Restoration, Transformation and Growth

A New Economic Agenda for the Great Lakes — St. Lawrence Region
The CGLR Vision

In 2011 over 250 leaders and experts met at the Great Lakes-St. Lawrence Region Summit in Windsor, Ontario convened by the Metropolitan Policy Program at the Brookings Institute and the University of Toronto’s Mowat Centre for Policy Innovation.

The Summit sought better ways to work across borders and sectors throughout the region, and stakeholders identified many policy areas where stronger collaboration and a unified voice were needed to ensure the economic and environmental future of the region.

Since its creation, CGLR has played a leadership role in finding solutions to our common challenges. Led by an independent, bi-national board of directors, and guided by multi-disciplinary and multi-organizational working groups, CGLR is accomplishing this mandate by:

- Conducting rigorous research and analysis;
- Sharing knowledge through conferences and events for government, labor, academia, and the not-for-profit community;
- Providing realistic solutions to governments on how to reconcile the challenges of economic prosperity and environmental conservation; and
- Coordinating public outreach campaigns to the GLSLR community.

Since its creation, CGLR has formally established to deepen cross-border and cross-sector collaboration in the region. This was a monumental step towards recognizing the Great Lakes-St. Lawrence Region (GLSLR) as a distinct and vital economic sub-region.

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Message from Mark Fisher, President and CEO of CGLR

On April 26-28, 2015, CGLR is hosting the first-ever Great Lakes Economic Forum in Chicago, Illinois. This landmark event in the GLSLR will bring business, political, and government leaders together alongside experts from academia and the non-profit community to share insights on the most pressing economic policy issues facing the region.

On its own, the region is an economic powerhouse and key to Canada, the United States, and North America as a whole, crucial for increasing our mutual competitiveness and economic output in today’s aggressively borderless climate of global trade and commerce.

But in restoring, transforming, and growing the region’s bi-national economy, we must confront a number of challenges:

• Assembly-line manufacturing will no longer be the centerpiece of our region’s future economic expansion;
• Border protection in the aftermath of 9/11 and government rules that default to protectionism have made the border less permeable;
• Regulatory practices are choking and fragmenting supply chains;
• Our infrastructure is crumbling at a time when public finances are increasingly constrained; and,
• Unemployment remains stubbornly high in many communities throughout the region, especially for youth.

There is hope. The region’s indomitable spirit, foundation of hard work, and ability to find new policy choices across a broad spectrum of economic activities including infrastructure modernization, workforce development, labor mobility, energy, and multi-modal logistics and services, will set the stage for a new and exciting economy.

We will need to collaborate more than ever to identify new solutions, fortify the region’s strategic advantage, and be able to capitalize on emerging opportunities within North America and around the world.

The first Great Lakes Economic Forum, From Partnership Flows Prosperity, is our moment to define an ambitious and practical regional economic agenda that will drive us forward. Every business, level of government, organization, and individual has an important role to play in this process.

As Joseph Schumpeter, author of Capitalism, Socialism and Democracy notes, we must accept change from the old ways to make room for the new. This paper is intended to spur dialogue by framing the core themes and issues that will be discussed and debated at the economic forum:

• **Building Together**: Advanced Manufacturing — Great Lakes Energy Future — Workforce Development and Labor Mobility
• **Moving Together**: Multimodal Logistics — Border Management — Infrastructure Modernization and Financing
• **Innovating Together**: Regulatory Cooperation — Economic Clusters — Blue Economy

Further, this paper builds upon the considerable research that has already been conducted with respect to the state of the GLSLR economy, its unique assets, and an agenda for the future as outlined in seminal pieces like the Brookings Institution’s The Vital Connection: Reclaiming Great Lakes Economic Leadership in the Bi-National US-Canadian Region.

The authors argued then, as CGLR argues now, that Canada and the United States should harness the full potential of the GLSLR, recognizing this will only take place with serious political leadership and purposeful action from both countries.
EACH YEAR, THE GREAT LAKES-ST. LAWRENCE REGION contributes roughly USD $184 billion to Canada-U.S. trade.

ALMOST 164 million tonnes of cargo shipped annually out of the region.

HOME TO 107 million people.

The Great Lakes-St. Lawrence Region has a GDP of USD $5.2 trillion (non-farm economy).

The region supplies 50 million jobs.

This accounts for roughly 28% of combined Canadian & U.S. economic activity.

The region accounts for 40% of total Canada-U.S. cross-border trade.

The region is home to 19 of the top 100 universities in the world.

