Design Strategy that was approved in February of 2007. It will address education, use of design by SMEs, intellectual property, branding and design exports.

Singapore

Singapore has developed and begun implementing the DesignSingapore Initiative, its first national collaborative design strategy. The main objective of the five-year strategy, initiated in 2003, is to build a foundation for a strong design culture in Singapore. While design strategies in most countries emphasize supply-driven design policies, Singapore places equal emphasis on developing a local market for good design. As the figure below shows, Singapore's programming is comprehensive, ranging from establishing design testbeds to facilitating the use of design by business, hosting and participating in international design festivals, and educating the public. The strategy falls under the auspices of the newly established national design council, DesignSingapore.

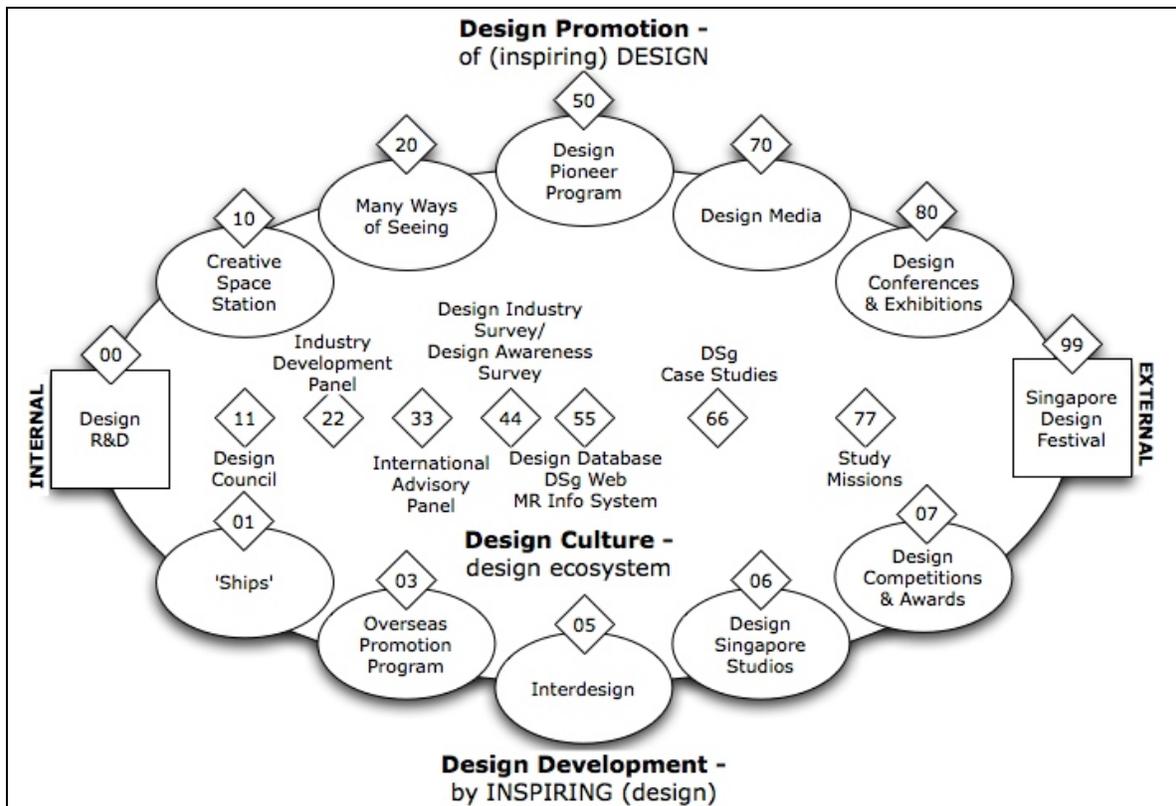


Figure 3: DesignSingapore Programs and Projects

(Source: Adapted from Milton Tan's *DesignSingapore* Presentation)

DesignSingapore arranges and grades its projects across a wide spectrum, from internal to external, with the first digit representing its internal-external score in terms of design promotion and the second digit representing its internal-external score in terms of design development. Of particular interest are projects such as Creative Space Station and Many Ways of Seeing, both of which directly engage the general public.

Direct annual investment in the design strategy is nearly C\$7 million (SD\$10 million), a figure that does not include supporting investment by government partners such as the Economic Development Board; International Enterprise (Singapore's trade development board); the Standards, Productivity and Innovation Board (SPRING); the Urban Redevelopment Authority (URA); and Singapore Tourism Board.³⁰ This funding is expected to provide a return on investment by leveraging private spending. For example, the C\$2 million (SD\$3 million) that the government invested in the Singapore design festival attracted total business spending of four times that amount for a total budget of over C\$8 million or SD\$12 million.

The second five-year plan, DesignSingapore Generation 2, is already in the planning stages.

³⁰ Singapore consistently achieves very high levels of integration among its government agencies, which has contributed immensely to its successful implementation of new economic strategies.

The Republic of Korea

The Republic of Korea has one of the most comprehensive national design strategies of any nation. When Korean goods became less competitive in the 1990s due to price, the government's Committee for Globalization Policy began to develop its national design agenda. During the last 15 years Korea has implemented three five-year plans in design — the first from 1993 to 1997, the second from 1998 to 2002 and the current plan, which began in 2003 and which will be completed in 2007. The aim of these plans is to put the country's design industries on a par with those of developed countries by 2007, with dramatically increased employment opportunities for designers and a general increase in design awareness by the general public. The goal underlying this strategy has been to improve the competitiveness and brand reputation of Korea's major export firms through better design.

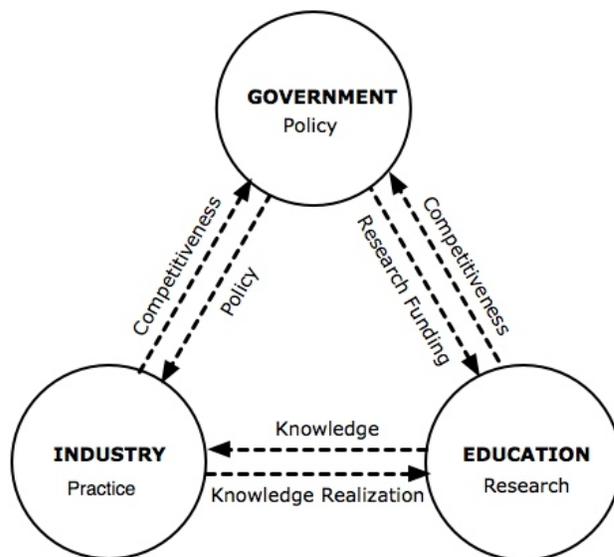


Figure 4: Respective Roles in Korea's Design Strategy

(Source: Dr. Kun-Pyo Lee's *Korea, Design Research, and KAIST* presentation)

As with its previous industrial strategies, the Korean government plays a major role through its funding of public programs and research and its partnerships with the private sector. Early phases of the strategy focused on developing design capability in terms of knowledge, information, talent and products. The Korean Institute of Design Promotion (KIDP), which oversees the national design strategy, has an annual budget of over C\$42 million.

Having made significant progress in improving the design of products for export, the focus of Korea's design strategy is now shifting to the public realm — from the design of street furniture and mass transportation to public documentation and textbooks.³¹

³¹ Architecture and Interior design are not included, however, as they are not covered by the Industrial Design Promotion Act. KIDP, following the UK model, was established under the Ministry of Commerce, Industry and Energy, and focuses only on industrial products, while as noted above architecture and interior design are regulated by the Ministry of Construction and Transportation.

