

Ahead of the Storm: Research Libraries and the Future of the Research University

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Editor's note: Below is the lightly edited text of a speech delivered by Heather Munroe-Blum on May 5, 2011, at the 158th ARL Membership Meeting in Montréal, Québec. The meeting was jointly convened with the Canadian Association of Research Libraries.

Books were incredibly important for me growing up. They were my escape—my safe harbor. And this is because, as a child, I was blessed with supportive librarians who fed my insatiable appetite for reading. But in the presence of this multitude of distinguished university librarians, I have a confession to make: at one point, my family had so many books overdue from the local public library that the entire family was blacklisted until we gathered up our massive collection of overdue books, and, hanging our heads in shame, all seven of us carried the books back to the library. Penitent sinners that we were, we threw ourselves on the mercy of the chief librarian, who bade us to rise, to begin our new, cleansed and more “book responsible” lives. The woman was a saint.

From my very earliest experiences, I saw libraries as portals to new worlds, with librarians opening the doors to the hidden treasures of the imagination. Even today I feel a tingle of excitement when I walk into a library, and my favorite gift to give someone is to give in their name, on a special occasion, a book restoration from our wonderful rare book collection. From a university perspective, libraries are, and always have been, at the heart of our mission. When I came to McGill, one of my first projects, with our provost, was to

reinvest in our libraries, which had suffered during a prior decade of forced cutbacks. Over the past five years we have devoted an additional \$1 million per year to our libraries, and protected our library investments in the wake of future economic challenges. This—along with a dedicated and outstanding team of librarians, a student-elected annual contribution of \$400,000, and several other important gifts from alumni—has allowed us to dramatically increase our collections, refurbish many of our facilities, expand our opening hours, and increase our volume and quality of services. I am happy to report that McGill’s

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library, and our campus technology services, have both scored top marks in the *Globe and Mail’s* annual Canadian University Report, for several years running, based on student surveys.

Colleagues, I know you have all spent the past two days grappling with the tough questions that face research libraries in this age of declining print and exploding

electronic information. This age when elections and revolutions are waged with the weapon of social media, when global disasters are documented by “citizen journalists” carrying cell phones, and when the amount of data circulating around the globe has recently necessitated the coining of a new term—the “exabyte,” that is, a billion gigabytes—in an attempt to harness and describe this dizzying acceleration of digital information.

And you stand in that breach—in this second decade of this new millennium—accepting as you do the extraordinary mission of redesigning the image and function of the research university library. You already know—better than anyone—that libraries, and particularly research libraries, are crucial in managing and evaluating this accelerating revolution in how information affects and shapes how we think, how we learn, and how we communicate. Where you, our librarians, and libraries go, research universities will follow. Just as, in my youth, libraries and librarians opened the door to new worlds of possibility, and offered me a chance to step in, so too are our research libraries now opening the door for many of the innovations and adaptations that higher education must embrace in its continuing evolution.

In my job, I also think a lot about the research university, and have had the privilege, and obligation, of trying to visualize where research universities are

headed. From my perspective, let me take a few minutes to scan the broader landscape that is driving change, not only in our universities, but in our societies.

Competitiveness in the Global Information Age

The global information age has accelerated the pace of change around the world and is now in the process of reconfiguring economies, and re-drawing long-established maps of influence. To think that any institution—or any nation—could coast through these changes unaltered would be naive. The so-called industrialized world is experiencing tectonic shifts with justifiable trepidation. And research universities are vulnerable in their preeminent role as keepers, developers, and disseminators of knowledge.

You may be familiar with the report published in 2005 by the US National Academies called *Rising above the Gathering Storm*. The report made recommendations on how to face some of the substantial challenges to continued American economic competitiveness. This report was revisited by members of the original committee in 2010—and this time they added an ominous subtitle: “Rapidly Approaching Category 5.” To illustrate the looming threat, they included startling facts about the position of the US relative to other countries, particularly the “emerging” economies of Asia. For example:

- In 2009, 51 percent of *United States* patents were awarded to non-United States companies. ...
- When MIT put its course materials on the worldwide web, over half of the users were outside the United States. ...
- In a survey of global firms planning to build new R&D facilities, 77 percent say they will build in China or India. ...
- United States consumers spend significantly more on potato chips than the government devotes to energy R&D.¹

Potato chips.