The region accounts for 24% of R&D in the U.S. & Canada.

72%
In January 2015, the International Monetary Fund (IMF) revised its October 2014 global growth projections downward, to 3.5 percent, on account of a revised assessment of prospects in China, Russia, the Euro zone, and Japan. While economic activity is boosted by the lower oil price, significant downside risks remain, including shifts in sentiment and volatility in global financial markets, particularly emerging markets.  

Black Rock CEO Laurence Fink, at this year’s World Economic Forum in Davos, Switzerland, noted there is more pessimism about the state of the global economy than there was at the same meeting last year.  

However, in a volatile global economy, North America in general and the United States in particular are bright lights. The United States is the only major economy for which the IMF raised growth prospects in its 2015 World Economic Outlook update, suggesting that the United States is “again the engine of global growth,” which, at its core, is fuelled by trade with Canada and Mexico.  

The United States and Canada enjoy the largest trade relationship in the world, trading $782 billion in goods and services in 2013. Two-way trade has tripled since the signing of the Canada-U.S. Free Trade Agreement in 1989.

Trade and investment have also expanded in North America as a result of the North American Free Trade Agreement (NAFTA), which came into force in 1994. The region’s trade grew from less than USD$300 billion in 1993 to more than USD$1.1 trillion in 2013, evidence of the advantages of close proximity, shared business cultures, and integrated supply chains.

Recent developments present new opportunities for the North American economy, including: energy and fiscal reforms underway in Mexico, a boom in unconventional hydrocarbon production that has put North America in a leading position in global energy production, and a resurgence of manufacturing due in part to reshoring of investment back from China.

Within the broader context of a re-invigorated U.S. and North American economy is the growing importance of economic sub-regions. The largest and most dynamic of these is the GLSLR, which comprises two provinces (Ontario and Quebec), eight states (Illinois, Indiana, Minnesota, Michigan, New York, Ohio, Pennsylvania, and Wisconsin), over forty First Nations, and numerous city and municipal governments, including several with global impact such as New York, Chicago, and Toronto.

The Great Lakes – St. Lawrence Region
Sub-regions are critical because they are the most likely units of economic organization, especially for small and medium-sized enterprises. Organizing companies and supply chains on a sub-regional basis makes sense because the production cycle is sensitive to distance — fuel costs, shipping time, etc. — especially when moving intermediate goods through a geographically disaggregated production cycle. Thus, from its vantage point as an economic sub-region, the GLSLR is a driver of North America’s trade with the rest of the world.

"Cities and regions are competing with each other in the global economy more so than national states. Many regions are not within a single national state, but are instead located at international borders and transcend national territorial boundaries."8

In spite of the image of the region as a declining rustbelt, the GLSLR has emerged as a dynamic economic region with an abundance of opportunity. The region accounts for roughly 40 percent of total Canada-U.S. cross-border trade and approximately one third of total Canada-U.S. two-way trade with the world.

With a population of 107 million and a GDP of USD $5.2 trillion, if taken as a separate economic unit the GLSLR would be the fourth largest economy in the world after the United States, China, and Japan, supporting some 50 million jobs or roughly a third of the combined American and Canadian workforce.

The region is home to leading research universities, colleges, and educational institutes that are critical for talent development and retention.9 19 of the top 100 universities in the world are Great Lakes institutions.10 Combined, the region produced 47% of university graduates in both countries (2010).11

Academic institutions in the GLSLR collaborate with a large-scale private sector research sector.12 In 2011, the U.S. portion of the Great Lakes Region accounted for nearly 24.1% (US $70,866 million) of the total research and development funding in the country. The Canadian portion accounted for nearly 72.1% ($22,694 million) of the total research and development funding in Canada,13 and generated 26.2% and 68% of patents in the United States and Canada respectively (2012).14

In terms of natural assets, the GLSLR is a bastion of biodiversity, ranging from boreal forests and lakes to wetlands and marshes. The region sustains one-fifth of all fish species in North America, hundreds of millions of migratory birds, and many other species.15 The great lakes themselves contain 84% of North America’s water supply and about 20% of global fresh water supply. The natural bounty of the region is the basis for all its life and activity.

World-class cities are important for the region as well. Two of the top five best cities in the world to live in are in the GLSLR, Toronto (#1) and Montreal (#2), according to a report by the Economist Intelligence Unit (EIU) that ranks 50 major cities across the world.16 This is at a time when more than half of the world’s population now lives in cities. In North America, the level of urbanization is 84% (EIU).