The following diagram provides a synopsis of the Korean plan:

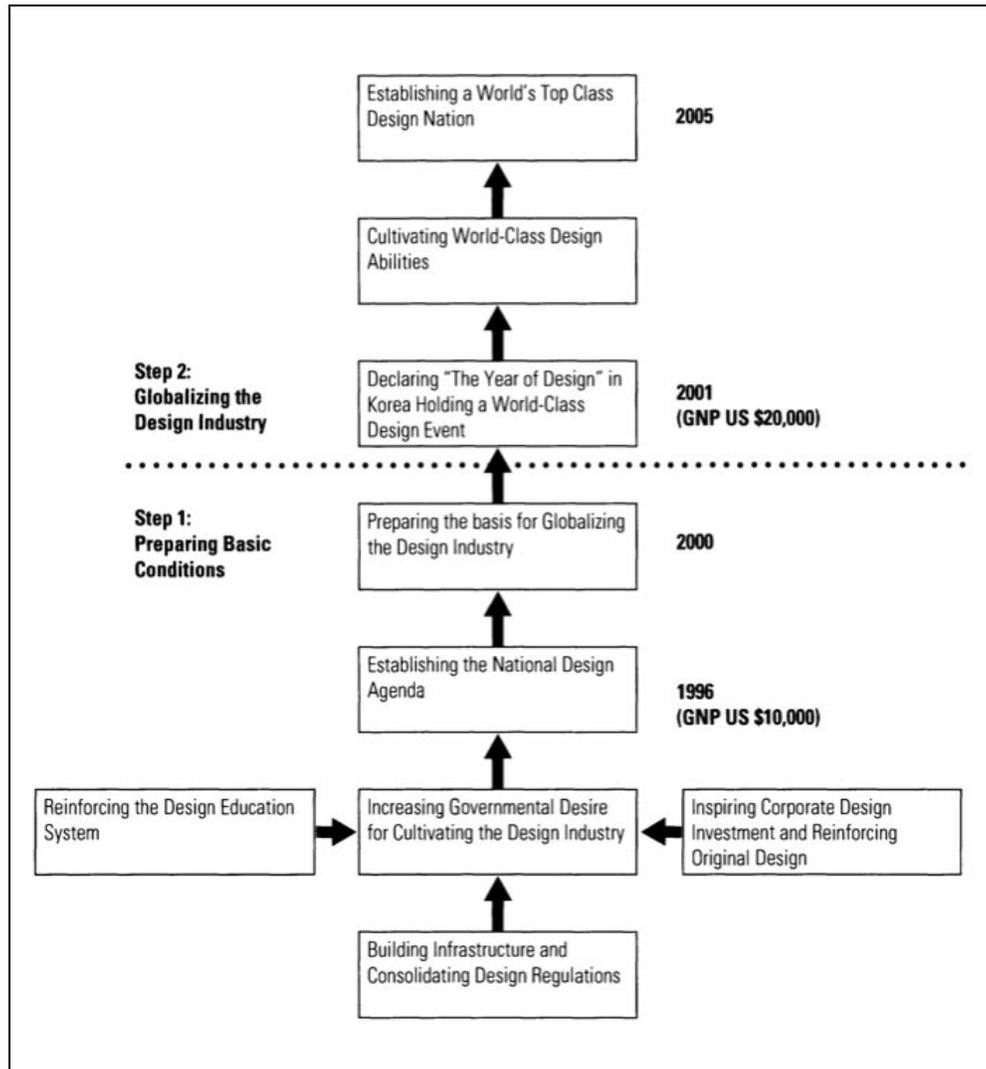


Figure 5: Schematic Diagram of Korean Design Strategy

(Source: Kyung Won Chung, "Strategies for Promoting Korean Design Excellence," in *Design Issues*: volume 14, Number 2, Summer 1998, p. 12)

Outside the Asia Pacific Region, other countries have also embraced the idea of a design strategy, sometimes to great economic advantage. Finland, in particular, designated 2005 the "Year of Design" and invested C\$40.9 million in design research, education and promotion. As noted above, this investment in design has dramatically improved its global competitiveness.

DESIGN COUNCILS

Design policies are often managed, implemented and promoted by government-created and supported organizations, which usually take the form of design councils. The United Kingdom formed its Design Council (see <http://www.designcouncil.org.uk>) in 1944, and the organization has since made a significant contribution to that country's design portfolio and

design on the whole through the development of tools such as the Design Index, mentioned above. Over the years the UK Design Council has intermittently reinvented itself, moving from public promotion of design to design education and design for business.

Korea also has a long history of government-supported design promotion. It established the Korean Design Packaging Centre in 1970, which became the Korean Institute of Design Promotion (see <http://www.designdb.com/english/kidp/index.asp>) in 2001. Singapore established the aforementioned DesignSingapore Council in 2003 under the auspices of the Ministry of Information, Communications and the Arts (see <http://www.designsingapore.com>).

In Japan, the Japan Industrial Design Promotion Organization (JIDPO) (see <http://www.jidpo.or.jp/en/>) was established in 1969 by the Ministry of International Trade and Industry. Malaysia has the Malaysia Design Council (see www.malaysiadesigncouncil.gov.my/), established in 1993. New Zealand has formed a Design in Business Strategy Group to explore the viability of a design council. And India plans to develop an India Design Council as part of its new strategy.

These councils often set ambitious and significant economic targets. Korea anticipates that by 2007 its current five-year plan will increase the value of design from 1.2% of the GDP in 2002 (or 7 trillion won, roughly C\$8.8 billion) to 3% of the GDP and 20 trillion won (C\$25 billion). New Zealand has set an objective called “5 x 50 x 500 x 5.” In the first five years of their plan they hope that at least fifty existing businesses will become internationally competitive through design and will generate an additional NZ\$500 million (C\$406 million) per year in export earnings. Moreover their objective is that this growth will continue at five times the targeted GDP growth rate to produce NZ\$1.5 billion (C\$1.2 billion) by the tenth year of the program. Similarly, Singapore plans to use its Creative Industries Development Strategy to double that cluster’s share of the GDP from 3% in 2000 to 6% in 2012. Just the design-related share of GDP is expected to double, from 1.47% to 3%, along with a doubling of design related employment, from 10,000 to 20,000. In addition, Singapore aims to increase the role of design in boardroom agendas.³² It is worth noting that in all cases this growth is predicated on growth in exports to countries such as Canada.

After World War II, Canada created a National Industrial Design Research Council to help manufacturers add value to export goods. In 1961 its mandate was broadened to include other design disciplines and was renamed the National Design Council. As a government body this group was responsible for creating policy and representing Canada in organizations such as ICSID (International Council of Societies of Industrial Design, see <http://www.icsid.org>). At the same time, Industry Canada funded the creation of Design Canada, which was to oversee the implementation of those policies. At the time of Expo ‘67 there was a great deal of interest in design in Canada, but this gradually waned until both organizations were abolished in 1988 due to a general indifference to design.³³

³² Currently less than 10% of company annual reports in Singapore mention design.

³³ This background information has been provided by John Arnott of the Arnott Design Group

DESIGN INFRASTRUCTURE: CENTRES AND NETWORKS

Design Centres are a physical manifestation of a country's design policies, a home for their design councils and a point of presence to engage businesses, design professionals and the general public. Many Asia Pacific governments have already embraced this idea and have invested heavily in building such centres. These centres, however, have a history of mixed success.

