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Research and Innovation in Canada

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Now, it is a nation's capacity to innovate that determines its success.

As Canadians, we are now writing the fourth chapter in the story of a remarkably successful society. It's about a country that grew from humble origins to global prominence through public investments that developed talent and advanced knowledge. The prospects for how the current chapter will unfold are promising.

Canadians wrote the first chapter in the nineteenth century. We established public schools to support the development of a strong civil society in a rural economy.

In the second chapter, we expanded public universities. This enabled Canada's successful transition to an urban, industrial society by the mid-twentieth century.

In the third chapter, Canadians built a significant home-grown research community, which helped create the sophisticated "made-in-Canada" civil society that met the challenges of the late-twentieth-century, post-industrial world.

Each of these chapters involved failures and successes. Overall, though, consistently rising public investment in developing talent and advancing knowledge explain why Canada's story remains one of the most remarkable of the past two centuries.

Today's knowledge economy presents us with new ground rules. Now, it is a nation's capacity to innovate that determines its success. And it is no surprise, given our story so far, that the federal government's recent science and technology strategy commits to maintaining public support of education to write the fourth chapter, and to ensuring Canada continues to thrive.

That fourth chapter has begun well. During the past decade, significant federal investments in research have helped Canadians come to grips with the new questions of the early twenty-first century: How can Canada prosper in the global, knowledge-based economy? What can we do to foster a culture of innovation?

This is nowhere better illustrated than in the social sciences and humanities, the research disciplines devoted to building understanding of people—individuals, communities and societies, past and present. Housed mostly in

the nation's universities and fuelled mostly by public funds, "SSH" researchers are meeting the challenge of innovation on a number of fronts.

Direct research on basic questions about innovation is the first of these fronts: What goes into economic, technological and social innovation? What can be done to engender it? Why does it thrive in some places, for instance, and not in others?

Questions like these, in fact, drive the Innovation Systems Research Network. Led by the University of Toronto's David Wolfe (political science) and Meric Gertler (geography), the network brings university researchers together with public- and private-sector partners to generate and share new research knowledge.

Their first major study focused on industry clusters, those economic powerhouses—the archetype is Silicon Valley—that arise in particular regions. Researchers looked at the complex factors, from geography to public policy, that make clusters successful. They produced insights into how the model can best be applied to Canadian industries and regions, from multimedia in large cities to wood products in rural settings.

More than simply studying innovation, though, Canada's SSH researchers are innovators themselves. The "digital humanities," for instance, are showing the way forward for business and even the natural sciences as, 30 years after the introduction of the PC, the computer revolution continues to unfold.

Librarian Luciana Duranti runs InterPARES, a major—and very successful—University of British Columbia research project aimed at preserving digital records. Electronic files can become corrupted and unusable, while new technology can't always read older records. Such difficulties are a potential nightmare for everyone from individuals to schools to businesses to governments.

Duranti's solutions are now being adopted around the world. And her research "apprentices"—the PhD students and postdoctoral fellows she trains—are in high demand with employers such as securities commissions, Harvard and the IMF.

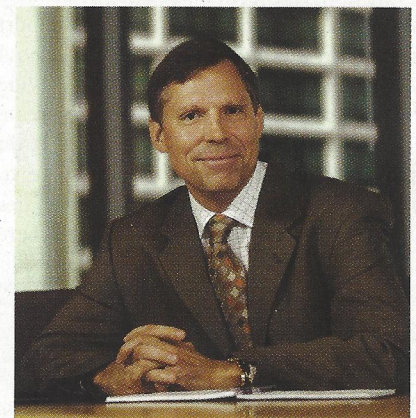
Developing talent is indeed another way the SSH research community is contributing to the larger society. For while observers used to lament the "lost researchers"—the roughly half of PhDs who leave academia after getting their degrees—now we celebrate all graduates. We've realized that we are seeding Canadian society, politics and business, as well as the research community, with a new generation of highly trained, knowledgeable and creative workers and leaders—exactly the people a knowledge economy needs most.

Talk of research and development often begins and ends with the development of technology. But after all, the point of technology is to enhance our quality of life and our prosperity. To that end, it is our ability to develop technologies within a human context and to capitalize on them appropriately that remains the key: to implement them successfully, to adapt them when necessary, and to see their potential for further, untapped applications.

And it is there that the social sciences and humanities play a central role, with such researchers as Duranti, Wolfe and Gertler showing the way.

At some point, our children and grandchildren will look back on these scholars and their work, and see in their legacy the renewal of Canada's historic policy of public investment in knowledge and talent.

For while better understanding may not guarantee a peaceful and prosperous future, nothing is more promising.



Dr. Chad Gaffield