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Source: Chamber of Marine Commerce, modified from www.marinedelivers.com
Advanced Manufacturing

Advanced manufacturing entails a shift from production driven by labour to technology-intensive production, which requires fewer workers to produce the same output. But clusters of productivity typically generate more enterprise activity overall in sectors that are directly or indirectly dependent on manufacturing.\(^{17}\)

As a result, manufacturing employment, which represented 11.9 percent of total employment in the GLSLR in 2013, may increase over time as advanced manufacturing brings with it the dual forces of reduced labour requirements and new manufacturing opportunities in key sectors (e.g. aerospace, robotics, automotive, food processing, life sciences, plastics and composites, and fabricated metals).

Even as manufacturing opportunities become available, technological advancements or other changes in the economy may mean that direct manufacturing employment never returns to previous levels in the GLSLR unless re-shoring also occurs at a much greater pace than predicted.\(^{22}\)

However, longitudinal declines in manufacturing as a percentage of total employment in the region (Figure 2) have been, and may continue to be, offset by employment gains in other sectors, notably education, health care, professional services (Figure Y).\(^{23}\)

Figure 2: Manufacturing Jobs in the GLSLR: 2004-2013 (% of total employment)

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Note: U.S. data are manufacturing as a share of total non-farm employment, while Canada data are manufacturing as a share of total employment.

Figure 1: What is Advanced Manufacturing?

Advanced manufacturing involves both new ways to manufacture existing products, and the creation of new products arising from new advanced technologies.\(^{18}\)

The President’s Council of Advisors on Science and Technology defines advanced manufacturing as “a family of activities that [a] depend on the use of coordination of information, automation, computation, software, sensing and networking and/or [b] make use of cutting edge materials and emerging capabilities enabled by the physical and biological sciences, for example nanotechnology, chemistry, and biology.”\(^{19}\)

Advanced manufacturing is best viewed as a cluster of economic activities encompassing much more than a single stand-alone enterprise. It has implications for all facets of research, development, production, sales, distribution, logistics, customer service, marketing, and support, extending from the development of physical products to the delivery of services.\(^{20}\)

Advanced manufacturing encompasses additive manufacturing (aka. 3D Printing), robotics, digital manufacturing, and the industrial Internet.\(^{21}\)
Figure 4: The Transformative Prospects of 3D Printing (3DP)

3D printing has the potential to revolutionize the way we make almost everything.
The next industrial revolution in manufacturing will happen in America. — President Barack Obama

3DP, or “additive manufacturing,” is transforming traditional manufacturing and accelerating the shift from mass production to customization. American and Canadian manufacturers, big and small, are discovering the potential for 3DP technology to improve traditional manufacturing processes and to produce products that were virtually impossible (or prohibitively expensive) using traditional methods. In a PWC survey of over 100 U.S. industrial manufacturers in the United States, two thirds said they are currently implementing 3DP in some way and one in four said they plan to adopt 3DP in the future.

3D printing has emerged as one of the more visible aspects of the broader wave of information and communications technologies that are empowering business processes in manufacturing and beyond. Advanced 3D design software increasingly enables modeling, prototyping, outsourcing, and testing to be done virtually. Timelines from conception to delivery are being compressed, and product adoption quickened.

America Makes was established in Youngstown, Ohio in 2012 as the pilot hub for the National Network for Manufacturing Innovation (NNMI). America Makes’ focus is to accelerate the adoption of additive manufacturing technologies in the U.S. manufacturing sector and to increase domestic manufacturing competitiveness. Its extensive network includes more than 100 companies, non-profit organizations, academic institutions, and government agencies.
Workforce Development and Labor Mobility

There is immense human capital in the GLSLR ready to take advantage of the opportunities in advanced manufacturing, other knowledge-based sectors of our economy, and in skilled trades. However, in order to build the advanced workforce of the future, it will be critical to support and invest in science, engineering, technology, and math, together with creative thinking and hands-on skills development, at all levels of learning.

High-quality post-secondary training and the concentration of skills in urban areas give the GLSLR advantages over other regions, but there are still skills shortages as employers struggle to deploy the right talent to the right areas at the right time. One of the major impediments to business growth and infrastructure development is the shortage of skilled trades workers available for deployment when and where they are required. Employers report that shortages in skilled trades are the number one barrier to Canadian competitiveness.

The changing nature of work to shorter-term, project-oriented employment, an aging workforce, and the shift from traditional to advanced manufacturing are all factors that are exacerbating the shortage in skilled trades in parts of the economy and the GLSLR.