The blueprint for many design centres is the UK Design Council's Design Centre, which opened in London's Haymarket in 1956. This centre included a café and shop, but was closed in the 1990s when the size of the Design Council was drastically reduced. The Design Council is currently soliciting opinions on its website regarding the establishment of a national design and innovation centre (see www.design-council.org.uk).

In the 1980s, Singapore operated its own design centre on the Haymarket model, but this centre was closed after just five to six years of operation in part because it was unable to find a successful focus for its activities.

On the other hand, in Seongnam City, just south of Seoul, the Republic of Korea has built a twelve-storey design centre dubbed the New Millennium Design Ark. Distributed over 47,000 m², the centre includes an exhibition hall, design experience museum, e-design academy, information centre and an innovation centre fitted with state-of-the-art equipment.

As part of its third five-year plan for design (2003 to 2007), Korea is also constructing regional design centres in Gwangju, Busan and Daegu. The Gwangju Design Centre, which opened in 2006, serves the southwestern part of the country and was built at a cost of 50 billion won or C\$62.7 million by the federal and municipal governments. It has an area of 17,000 m² distributed over eight floors and includes an exhibition hall, a 300-seat event hall and a variety of rapid prototyping tools. In addition, Korea has invested C\$12 million to create sixteen Design Innovation Centres with state-of-the-art equipment, in different regions of the country, for joint use by university students, small companies and design firms.

Taiwan has invested NT\$46 million (C\$1.6 million) in its Taiwan Design Center, of which the government provided two-thirds of the funding and the private sector the remaining one-third. It opened in 2004 and is located in Taipei. It includes a library, exhibition gallery, conference rooms and rentable design studios.

While it no longer has a design centre, Singapore has invested heavily in the massive, thirty-hectare Fusionopolis development. Fusionopolis is a live-work research and development complex. Key tenants include research organizations, high-tech and new media companies, and two government agencies: Agency for Science, Technology and Research (A*STAR) and the Media Development Authority (MDA). The overall intent of Fusionopolis is to use state-of-the-art facilities and technology to foster innovation, experimentation and collaboration between public sector research institutes and private sector companies, and, in particular, between high-tech and new media. Its first phase will open in 2008 with 120,000 m² of space.

Last, during the 1970s, Design Canada operated an exhibition, library and retail space in downtown Toronto that had many of the functions of a design centre, but closed when the organization was discontinued in 1988.

DESIGN EDUCATION & TRAINING

Throughout the Asia Pacific Region, design education is recognized as a powerful tool in realizing national design strategies.

In 2005 the government of Singapore announced that it would open ten new specialty institutes in areas such as design and digital media.

During Korea's second five-year design plan (1998 to 2002), the country was able to increase its number of design graduates by 27% from 28,583 to 36,397.³⁴ In its third and current five-year plan, Korea is focusing on improving and enhancing its design education programs. This includes developing design education programs for teenagers; identifying and promoting young "star" designers and facilitating their studies abroad; developing a design university certification process; and establishing education institutes for each design industry. Along with strengthening design education programs, KIDP supports programs, such as the "Capstone Design Program", which link companies and university design departments so they can carry out joint projects.

As part of its four-year design strategy, the government of New Zealand announced that it would invest NZ\$1.2 million (C\$973,000) in design education initiatives, beginning in 2003. This includes the development of design management courses and modules, and managed industry internships for recent graduates.

The recently approved National Design Policy for India would see various government agencies work in concert with private industry to graduate between 5,000 and 8,000 designers of all kinds annually, with a projected annual growth rate of 10 to 20%. In particular, the policy aims to expand and enhance the National Institute of Design (NID) in Ahmedabad and position it as a "Global Centre of Excellence" in Design Education through a complete suite of design programs that span from undergraduate to doctoral levels. The National Design Policy has already proven beneficial to the NID through the announcement of a joint Autodesk-NID Research Chair for Design Education and Innovation. The intent of the chair is to help redefine design education in India and its announcement explicitly references the National Design Policy.³⁵

ENGAGING SMES

Most small or medium sized enterprises (SMEs) lack the resources or understanding of how to use design as a competitive advantage. For this reason almost all the national design strategies include a plan to facilitate the use of design by SMEs.

Singapore, in 2004, launched the Design Pioneer Programme, a four-part design promotion program to develop the capabilities of targeted local enterprises to incorporate design as a business strategy. The first stage of the program focused on outreach to over 100 SMEs

³⁴ KIDP, *Korea Design Report*.

³⁵ See www.nid.edu/research_chair_autodesk.html

through introductory seminars to promote awareness of the importance of design to business. In the second phase, design experts conducted five workshops on topics such as packaging design, revamping retail space, etc. In phase three, which is currently underway, SMEs receive assistance in selecting design consultants, plus funding support from International Enterprise (IE) Singapore for 50% of the external consulting fee to a maximum amount of about C\$35,000 (SD\$50,000) per project. The final phase of the program focuses on design development with design consultants. The purpose of the program is two-fold: (i) increase the awareness of the value of design in the boardroom, and (ii) increase the value-added and competitiveness of local products and services through design.

In Korea, the government instituted a Design Consulting initiative during its second five-year plan that conducted 4,676 projects with SMEs. This was in addition to its Industrial Technology Development Fund, which provided long-term low interest loans for SMEs to develop prototypes. Korea has also started offering a one-stop service program to help commercialize and market promising designs. As of 2002, 66.5% of SMEs had design workforces, up from 50.1% in 1997.³⁶ Another initiative focuses on fostering large-scale design companies, including helping them to penetrate foreign markets through overseas design exhibitions.³⁷

Although not exclusively targeted at SMEs, New Zealand's Design Strategy includes some NZ\$7.95 million (C\$6.4 million) for Design Enable Initiatives that include a design audit and mentoring program, and another called Design Project Number 1, which assists businesses carrying out their first design project.

As part of its national strategy, India hopes to target small-scale and cottage industries so it can sustain and strengthen the traditional knowledge, skills and capabilities of its artisan-based workforce and help modernize traditional crafts. To do this, the Indian government will encourage design education and training that is tailored to the needs of these SMEs through institutions such as the Indian Institute of Technology and Management and through its universities.

Without government assistance, China is leading the way in the effective engagement of SMEs through the emerging techniques of co-design and peer production mentioned above. Motorcycles in China are built by hundreds of SMEs that work together on design (co-design) and manufacturing (peer production) through local clusters supported by collaborative processes and standardized interfaces between modular components. The design process is rapid and iterative, with suppliers taking joint responsibility for component compatibility. These informal networks of suppliers share information, build trust and resolve conflicts through face-to-face meetings. The effectiveness of this approach is demonstrated by the fact that while China exported only 500,000 motorcycles in 2000, this figure increased to 7 million in 2005.³⁸

³⁶ KIDP, *Korea Design Report*, p.5

³⁷ At present, Korea does not have a large enough domestic market to support large indigenous design firms. Large-scale Korean companies, such as Samsung, tend to use in-house design departments instead.

³⁸ For a detailed description of this process see Tapscott and Williams, *Wikinomics*, pp. 213-238

BRANDING, MARKETING AND DISSEMINATION

All of the countries referenced in this report understand the importance of branding as an economic enabler and recognize that this takes place at both a national and corporate level. The perception of “German engineering,” for example, lends credibility to BMW even though close to 70% of each vehicle bearing their brand was designed and manufactured by a global network of suppliers such as Magna International.³⁹

Similarly, Singapore seeks to develop a “New Asia” brand as a “unique and exportable style” that would position Singapore as “a gateway to the various culture’s of Asia and a contemporary cosmopolitan city.”⁴⁰ At the same time, Korea’s current five-year plan seeks to “enhance the image of Korea as a national brand.”⁴¹ And India’s nascent National Design Policy aims to “... position ‘Designed in India’ a by word [sic] for quality and utility.”⁴² In each example, governments are prepared to invest in national and international branding and marketing strategies in order to achieve these goals.