These facts are symptomatic of a broader trend—one that holds true on both sides of the US-Canada border. Our countries are at risk of falling behind in the innovation race. In part, this is because we are not investing enough in innovation itself. Between 1996 and 2007, for example, US spending on R&D as a percentage of GDP remained stagnant, and that percentage actually declined a little in Canada.² At the same time, in China, Singapore, Korea, and elsewhere, R&D spending as a percentage of GDP grew dramatically.³

And while innovation depends in part on R&D (and design), education is at its core. The US, with its legendary “gold standard” system of higher education, now sits below the Organisation for Economic Co-operation and Development (OECD) average for the rate of university graduation. So does Canada.⁴ And the trend over time is even more worrisome. University graduation rates in both Canada and the US have barely budged in recent years, while the OECD average graduation rate for universities nearly doubled from 1995 to 2007. Finland soared from 20 percent to 48 percent. Switzerland rose from 9 percent to 31 percent.⁵ Countries with emerging economies are also seeing the results of massive investments in higher education. In China, the number of people graduating from universities and specialized colleges has more than quadrupled since 2000.⁶ And the so-called BRICS countries—Brazil, Russia, India, China, and South Africa—tripled their production of scientific articles in the decade between 1996 and 2007.⁷ As of 2006, Brazil, Russia, India, and China—four countries—awarded half the number of doctorates awarded in all 30 OECD countries combined.⁸

Perhaps, it should come as no surprise then, that the US, the dominant economic power in the world throughout our lifetime, recently lost ground in prominent rankings of the world’s top economies. In the IMD 2010 World Competitiveness Yearbook rankings, the US fell from number one in 2009 to number three in 2010 (behind Singapore and Hong Kong);⁹ in the World Economic Forum’s Global Competitiveness Report, the US dipped from first to second position in 2009 and dropped to fourth in 2010 (behind Switzerland, Sweden, and Singapore).¹⁰ These statistics stand in dramatic contrast with the focus being placed on education today. In the United States, with its current economic climate, some states are implementing cuts of up to 50% in funding to public universities.¹¹ It is hard to imagine even holding steady, much less making progress, in this context. While funding for post-secondary education is either declining or not increasing, health care spending is massive and growing.

Indeed, in both of our countries health care spending—not health promotion or improved health care delivery, but health care spending—has replaced education as the dominant focus of politicians and policy makers. With our universities under siege, it is easy to imagine a future in which our children may be less educated than their parents—clearly not the direction we need to be heading in the global information age. Perhaps it is our pride as nations that will reverse these directions, but they will more likely be reversed by the unceasing, articulate, and determined effort of every one of us with clear vision to influence

our nations' policymakers about the reality of how the future of the information age will be won.

And while our institutions will not come through this crisis unscathed, I remain fundamentally optimistic about the role of our research universities in moving our nations, our societies, forward.

Though every institution is different, I believe that our research universities will continue to play the fundamental role they do, to the extent that they are entrepreneurial, connected, and balanced.

For centuries, American and Canadian universities have been leaders in supporting societal progress and adaptation. Now, as countries struggle to recover their footing after the economic

crisis, universities are once again called upon to serve as both models and drivers of change.

And, while we are inventing new ways to adapt to our rapidly changing surroundings, to make our tangible contributions to the knowledge society—locally and globally—more powerful and more visible, we must also protect the less measurable—but equally important—role for the development, expression, and communication of ideas.

Evolving Characteristics of Research Libraries

I was honored last summer to be appointed to a US National Research Council Committee studying American research universities that will be reporting in to Congress this summer. The mandate of this committee is to identify actions to help American research universities maintain their excellence in the 21st century.¹² Serving on this committee has provided me with a unique perspective on the ways that research universities are evolving, and can and must evolve further, in response to their changing environment. Though every institution is different, I believe that our research universities will continue to play the fundamental role they do, to the extent that they are **entrepreneurial, connected, and balanced**.

Let's start with **entrepreneurial**. "Entrepreneurship" and even "innovation" are words that can sit uncomfortably with academics, especially when we are under intense pressure by government and society to quantify the value of our contributions. Universities are not the private sector, nor should they be. But innovation and entrepreneurship can dwell together, effectively, at the heart of modern academic life. What drives us, after all, but our commitment to new ideas, and to figuring out how to use these ideas to make the world a better place? The era of the isolated ivory tower, if it ever existed, is long gone. Societies look—

and should look—to their universities to solve pressing problems.

Last year two academics at one of my alma maters, the University of North Carolina at Chapel Hill (UNC-CH), Holden Thorp (now also UNC-CH President) and Buck Goldstein, published a book challenging universities to be more entrepreneurial. In this book, *Engines of Innovation*, the authors note that innovation begins with a problem and that entrepreneurs, broadly speaking, are people who identify new problems and crystallize the benefits of solving them. Entrepreneurs in the arts and in business see problems as concrete opportunities, and so do entrepreneurs across our universities.

Entrepreneurship in this context includes the transfer and application of the knowledge and technology that flow from university research. But it does not stop there. It means bringing the energy and expertise of universities to bear on problems that matter to people—whether that means creating and evaluating a more effective biomedical device, or sharing advice with policymakers in societies transitioning to democracy, or helping communities devise sustainable solutions to nutrition problems.