The problems faced by sectors characterized by short-term deployments, such as construction, engineering, after-sales service, and information technology, face challenges that are particularly acute. The ideal situation would be unimpeded labor mobility throughout the region, but the reality is quite different. Skilled workers and those in certified professions face a quagmire of different certification requirements to do the same job in the eight states and two provinces of the region.

In addition to certification and licensing, workers in the region face border and immigration challenges. Even though Canadian and American workers can utilize various visa, intercompany transferee, or temporary worker programs, dozens of issues impede labour mobility. Crossing the border for work, whether for an hour or a year, is not for the faint of heart or ill prepared. Employers and employees avoid it whenever possible, creating supply chain inefficiencies and diminishing regional competitiveness. Some of the irritants include:

- Border delays related to paperwork;
- Burdensome or unclear procedures for low-risk business travellers;
- Delays in identifying labor market needs and occupational requirements;
- Health and safety equipment issues; and,
- Difficulty in obtaining waivers for minor criminal offences.

Discussion Questions

1) What skills do you see absent in today’s workforce?
2) How do you see your labor needs changing?
3) Should business and government work more closely to address skills gaps? If so, how?
4) Can labor market access rights — the right to work in multiple jurisdictions — be separated from citizenship rights?
5) Are there practices and models from other jurisdictions that could be emulated successfully here?

Energy

The U.S. and Canada enjoy the largest energy trade relationship in the world and Canada is the single largest foreign supplier of energy to the United States.

The North American energy landscape has been transformed since 2008 with the development of vast shale oil and gas reserves in the United States and the continued expansion of oil sands production in Canada. In 2013, the United States produced more oil and gas combined than any country in the world, ahead of both Russia and Saudi Arabia.

Cheaper energy inputs driven by booming oil and gas...
production in the United States and Canada are having a profound effect on industries from petrochemicals to steel manufacturing in both countries. In the United States, maturing shale gas development is boosting U.S. manufacturing through significant cost savings and job creation. Lower natural gas prices benefit manufacturing in two ways: both in direct use and indirectly when electricity generators pass on savings to industrial customers.

“On a North American side — the availability of shale gas is changing the whole landscape for our industry. What it is doing is giving us an energy competitiveness as a North American manufacturer that we have not seen in decades.” — RICHARD PATON, PRESIDENT AND CEO OF THE CANADIAN CHEMISTRY INDUSTRY ASSOCIATION.

On top of this, Mexico recently opened its energy sector to foreign investment, a move that is expected to lead to increased production of hydrocarbons from that country. North America’s dependence on energy imports is dwindling and the region may one day be a net energy exporter. GLSLR business and policy leaders will have to think seriously about how the region fits into this new continental energy market.

The GLSLR is a strategic North American energy market and transit corridor with assets in production, distribution, and exploration of fossil fuels, nuclear power, and renewable energy. The region is powered by a diverse mix of sources including nuclear, coal, and hydroelectricity. Nuclear and hydroelectricity are predominant in Ontario and Quebec and both provinces sell surplus electricity to bordering states via a high voltage grid. Access to cheap and abundant electricity has been a vital feature of the region’s industrialization and will be a crucial component of its revitalization.

The region is home to substantial shale gas reserves, namely the Marcellus and Utica shale plays, but the states and provinces of the GLSLR have adopted differing positions regarding shale gas development. While New York and Quebec have a moratorium on hydraulic fracturing, neighboring Pennsylvania has moved forward aggressively with shale gas development.

Natural gas is expected to play an increasingly important role in the region, driven by mandates to close coal-fired power plants and the sustained low price of natural gas due to in part to high levels of production.

Across the globe, total renewable generation capacity is forecast to grow as technology costs drop and governments strengthen policies to combat climate change. In this regard, provincial, state, and municipal governments are looking at ways to get involved in the renewable sector, both as a source for clean energy and to create jobs and economic growth (e.g. In 2012 clean technology was Canada’s fastest growing industrial sector). The opportunities for deployment of renewable energy are vast, especially in transportation, industry and building management, and when combined with effective energy conservation and efficiency standards.

However, as stated by the International Energy Agency, the importance of “predictable, effective national policies to encourage investment, greater coordination to encourage the integration of renewables, and a common understanding on the future of nuclear power” cannot be overstated. But, like so many policy areas, action with respect to expanding the GLSLR energy mark in a North American context will require regional and national consensus.