In a number of cases this is to be accomplished through design awards and through the designation of certain products as embodying high quality design. Both Korea and Japan have adopted the “good design mark” concept to recognize and promote well-designed products, and India plans to establish an “India Design Mark” soon. A 2005 study of the impact of Korea’s program found that product sales increased by an average of 22 times, and in one case, 200 times, after being bestowed the GD mark.⁴³ Not all branding programs have achieved a similar level of success, however. Disappointing results led to the UK’s discontinuation of the Kite Mark.

In 2005, Singapore inaugurated the President’s Design Awards, which focus on the recognition of excellence (instead of minimum design standards), with awards being given out in two separate categories: Singapore Designers of the Year and Singapore Designs of the Year. DesignSingapore describes the intent of the program as encouraging design “that improves quality of life and enhances human potential and national competitiveness” with an award that “recognizes design creativity and the designs that shape our experience of the world.” Singapore’s strategy includes the identification and development of iconic Singapore products and services in areas such as hospitality and entertainment. South Korea confers a Korea Design Award to companies and individuals who contribute to its design industry.

Another popular strategy uses design events to showcase local design capabilities, expose designers to international competition and design trends and raise local awareness of design. This usually includes organizing local design festivals and hosting international design exhibitions; showcasing local talent overseas through road shows; and supporting talented local designers’ participation in internationally renowned design events. To help overcome perceptions that Singapore lacks design capabilities, for example, DesignSingapore showcased 100 of Singapore’s design talents through SINGAPOREdge in London in 2005, organized the inaugural Singapore Design Festival in 2005, and in 2006 brought local

³⁹ Ibid, p. 231

⁴⁰ The *Design Singapore Initiative*, p. 25

⁴¹ *The 3rd Five-Year-Plan for Industrial Design Promotion*, p. 5

⁴² *Draft National Design Policy*, p. 2

⁴³ The study was conducted by the Seoul National University Management Research Institute (personal communication, President of KAIST (Seoul), May 2007).

designers to the Milan Fair and the Venice Biennale.⁴⁴ As noted above, other nations have designated a “Year of Design” in the same fashion as Finland did in 2005.

The most effective way to market the design capabilities of a country, however, is through the international success and reputation of local firms. As the major Korean firm Samsung has gained a reputation for well-designed products, for example, the reputation of South Korea as a leading design location has grown in tandem. For this reason, Korea supports design research and development in its leading global firms, not just SMEs. Favourable tax incentives for design research, as well as funding and research into new materials, equipment and design technologies create a supportive environment for design development across the private sector.

CREATING A MARKET FOR GOOD DESIGN

Many Asian countries are focusing on raising local awareness of the value of design. The only way opportunities can emerge to leverage and productively use public investments in design training and development is to create a market for it. Thus, developing demand for good design is as essential to a design strategy as building design capacity. Design festivals and promotion of Good Design Marks are one way to increase the public’s awareness of design. Other programs used in Korea and Singapore are described below.

Korea has focused on raising design awareness among top management, with education programs such as the “Design Executive Program” for CEOs that is offered in cooperation with world-renowned universities. It has also launched courses to encourage municipalities, the press and related firms and organizations to be more design-conscious, and works with the press to develop TV shows and in-depth reports on design. Singapore has developed several innovative programs to increase the public’s appreciation for design by soliciting their involvement.

One such initiative, organized by DesignSingapore, is the 10Touchpoints. 10Touchpoints is an imaginative and effective program that combines design education and public sensitization with creative strategies for the improvement of the design of the public realm. The program is divided into three phases, in the first of which the public was asked to nominate and then vote on products, process and systems requiring redesign to improve the quality of life in Singapore.⁴⁵ The public was invited to think imaginatively about ways in which the environment could be improved and challenged to think critically and ethically about different aspects of everyday living. The figure below, from the 10Touchpoints website, presents a thoughtful framework for consideration:

⁴⁴ DesignSingapore. “36 Design Actions”.

⁴⁵ <http://www.10touchpoints.com.sg/phase1.aspx>

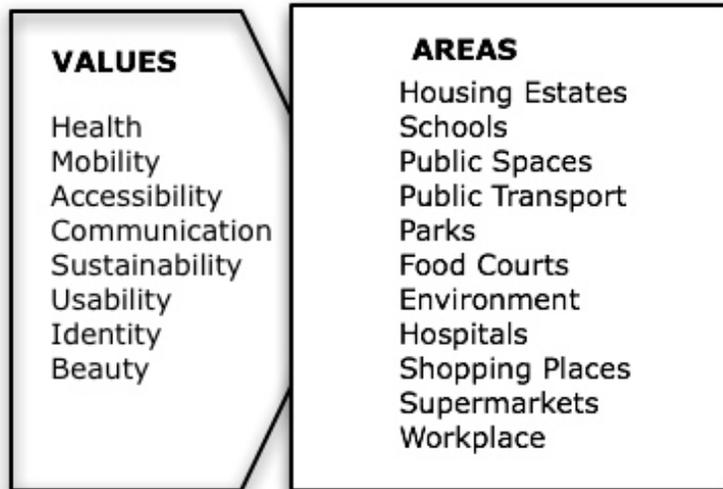


Figure 6: Schematic Diagram of 10Touchpoints Program

(Source: Adapted from 10Touchpoints website, www.10touchpoints.org.sg)

Phase two, now in progress, is based on an open competition for the design of the ten ‘touchpoints’ eventually selected for study, and phase three will see implementation of the winning proposals. The list of ‘touchpoints’ selected in this process provides convincing evidence of the effectiveness of this program. The ten design briefs are:

1. Bicycle dismantling system (the issue is safety at intersections)
2. Bus shelters
3. Drains and canals
4. Hospital signage systems
5. Mailboxes
6. Multi-purpose ID cards
7. Playgrounds
8. Public toilets
9. Recycling bins
10. Takeaway meal boxes

The 10Touchpoints were generated by the citizens of Singapore, but the design issues on which they are based are clearly universal and the program presents an interesting and viable model for Canadian communities.

Other programs in Singapore focus on raising awareness among school children, starting at the kindergarten level, by having them work on projects with designers.⁴⁶

As a major market in its own right, the governments of both Korea and Singapore are also leading by example by introducing a design focus to their own government procurement practices and projects.

⁴⁶ See for example, the program “Many Ways of Seeing” which aims to integrate design as a creative thinking tool into school education programs.

Singapore's Urban Redevelopment Authority (URA), Singapore's national land use and planning authority, is a leader in this respect, emphasizing and celebrating good design in the built environment, from street furniture to city planning. It organizes and sponsors international design competitions to procure good design for its projects (see Case Study 3), and as one of the biggest developers in the city, the URA has had a significant impact on the quality of Singapore's built environment. Public concerns ranging from accessibility and barrier-free environments, sustainability and conservation, traffic management and safety, to the development of city landmarks and attractive spaces, have been improved through good design. Korea is now looking at the application of design to services in sectors such as public health.