Those of you from land-grant universities will be familiar with this idea as “extension”—the expectation that knowledge flows freely into and out of the university in an ongoing dialogue with “the people of the state.” Universities are now being called upon to demonstrate our value to the various constituencies that we serve. And, there is danger in defining this value too narrowly—in dollars and cents, in only those things that can be measured concretely, in real time.

Some of the greatest contributions made by universities have their roots in abstract, curiosity-driven scholarship, research, and learning. We must preserve our fundamental academic freedoms, and, at the same time, be entrepreneurial. Universities are and should be embracing both abstract and solutions-based approaches: in the research questions we ask, in the outreach projects we undertake, and in the ways in which we educate and prepare our students—and one another—in order to engage with the future.

The second evolving characteristic of research universities—**connectedness**—is closely linked with the first. If an entrepreneurial approach is one goal, then building connection, partnerships and coalitions, both within and beyond our campuses is a major means of reaching that goal.

To solve problems, you need to know what those problems are, and to do that, you need to be connected with the people and organizations who “live” them. Both around the world, and in our own communities, the problems we

face are complex: peace building, disaster response, global health in an era of highly transmissible diseases, both obesity and starvation, increasing access to education...the list goes on.

Entrepreneurial universities confront these challenges, and they do so by building linkages across sectors and across borders—with governments, private sector, NGOs, and communities. In our globalized world, one of the most important roles of universities is and will be forging international connections. Contemporary research and scholarly collaborations, such as the one that mapped the human genome, often require a scale so massive, so daring, and requiring such a wide range of expertise, that it would be impossible for any single institution, organization, or industry to assemble the necessary talent and infrastructure to tackle these on their own. To succeed in the 21st century, countries, institutions, and companies need to tap into and contribute to international knowledge networks. What better way to do this than through our universities? Increasingly, the universities that flourish are the ones that actively embrace this role and make it a priority.

Connection is not something that only occurs outside the university gates, however. It begins within the university, by narrowing the boundaries that divide disciplines. One of the hallmarks of research-intensive universities is not only the array of disciplines found within them, but the depth of knowledge in each discipline. It will remain important to deepen knowledge within individual fields, but real-world problems do not fall into tidy disciplinary categories. And as universities sharpen their focus on solving those problems, they are naturally adopting more interdisciplinary approaches to research and learning.

Cross-disciplinary collaboration is often fortuitous, the result of a particularly fruitful relationship, or a chance meeting of the right people at the right time. But there is a great deal that universities can do to provide fertile ground for this inherently unpredictable process:

- making space for interdisciplinary research and projects—which have long suffered the stigma of being on the “fringes” of traditional disciplines;
- providing seed-funding streams that reward interdisciplinary projects;
- having quality resources that publish their interdisciplinary results; and
- creating tenure and promotion processes that recognize the value of high-quality interdisciplinary collaborations.

The universities that flourish have seen progress in all of these areas.

Best practices are shifting as universities “make space” for important interdisciplinary research and learning. And our libraries are key in all of this. The universities that flourish will look much less like a loose collection of separate disciplines, each with its own floor or building, and much more like an integrated collection of creative “hubs”—workshops where students and professors and librarians are engaged in cross-cutting techniques, where scholarly teams of people from diverse disciplinary backgrounds cross paths, organically forming teams that work to understand and solve the next challenge.

The final characteristic of successful research universities is **balance**. By this I imagine universities that consciously strive to harmonize their multiple roles in an increasingly fast-paced, results-driven world. Both entrepreneurship and connectedness are outward-focused. Both can increase the positive, external impact of universities. But, universities must also be places of contemplation and reflection. This always has been, and will continue to be, a central role of the library. Our species creates and accumulates knowledge, and our university librarians are curators of knowledge, preserving the record of human scholarship and discovery, across time, making this record available to new knowledge seekers.

I certainly do not have any simple recommendations regarding how universities can best balance the push and pull of being connected and entrepreneurial while protecting room for contemplation and curiosity, nor do I have any special vision regarding the particular role of librarians and libraries in that regard. That is for you to determine. And I must admit that some recent events—like the United Kingdom’s decision last year to slash humanities funding for universities while preserving funds for science and engineering—trouble me greatly.¹³

It will always be harder to demonstrate the immediate monetary value of humanities, and social sciences, and basic rather than applied research. But those endeavors are crucial. There is no human progress without understanding humanity. There is no social progress without understanding what happens when we come together. And I assure you, every marketable technological innovation has its roots in a discovery that arose from “pure” research, and, every application, in the understanding of human development and endeavor.