Discussion Questions
1) Should the GLSLR have a regional energy strategy? How can the region reconcile divergent approaches to energy development?
2) Are there areas where jurisdictional differences create extra costs and diminish competitiveness?
3) What are the areas of opportunity for greater collaboration on energy research and technology?
4) What are the action items needed to improve cross-border energy infrastructure, inter-operability, and trade?
Border Management

Today, 38.1 million jobs in the U.S. depend on trade while one in five Canadian jobs is linked to exports. We are each other's largest trading partners, with over $600 billion worth of two-way trade in goods and services in 2013. Each year, the GLSLR generates approximately $184 billion in two-way trade, which accounts for approximately one third of Canada-U.S. trade with the rest of the world (2013 figures).

What's more, aside from the significance of the GLSLR with respect to the volume and value of trade passing through this continental gateway, four out of the five busiest land crossings between the U.S. and Canada are located in Ontario, with more trade flowing between Windsor and Detroit than through any other border crossing in the world. The region is home to an expansive network of highways and rail lines, some of the world's busiest international airports, a growing number of world-class ports and the bi-national St. Lawrence Seaway that connects North American industry to Europe, South America, the Middle East, and Africa.

It is difficult to overstate the importance of free flowing goods and efficient border management for the GLSLR. The Government of Canada estimates conservatively that border management policies that thicken the border cost the Canadian economy $16 billion a year. A Fraser Institute report (2012) also makes a clear link between additional administration costs attributable to border security and crossing wait times and negative affects on bilateral trade.

Properly trained people are an important part of a smart border. For example, U.S. estimates suggest that the addition of one extra Customs and Border Protection staff member to facilitate border crossings generates an additional USD$2 million in U.S. GDP. Technology and data are also crucial elements.

In 2011, President Obama and Prime Minister Harper announced the Beyond the Border Action Plan (BTB) in order to reduce barriers to the movement of goods and people between the two countries. BTB has provided a good first step to reducing delays by attempting to move certain activities, such as cargo inspection, away from the border, and reducing inspection duplication through the principle of “inspected once, cleared twice.” However, despite the gains that are speeding up legitimate trade and travel, there is still a gap between the objectives of high-level initiatives like BTB and the realities of moving goods and people across the border.

A 2014 survey by the Canadian Employee Relocation Council identifies ongoing problems for business travelers, especially the failure to consistently apply rules at the border and officials who are not aware of the needs of business travellers. Shippers face many of the same challenges and have added worries about the slow pace of pilot projects involving pre-inspection, pre-clearance, and single window programs that could lead to the adoption of new practices and technology in freeing up the movement of goods.

In the early days of NAFTA, we proudly claimed that automotive components crossed the borders many times during the production of finished vehicle. This was evidence that North America was becoming a seamless, integrated market. Now, border and regulatory delays diminish this advantage. A North American vehicle is subject to customs inspections dozens of times, but a vehicle entering North America from China is inspected only once.
The reduction of tariffs through the trade agreements of the 1980s and 1990s made a significant contribution to North American competitiveness by reducing transaction costs. Today, while big data analytics have helped to create risk assessment models to help customs officials target likely offenders and make most crossings faster and more routine, we need to find ways to eliminate, as far as possible, border-related transaction costs so that we can function as a truly integrated market in a borderless global economy.

Discussion Questions

1) What is your vision of the border?

2) Has the BTB had a positive impact on your business in the first three years of operation? Successes? Ongoing challenges?

3) Are there dimensions to the border that are unique to the GLSLR that could be addressed by better partnerships between federal authorities and key stakeholder groups? If so, what are they and is there avenue to bring these interests together?

4) Should we be doing a better job of engaging federal as well as state/provincial legislators on border issues?

5) Can we be more ambitious than NAFTA? Will a Trans-Pacific Partnership force accelerated NAFTA changes?

Multimodal Logistics

The GLSLR is home to one of the world’s most interconnected and integrated multi-modal systems, from the United States’ largest rail hub in Chicago to the vast network of airports, roads, pipelines, ports, and waterways (Figure X) that move major commodities including coal, iron ore, agricultural and food products, automotive parts and machinery, and petroleum products.

Put simply, it is an economic platform that ties every aspect of commerce in the region together and connects the region to the North American marketplace and the rest of the world.