THE ROLE OF GOVERNMENTS/THE ROLE OF THE PRIVATE SECTOR

Kyung Won Chung has pointed out that, "For developing countries such as Korea, a close rapport between government and the civilian sector can be the most important factor for the success of design promotion."⁴⁷

In fact, in both developed and developing nations, public sector support is necessary because of the unique nature of the design industries. Design is practiced largely by SMEs who typically have neither the resources nor expertise to engage in research or promotion. Government assistance is also required to "jumpstart" a culture of research to address critical design issues such as sustainability. It should also be recognized that issues such as sustainability are a public good not a source of profit and require the kind of long-term investment that does not attract venture capital.

For these reasons Chung has suggested a government-pull and civilian push model which is worth quoting in detail:

*The design promotion process begins with some form of government initiative followed by a variety of civilian design activities. The establishment of a national design promotion organization, can start the process. The design society provides the promotional organization with professional support and advice for establishing appropriate design infrastructures as well as strategies. Then the two parties collaborate closely in preparing a comprehensive scenario for successful design promotion, after which the process goes into a continuous spin of close interaction between the government-funded design promotion organization and the professional design associations ...*⁴⁸

There is significant activity and investment in design promotion and research in the Asia Pacific region. Even if Canada chooses not to implement its own explicit design strategy, Canadian exporters, manufacturers and design professionals should be made aware of the nature of the competition they will face in these countries.

⁴⁷ Chung, Kyung Won. "Strategies for Promoting Korean Design Excellence," *Design Issues* Vol. 14, No. 2, 1998, p. 11

⁴⁸ *Ibid*, p. 10

IV CASE STUDIES

CASE STUDY 1: THE GSM GROUP

GSM is a group of integrated companies with origins in exhibit design. It now consists of Design, Build, Media and Product departments and builds permanent, temporary and multimedia exhibits around the world. GSM Design was founded in 1958 and worked on such high-profile exhibits as “Man and His World” at Expo ‘67.

In 1995 GSM targeted Southeast Asia as a potential new market and began to explore the possibility of working in Singapore. In the late 1990s a delegation from the National Museum of Singapore visited the company’s Montreal offices and, on the strength of the group’s work, it was asked to participate in an invited competition for the Asian Civilizations Museum. This led to other significant projects in Singapore, and GSM now maintains its headquarters in Montreal and a smaller, satellite office in Singapore.

Projects in Singapore

Asian Civilizations Museum, Singapore

Role: Design and fabrication of permanent exhibit

Size: 2460 sqm (26,500 sf)

Value of Contract: C\$11 million

Time Period: 1999 to 2003

Status: Completed



Figure 7: South Asia Gallery, Asian Civilizations Museum

(Source: Asian Civilizations Museum website, www.acm.org.sg/themuseum/galleries5.asp)

As noted above, in 1999 GSM was asked to participate in an invited competition for the exhibit design of the Asian Civilizations Museum. Each competitor was given C\$12,000 to produce a concept design. It should be noted that this is a substantial amount even for an invited competition, and indicates the willingness of the Singapore government to invest in high quality design. GSM won the competition and this museum has been a stepping-stone to further work in the region.

National Museum of Singapore

Role: Design and fabrication of permanent exhibit

Size: 6960 sqm (74,917 SF)

Value of Contract: C\$24 million

Time Period: 2003 to 2006

Status: Completed

Following its success at the Asian Civilization Museum, GSM was also awarded the contract for the exhibit design of the National Museum of Singapore. This includes a dramatic multimedia presentation in the museum rotunda and portable interactive media players that visitors carry from one exhibit to another. This contract also led to the opening of GSM's Singapore office which has two full-time employees.

With a cost of C\$400 per square foot, these are very high-quality exhibits — a typical exhibit in Canada would have a budget of C\$50 to \$100 per square foot — further evidence of Singapore's commitment to design quality.

Army Museum of Singapore

Role: Fabrication of permanent exhibit

Size: Six galleries housed in a three-storey structure

Time Period: Opening 2007

Status: Under construction

This project also resulted from GSM's growing reputation for high-quality design in Singapore, although in this particular instance the GSM Build department will be handling the fabrication of the exhibits instead of the Design department.

Impact of Design Policy

Yves Mayrand, President of GSM Design, has noted that the impact of Singapore's design policies have been more indirect than direct. GSM itself has not received any grants or subsidies from any of that country's design promotion programs, but the company recognizes that it has received significant benefits from a government that not only values design but which is willing to invest sufficient funds to encourage (and attract) high-quality design and designers.

Contracts with Canadian companies such as GSM have benefits for Singapore as well. Mayrand notes that the National Museum project in particular involved considerable training and transfer of expertise as well as the hiring of writers, designers and video producers from Singapore.

Finally, through its involvement in high-profile, cutting-edge projects in Singapore, GSM has also secured contracts in other parts of the world. In particular it has been selected to produce the observatory, interpretive centre and elevator/exhibits for the Burj Dubai, which will be the tallest building in the world when it opens in 2009. Earlier this year GSM opened a third office in Dubai to facilitate this work.

Implications for Canada

Mayrand believes that Canada can best help firms such as GSM by creating opportunities for Canadian designers. He points out that there is currently little work for firms such as his in Canada. He also feels that governments can help by changing the general perception of design as something that has only aesthetic value. This corresponds with a general agreement among the various organizations and firms consulted in the development of this report: if governments can create a climate and a culture where good design is appreciated and valued, then designers will rise to the opportunities created by such an environment. In other words, Canada could best serve the design professions by investing in design promotion, both with the general population and within its own government departments.

Contact Information

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CASE STUDY 2: SUPER E HOUSE PROGRAM

The Super E House is Canada's answer to a growing demand for healthy, energy efficient and environmentally friendly homes. It brings together some of Canada's leading building technologies, products and designs under a registered trademark for export to other countries.



Figure 8: Super E House, Inverness, Scotland

(Source: http://www.nrcan.gc.ca/es/etb/cetc/cetc01/htmldocs/Publications/factsheet_sustainable_buildings_overview_e.htm)

Super E is a quality assurance certification of the Canadian Government for home designs that meet the “house-as-a-system” philosophy.⁴⁹ One key feature of the Super E home is that energy performance is built into the design of the house using advanced computer modeling. In addition, Super E homes are designed to meet strict environmental, health, energy and durability standards. This is achieved by employing several Canadian building innovations to reduce drafts, noise, and heating/cooling losses, while providing more natural lighting and improved air quality in the home. These innovations include modern ventilation systems, advanced wall technology and new window designs which were developed in response to Canada's extreme climate⁵⁰ and Natural Resource Canada's R2000 program⁵¹ for energy conservation. To meet other environmental targets, Super E homes use environmental friendly materials and fixtures, such as low flow appliances and, of particular note, innovative beam and support structures that make more efficient use of lumber.

Super E is much more than just a technical standard, however. It is also a strategic housing export initiative. Rising energy costs and increasing pressure to reduce greenhouse gas emissions are leading to growing interest around the world in more energy-efficient designs, and as discussed elsewhere in this report, the greatest energy savings potential is in buildings. Related concerns about water shortages and habitat preservation, plus a growing health

⁴⁹ BSW Alouette. What is Super E? <http://www.bswalouette.co.uk/super-e/> (Accessed 2007.6.19)

⁵⁰ With temperatures ranging from -40 to +40 degrees C, both the costs of heating and cooling are of considerable concern.