Too many questions are set up as dichotomies that should not be. Should

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universities prepare students for careers, or should they be grounded in a broad intellectual framework? Both! Doesn't it make sense for today's engineer to have exposure to sociology and international relations? Shouldn't every humanities major know what a genome is? To succeed over the course of their lives, our students will need broad, cross-cutting skills, ease in working across cultures, more than one language, and the ability to continue learning forever.

Looking Toward the Future

The industrial age is over. The workplaces our students and new professors are entering will morph and change more quickly than at any time in history. Developing flexible, porous, fluid chambers of knowledge that our graduates can apply to an ever-changing workplace is very different from “training” a worker to do one thing for 50 years. Fortunately, we have three factors on our side:

- one—the human brain, whose very design is flexible, porous, and fluid in its capacities;
- two—the university research library, whose multi-dimensional intellectual architecture is as close a representation as we will ever get to humanity's collective intellect; and
- three—you, our librarians who shape and steward these extraordinary resources and connect others to them.

I will close with some of the conclusions that emanate from the policy work I have been involved with, in the North American and international contexts, conclusions emanating from benchmarking the postsecondary, research and innovation policies of our two countries against those in Europe and the emerging economy countries.

I will leave it to you to determine the extent to which you, as leaders of our university libraries, currently engage in these practices or not, and whether it makes sense for you to do so.

1. Understand the mission, distinctive strengths, and vulnerabilities of your organization and the programs you lead within them.
2. Develop goals and targets to build on and sustain these distinctive strengths and to overcome or reshape vulnerabilities.

3. Benchmark your progress and strategies against peers: locally, nationally, and internationally. Increasingly, to have an impact locally, to forge a distinctive contribution and reputation, depends on national and international profile, relevance, and quality.
4. Understand, value, and develop your talent. There is no substitute.
5. Network to create shared value, to gain knowledge and experience.
6. Don't play it safe. This fosters mediocrity, which, in a competitive environment, leads to decay. Leave plenty of room to take risks.

I would like to close simply by thanking each of you. You, our librarians, truly lead the way in grappling with the extraordinary pace and nature of strategic opportunities that all of our universities now face. This revolution we are living through is all about information, and through whatever self-determined or entirely random way you come to it, information, and information management, is your domain, and, our temple.

Out there, on the front lines of the information revolution, you lead. I thank you for the work you do, for the doors you have opened and the paths you have charted, and are charting—both on behalf of the institutions you serve, and, for the countless knowledge-hungry minds who have the great good fortune to walk into your world.

¹ Norman R. Augustine et al., *Rising above the Gathering Storm, Revisited: Rapidly Approaching Category 5* (Washington, DC: National Academies Press, 2010), 6–9, http://www.nap.edu/catalog.php?record_id=12999.

² Organisation for Economic Co-operation and Development (OECD), *Main Science and Technology Indicators*, vol. 2010/1 (Paris: OECD, 2010), 25.

³ Ibid.

⁴ OECD, *Education at a Glance 2010: OECD Indicators* (Paris: OECD, 2010), 61, table A3.2, <http://dx.doi.org/10.1787/888932310130>.

⁵ Ibid.

⁶ According to the United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics online Data Center custom tables, China's tertiary graduation numbers were 1,775,999 in 2000 and 7,716,957 in 2009; see http://stats.uis.unesco.org/unesco/TableViewer/document.aspx?ReportId=143&IF_Language=eng.

⁷ OECD, *The OECD Innovation Strategy: Getting a Head Start on Tomorrow* (Paris: OECD, 2010), 45, <http://www.oecdbookshop.org/oecd/display.asp?sf1=identifiers&st1=9789264084704>.

⁸ OECD, *OECD Science, Technology and Industry Scoreboard 2009* (Paris: OECD, 2009), 17, http://dx.doi.org/10.1787/sti_scoreboard-2009-en.

⁹ "IMD 2010 World Competitiveness Yearbook rankings," IMD news release, May 19, 2010, <http://www.imd.org/news/IMD-World-Competitiveness-Yearbook-2010-Rankings.cfm>.

¹⁰ Klaus Schwab, *The Global Competitiveness Report, 2010–2011* (Geneva: World Economic Forum, 2010), 14, http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2010-11.pdf.

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- ¹² National Research Council, Policy and Global Affairs Division, Board on Higher Education and Workforce, Study on Research Universities, "Project Scope," 2010, <http://sites.nationalacademies.org/PGA/bhew/researchuniversities/index.htm>.
- ¹³ Aisha Labi and Beth McMurtrie, "British Universities Will See Budget Cuts of 40% under National Austerity Plan," in the *Chronicle of Higher Education*, October 22, 2010, <http://chronicle.com/article/British-Universities-to-See/125032/>.

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