⁵¹ The R2000 program was initiated following the 1970s energy crisis, and continues to be Canada's benchmark for energy efficient homes.

consciousness, is driving international consumer demand toward construction that is environmentally friendly and allergy-free. As a result, there are important and growing international export markets for Canadian housing technologies. To increase market penetration of these technologies, the Super E program facilitates partnerships between Canadian builders and their foreign counterparts by giving registered Canadian companies access to export networks, information, and contacts. The program also provides training for export partners. As of 2006, there were 39 Canadian firms registered in the program, partnered with 46 overseas companies in Europe and Asia.⁵²

Member companies benefit from technical assistance, shared market intelligence and common marketing and promotion strategies — a critical advantage for many of the smaller and medium size enterprises (SMEs) in the industry. In particular, the program adapts internationally leading Canadian energy efficiency standards to foreign markets and identifies unique market opportunities for Canadian housing technology companies.

The Super E Housing Program was initiated in 1998 by Natural Resources Canada, working closely with the Department of Foreign Affairs and International Trade, to introduce Canadian housing technology to the Japanese market. In 2001, Canada Mortgage and Housing Corporation (CMHC) joined the program to expand Super E houses to other markets. Super E was launched in the UK that year, in Ireland in 2003, and in China and Iceland in 2005.⁵³ Super E was introduced in Korea this year with the construction of the new Canadian Chancellery in Seoul. Interest in the Super E Housing program has been expressed in France, Spain and Taiwan.⁵⁴

Impact of the program

As of 2005, the Super E Housing program has generated more than C\$35 million in sales. Over 345 houses have been built or are under construction, and future orders are estimated at 1,500 units over the next four years, amounting to over C\$150 million in potential sales.⁵⁵ Over 85 companies are participating in the program.

A 2006 evaluation of the Super E program in the UK⁵⁶ found that industry stakeholders valued the initiative. According to stakeholders, the program provided useful market research assistance, helped to distinguish Canadian companies from their European

⁵² Natural Resources Canada, Office of Energy & Efficiency. Improving Energy Performance in Canada – Report to Parliament Under the Energy Efficiency Act For the Fiscal Year 2005-2006. <http://www.oee.nrcan.gc.ca/Publications/statistics/parliament05-06/chapter3.cfm?attr=0> (Accessed 2007.6.25)

⁵³ For more information on programs in these countries, see: Super E. *Super E: Canada*. <http://www.super-e.com/html/canada/English/index-e.html> (Accessed 2007.5.19). Interhabs. *Super E- Interhabs Ireland Profile*. <http://www.interhabs.ie/about/profile> (Accessed 2007.5.19); Super E Home: Ireland Site. *Iceland Super E Home Opening*. August 15, 2005. <http://www.super-e.com/html/ireland/news-icelandopening.html> (Accessed 2007.5.19); Canada Mortgage and Housing Corporation. *Canada Launched Super E® House Building Technology in China Today*. June 6, 2005. <http://www.cmhc-schl.gc.ca/en/corp/nero/nerc/2005/2005-06-06-1130.cfm> (Accessed 2007.6.7);

⁵⁴ Natural Resources Canada, Office of Energy & Efficiency. (n.d.)

⁵⁵ Ibid

⁵⁶ Natural Resources Canada, Audit & Evaluation Branch. The Super-E House Initiative (SEHI): UK Pilot Evaluation (E04029). May 30, 2006. <http://www.nrcan.gc.ca/dmo/acb/acb-rpts-2006-E04029-e.htm> (Accessed 2007.6.25).

competitors, and provided credibility through association with the Canadian government. On the other hand, the evaluation found that Super E homes only constituted a tiny fraction of the UK's energy-efficient housing market, and Canadian manufacturers continued to be perceived as niche players. "There is an increasing awareness of Canadian housing system products, and a steadily increasing appreciation of their qualities, but manufacturers are not generally perceived as being capable of delivering significant volumes at affordable prices," the report states. The report calls for a significant scaling up of marketing and the program overall if Canada wants to become a significant player in the UK eco-friendly housing market.

Implications for Canada

The Super E program is an example of how the Canadian government can successfully assist innovative Canadian firms to enter export markets. It demonstrates the important role the Canadian government can and should play in assisting Canadian firms in identifying export market opportunities, obtaining essential market information and brokering partnerships with foreign counterparts. A similar program to facilitate exports of Canadian design ought to be considered. In addition, the Super E underscores the value of design in marketing Canadian products and technologies. Through smart housing design, the Super E house was able to package together various building technologies into a more highly effective, distinctive and marketable product.

Finally, the UK experience confirms the need to overcome perceptions of Canada as a niche player with limited abilities to produce at large scales, and illustrates the limitations of the current program in this regard. Essential to this endeavor is the enhancement of market awareness and presence in foreign markets. On the one hand, the Super E program has adopted a good approach by bringing together smaller players under an umbrella organization with a shared brand and marketing campaign. But as the Super E UK experience suggests, perceptions won't change unless the scale of the program is sufficiently large to build up momentum and create a substantive market presence. Rather than spreading foreign market penetration efforts too thinly across countries, the effort might do better to concentrate on the most promising markets. A demonstration of significant capability and quality in one export market is likely to be the most effective selling point to launch into new markets. The alternative is to increase investment in these types of programs across the board.

Contact Information

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CASE STUDY 3: MOSHE SAFDIE AND ASSOCIATES, ARCHITECTS

Moshe Safdie is an Israeli-Canadian, McGill-educated architect who has, over a period of 45 years, built an international architectural practice with offices now located in Somerville, Massachusetts, Toronto, Ontario and Jerusalem, Israel. His body of work is extensive and international in scope, and has been recognized with numerous awards, honorary degrees and civil honours, including the Order of Canada (Companion) and the Gold Medal of the Royal Architectural Institute of Canada. His recent work includes the Telfair Museum of Art in Savannah, Georgia (2006), the Yad Vashem Museum in Jerusalem (2005), Toronto's Lester B. Pearson International Airport (2004), the Ben Gurion International Airport (2004), the Salt Lake City Main Public Library (2003), and the Peabody Essex Museum (2003) in Massachusetts.

Marina Bay Sands

One of Safdie's most recent commissions is the Marina Bay Sands, an integrated resort in Singapore. Four consortia were invited to submit proposals for the project, a six million square-foot mixed-use complex that is part of the city's ambitious reconfiguration of Marina Bay, at the mouth of the Singapore River. The project is being managed by the Urban Redevelopment Authority and was awarded to Las Vegas Sands, whose proposal is based on a design by a team of consultants led by Moshe Safdie and Associates.



Figure 9: Marina Bay Sands

(Source: Moshe Safdie and Associates, <http://www.msafdie.com>)

Safdie's website (http://www.msafdie.com/php/print_project.php?id=92) describes the project as “a new type of urban place”, integrating, “... the Waterfront Promenade with a grand, multi-levelled retail arcade combining civic space, shopping, indoor and outdoor

spaces endowed with city skyline views, daylight and plant life, providing an abundance and variety of activities.”

When it opens in 2009, Marina Bay Sands will feature three fifty-storey hotel towers containing 1,000 rooms each, a two-acre Sky Garden spanning across the towers and outdoor amenities such as jogging paths, swimming pools, spas, and gardens. The complex will also include an Arts and Sciences Museum, one-million square feet of integrated waterside promenade and shopping arcade, a one-million square foot convention center, two 2,000-seat theaters, a casino and a 4,000-car garage.

In addition to Moshe Safdie and Associates, the design team includes Aedas, architects; Peter Walker and Associates, landscape architects; RG Vanderweil, mechanical and electrical engineers; Arup, structural engineers; and EC Harris, quantity surveyors.

Other Projects in Singapore⁵⁷

Ardmore Habitat Condominiums

Role: Architect with RDC Associate Architects

Size: Two seventeen-storey residential towers

Time Period: 1980 to 85

Status: Completed

Situated in the heart of downtown Singapore, the project consists of two seventeen-storey towers of vertically-stacked units with terraces. The design sought to provide amenities similar to Habitat '67 on a constricted downtown site zoned for vertical massing. Both towers consist of flats and two-storey apartments overlooking a large, ground-level garden with a pool and squash courts. The 'maisonettes' are organized around a double-height central space that extends to a private, outdoor terrace, an external counterpart to the interior living area.

Cairnhill Road Condominiums

Role: Architect with RDC Associates PTE Ltd, Associate Architects

Size: Three twenty-storey towers

Time Period: 1997 to 2003

Status: Completed

This 46-unit, luxury high-rise complex in the Newton Circle section of Singapore is comprised of three semi-circular, twenty-storey towers. Each tower consists of a solid masonry curved wall on its inward side and a totally glazed, sun-shaded wall on its outward side, with a circular glazed room protruding from the outward surfaces. Bridges on each level connect the towers via their inward surfaces and provide alternate resident access and fire escape. In response to Singapore's tropical climate and a desire for transparency, exterior sunshades cantilever out from all glass surfaces.

⁵⁷ This information has been extracted from the Moshe Safdie Associates website at www.msafdie.com

Simpang New Town

Role: Town planner

Size: 125,000 people

Status: Unbuilt

Simpang's design, with a projected population of 125,000, was commissioned by the Housing and Development Board of the Republic of Singapore. Facing the Straits of Johore on Singapore Island, the site is 20 kilometers from the city center and bordered by an extensive mangrove swamp, to be preserved as a wildlife refuge, and the beach Island of Pulau Seletar.

Impact of Design Policy

Safdie credits the importance of his previous work in Singapore — built and unbuilt — in securing his current commission. He is quick to acknowledge the professionalism of his clients in the Urban Redevelopment Authority for the urban design vision that underlies the Marina Bay Sands project. Design excellence in the built environment calls for talented architects and clients with high expectations, and this notion of 'high expectations' is becoming pervasive in Singapore's design culture. The URA works to the highest ethical and professional standards, not only in their programs of education and promotion, but also in their own design and management of the programs that are shaping Singapore's built environment and its public realm.

Implications for Canada

Moshe Safdie presents an interesting and convincing model for the globalization of design expertise. However, he is not unique, and is one of a growing number of Canadian architects who have established professional credentials abroad. One of the emerging areas of practice in which Canada has been developing and exporting internationally-recognized expertise is related to sustainability and environmentally-responsible design. Key Canadian proponents of sustainable design include Montreal-based engineer Kevin Hydes, Chair of the World Green Building Council (and which recently located their Secretariat in Toronto), and Vancouver-based Architect Peter Busby, a senior partner in an international practice with responsibility for its environmental agenda. Hydes, Busby and other Canadian experts are actively promoting green design through professional architectural education in Canada, in the work of the Canada Green Building Council and in the programs of the Royal Architectural Institute of Canada. Canadian building and design professionals have much to offer to the global marketplace, and will benefit enormously from the extensive international experience of colleagues like Moshe Safdie.

Contact Information

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V RECOMMENDATIONS

Throughout the world there is now significant activity and investment in design promotion and research. Numerous other countries provide a striking contrast to Canada in the extent of their commitment to design quality and their support for design as an instrument of public policy.

What is clear from this study of Singapore and South Korea is that strategic economic and social advantages accrue to countries that embrace and endorse high quality design. Investments by governments in design have been consistently validated by measurable increases in their capacity for innovation and their competitiveness in global markets. To remain competitive in the twenty-first century, Canada must brand itself as a “Design Nation.” This is a long term process but it begins with the discussion and development of a pan-Canadian design strategy.

DEMAND AND CAPACITY

While it is beyond the scope of this document to describe such a strategy in detail, the material provided here does provide a means to learn from the experiences of other countries. In particular, Canada’s design strategy needs to be elaborated on multiple fronts. As Singapore and South Korea demonstrate, Canada should create a demand for high-quality design while simultaneously building the capacity to meet that demand. Those experiences also suggest that a design strategy should be developed as an active partnership of the academic, private and public sectors.

Engaging the relevant stakeholders is a critical first step in this process. All levels of government and multiple departments should participate. Design, construction and development firms of all sizes should be involved, as should software developers and hardware vendors. Researchers, educators, design professionals, contractors, manufacturers and trades people will also have valuable insights into the crafting of such a strategy. As a key receptor community, business people (and those involved in SMEs in particular) should play an active role. Finally, the general public should be consulted, since it appears that the best means to raise the quality of design in Canada is to create an ongoing demand for it.

Active engagement of appropriate communities is important for a variety of reasons. Canada does have a unique cultural, historical and geographic context that is different from both Singapore and South Korea. What constitutes an effective design strategy in those countries may not be successful in this country. Proposed strategies must be developed and tested through consultation with relevant user groups.

DESIGN PROMOTION: CREATING OPPORTUNITIES FOR HIGH QUALITY DESIGN

As mentioned, the general public plays an essential role in the development of Canada as a “Design Nation.” Again and again in the course of this study it was noted that an awareness and appreciation of good design by non-designers — consumers — is critical to the creation of new opportunities for designers. Raise the level of expectation, we were told repeatedly, and Canadian designers will rise to the challenge.

A demand for high-quality design can be created through a vigorous program of design promotion. As noted, Korea used a “push-pull” model to create an ongoing feedback loop of design activities that is put in motion by government but which responds to and is directed by designers, business people and the general public. As the Super E House and examples from other countries illustrate, these promotional strategies need to be of a significant and prolonged nature to effectively change perceptions.

There are a number of ways this can occur. In terms of demand, government needs to lead by example and make good design part of their procurement process and projects; government assistance is needed to promote design to the general public through exhibits, design competitions and award programs that celebrate excellence; research is needed to measure the value of design (such as the creation of a Canadian Design Index based on the U.K. model); and SMEs need government support, through funding and joint research, to raise awareness of the value of design and develop their own design capabilities. Singapore’s integrated approach, in which all design disciplines are coordinated by a single government ministry (the Ministry of Information Communications and the Arts), should also be carefully studied.

At the same time, given the country’s need for an enhanced design reputation, the strategy should also focus on building up an international profile through participation in international design events and the creation of networks, associations and collaborations that can give firms — and particularly SMEs — a greater international presence.

DESIGN CAPACITY

Concomitant with this program of design promotion, Canada must also expand and enhance its design capacity in terms of the general categories described above:

1. Opportunities for design education
2. Communities of design practitioners
3. A technological infrastructure

Again it is emphasized that it is beyond the scope of this report to create a detailed plan for each of these areas — but Canada needs to respond to current trends in each of these areas. For example, many design schools are moving towards graduate degrees but need support from government and industry to effectively transition to research-based environments. At the same time, professional design organizations are placing a greater emphasis on continuing education. In both cases, e-learning needs to be explored as a means of meeting these growing needs. Technology presents its own challenges. Designers, design researchers and design students all need access to the latest technology but are hindered by the high capital and operating costs associated with new equipment — particularly if they are an SME. New approaches to the sharing of, and access to tools, are needed and again these may be facilitated by high speed telecommunications.

By learning from the examples of Singapore and South Korea and by strategic funding of both design promotion and capacity, Canada could quickly and significantly improve its current global status particularly in terms of innovation. In this new century, Canada must recognize and realize the value of design to become more productive, sustainable and competitive.

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WEBSITES

The following websites were used in the production of this report and they provide a wealth of general information regarding design in Singapore and Korea.

BusinessWeek Online: www.businessweek.com

Canadian Design Research Network: www.cdrn.ca

Conference Board of Canada: www.conferenceboard.ca

Design Industry Task Force, New Zealand: www.nzte.govt.nz/section/13680.aspx#design

DesignSingapore: www.designsingapore.org

El Col·legi d'Arquitectes de Catalunya: www.coac.net

GSM Group: www.gsmgroup.ca

Internet World Stats: www.internetworldstats.com

Korea Institute of Design Promotion: www.kidp.org.kr

Moshe Safdie and Associates: www.msafdie.com

Super E House: www.super-e.com

United Kingdom Design Council: www.designcouncil.org.uk

World Economic Forum: www.weforum.org

PRESENTATIONS

During the course of this study the team viewed a number of influential presentations by key stakeholders in Singapore and South Korea who were also kind enough to share these presentations. These include:

Lee, Kun-Pyo. *Korea, Design Research, and KAIST*. Presentation to CDRN, Donggaen, May 10, 2007.

Tan, Milton. *DesignSingapore*. Presentation to CDRN, Singapore, May 7, 2007.

Jeffrey Ho Kiat. *Innovation by Design*. Presentation to CDRN, Singapore, May 8, 2007.

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We would also like to thank key individuals and agencies in Singapore and South Korea for their hospitality and generosity in helping us compile this report. These include: Dr. Milton Tan, Executive Director of the DesignSingapore Council and his team of Jacks Yeo and Teng Hui Yu; Director Fun Siew Leng and Deputy Director Andrew Fassam at the Singapore Urban Redevelopment Authority; and Il-kyoo Lee, President and CEO of the Korea Institute for Design Promotion and his team of Simon Hong, Ahn Bo and Dae-hyun Lee.

Numerous professors and instructors at various institutes in both countries were also very generous with their time and expertise. These include (but are certainly not limited to) Jeffrey Ho Kiat, Director of the Design School at the Singapore Polytechnic, Lit How Liang, Director of the Centre for Experience Design also at the Singapore Polytechnic, Dr. Kun-Pyo Lee, Head of the Human-Centered Design Lab at KAIST; and Dr. Kyung-won Chung, Professor at the Graduate School of Management also at KAIST. We would also like to extend particular thanks to Dr. Tek-Jin Nam, Assistant Professor, in the Department of Industrial Design at KAIST for helping us to arrange so many details and meetings during our stay in Korea.

Finally we would also like to acknowledge the help and assistance of the Canadian diplomatic service. In Singapore, High Commissioner Alan Virtue, his team and Trade Commissioner Edmund Lee in particular were kind enough to meet with us. And in Seoul, Ambassador Marius Grinius and Second Secretary Neil Swain both went out of their way to show us considerable hospitality and in assisting us with invaluable follow-up with Korean companies and institutions.

A complete list of the agencies and individuals we met with in the course of preparing this report appears in Appendix A. We thank all of them for their help and note that any errors and omissions in this study remain the sole responsibility of the authors.

EPILOGUE

Even before the completion of this study, it had begun to have positive ramifications for Canada and for design. The Korean Institute for Design Promotion and the Canadian Design Research Network have begun discussions regarding a joint conference in Sustainable Design/Public Design. A preliminary draft of this work informed both a policy roundtable at the Design Exchange in Toronto in June of 2007 and an ongoing study of Product Design and Development being conducted by Industry Canada. And finally the assistance of the Canadian Embassy in Seoul has allowed the CDRN to engage with a major Korean company in the area of sustainable design.

It is important to note that none of this would have occurred without the initial support of the Asia Pacific Foundation and once again it emphasizes that investing in design can result in a significant return on investment.

APPENDIX A: INTERVIEWS & CONTACTS

During the course of this study the following organizations and individuals were interviewed:

DesignSingapore Council

Dr. Milton Tan, Executive Director

Jacks Yeo, Senior Executive Director, Design Development

Teng Hui Yu

Urban Redevelopment Authority, Singapore

Siew Leng Fun, Director, Urban Planning and Design

Andrew David Fassam, Deputy Director, Urban Planning and Design

Singapore Polytechnic

Jeffrey Kiat Ho, Director, Design School

Shen Wui Heng, Manager, Centre for Experience Design

Lit How Liang, Centre Director, Centre for Experience Design

Jean Thoreau-Yong, Design Associate, Centre for Experience Design

Chung Wing Lehning Goh, Lecturer

National University of Singapore, Department of Architecture

Dr. Chong Tai Bobby Wong, Associate Professor

Dr. Yunn Chii Wong, Associate Professor

Kem Jin Teh, Associate Professor

Korea Institute of Design Promotion (KIDP)

Il-Kyoo Lee, President and CEO

Simon Hong, Director, International Affairs and Information Team

Ahn Bo, Deputy Director, Manager of International Cooperation

Dae-Hyun Lee, Assistant Manager, International Cooperation

Korea Advanced Institute of Science and Technology (KAIST)

Dr. Hun-Pyo Lee, Professor and Head, Department of Industrial Design

Dr. Tek-Jin Nam, Associate Professor, Department of Industrial Design

Dr. Ki-Young Nam, Assistant Professor, Department of Industrial Design

Dr. Kyung-Won Chung, Professor, Graduate School of Management and Department of Industrial Design and former President and CEO, KIDP

Joon-So Lee, Adjunct Professor

Dr. Hyeon-Jeong Suk, Visiting Professor

Raghu Kolli, Visiting Professor

Whan Oh Sung

Canadian High Commission, Singapore

Alan Virtue, High Commissioner

Jean-Dominique Ieraci, Counsellor, Commercial and Senior Trade Commissioner

Swee Leng Ng, Public and Cultural Affairs Officer

Edmund Lee, Trade Commissioner

Canadian Embassy, Republic of Korea

Marcus Grinius, Ambassador

Neil Swain, Senior Trade Commissioner

THE CANADIAN DESIGN RESEARCH NETWORK

The Canadian Design Research Network or CDRN is a consortium of academic institutions, government agencies and industrial partners, funded as New Initiative of Canada's Networks of Centres of Excellence Program, that addresses critical issues such as productivity and sustainability. Through innovation in advanced visualization and analysis, interactive technologies and digital fabrication, the CDRN is creating economic advantages and environmentally responsible solutions for Canada in the 21st Century.

The CDRN provides a forum for sharing information, personnel and resources connected to design research and it provides a vehicle for disseminating that research through workshops, seminars, conferences and other activities.

The CDRN aims to foster the development and maturation of the discipline of design by networking across both distance and discipline. To this end it includes faculties of design, architecture, engineering, computer science, environmental design, construction and landscape architecture who are working together to provide the research that will transform the practice of design in the 21st Century.

Our members currently include students and faculty researchers in a wide variety of disciplines at Carleton University, Concordia University, Dalhousie University, École de technologie supérieure, Emily Carr Institute of Art and Design, McGill University, the Nova Scotia College of Art and Design, Ontario College of Art and Design, Ryerson University, Simon Fraser University, University of Alberta, University of British Columbia, University of Calgary, Université Laval, Université de Montréal, University of Manitoba, University of Toronto, the University of Waterloo and York University. In addition we have the support of design practitioners, private sector companies, government agencies and non-governmental organizations.

For more information please see our website at www.cdrn.ca or contact Douglas MacLeod at dmacleod@cdrn.ca

The CDRN is a proud member of Canada's Networks of Centres of Excellence