Figure 5: Overview of Multimodal logistics assets in GLSLR

| Marine Transportation | 15 large international marine ports and 50 regional marine ports, the Great Lakes — St. Lawrence Seaway System (GLSLSS) and its 19 locks, and a network of inland waterways, including, in particular, the Mississippi River with its major tributaries of the Ohio and Illinois Rivers. |
| Rail Transportation    | Seven Class 1 railways, totalling 30,778 miles of track and 68 intermodal terminals, several short lines, and rail border crossings. |
| Road Transportation    | Extensive highway system and several border crossings. In the U.S., key north-south highways include I-35, I-55, I-65, I-75, and I-95 and on the east-west axis, I-70, I-80, and I-90. In Canada, key freight highways are east-west along the St. Lawrence River and northern edge of the Great Lakes. |
| Air Transportation     | The GLSLB serves as one of North America’s major air cargo hubs and includes 36 of North America’s 156 airports that handle over 10,000 tons of cargo per year. The GLSLB’s 20 largest airports make up 95.2% of the regional air cargo traffic. Major freight airports include Chicago O’Hare and Toronto Pearson. |
| Pipeline Transportation | A network of pipelines in the GLSLB moves a range of fuels and petroleum products including crude, gasoline, and natural gas. These pipelines are privately owned and operated by energy companies. |

The economic impact of this system on the GLSLR is staggering. According to a report prepared for the U.S. Transportation Research Board, the direct and indirect impacts from freight transportation industries in the region accounted for 3.8 million jobs, USD$627 billion in gross output, USD$311 billion in gross domestic product, USD$200 billion in personal income, and USD$87 billion in taxes in 2007.

Further, this system plays a critical role in supporting America’s and Canada’s global trade agenda. Almost 25 percent of marine traffic in the Great Lakes-St. Lawrence Seaway system travels to and from overseas ports in Europe, the Middle East, and Africa.45 In 2014, a new Cleveland-Europe scheduled liner service was launched and the first-ever international cargo shipments passed through the Port of Munroe.46 This is a promising development in the U.S. Administration’s desire to conclude a Transatlantic Trade and Investment Partnership with Europe and the recent conclusion of negotiations between Canada and the European Union on a Comprehensive Economic and Trade Agreement.

Capacity bottlenecks are a particular challenge for road and rail modes around major hubs. On the other hand, there is untapped potential for greater utilization of the region’s air and water modes, both of which have excess capacity. Jurisdictions with access to competitive transportation infrastructure and services, and who are able to fully optimize all-modes, are at a distinct strategic advantage in attracting investment, creating jobs and realizing economic growth.

"When it comes to rail traffic, Chicago is America’s speed bump. Shippers complain that a load of freight can make its way from Los Angeles to Chicago in 48 hours, and then take 24 hours to travel across the city. A recent trainload of sulphur took some 27 hours to pass through Chicago — an average speed of 1.13 miles per hour, or about a quarter the pace of many electric wheelchairs."52

Discussion Questions

1) Why are shippers and shipping lines not making better use of the maritime transportation system in the GLSLR?

2) What are the barriers to optimizing transportation choices in the GLSLR?

3) What interests and incentives need to be better addressed/aligned to make better use of marine transportation in the GLSLR?

3) Would a regional multi-modal vision and strategy for the GLSLR help to move freight and remove bottlenecks? How would this work?
Infrastructure Modernization and Financing

The GLSLR economy of today and the future requires significant investment in public and private infrastructure. The need for renewal applies to the wide range of physical assets in the region, from our waterways, roads, bridges, rail lines, airports and energy systems to our drinking water and wastewater facilities.

The costs of renewal are astounding. McKinsey estimates that $57 trillion will be needed by 2030 in order to keep pace with projected global GDP growth.\textsuperscript{53} By 2020, it is estimated that the infrastructure investment shortfall for the U.S. will be USD$1.6 trillion.\textsuperscript{54} According to the Federation of Canadian Municipalities, Canadian cities have an existing infrastructure deficit of $172 billion.\textsuperscript{55}

Important steps are being taken in the region to invest in the critical corridors that support the movement of goods throughout the region. For example, a January 2015 survey by Martin Associates finds that a total of $7.1 billion is being invested in asset renewal and modernization of vessels, ports and terminals, and waterway infrastructure in the Great Lakes-St. Lawrence seaway navigation system.\textsuperscript{56}

Yet, like many parts of the United States and Canada, the GLSLR continues to face challenges with respect to building and renewing public infrastructure, particularly as governments at all levels struggle to keep pace with growing demands for improved infrastructure and better services at a time of increasing government debt and tighter controls on operating budgets.

Compounding these challenges is the reality that traditional approaches to financing will not suffice. By giving the private sector a role alongside government in designing, building, financing, operating and maintaining public infrastructure, we can harness private sector know-how, ingenuity and capital in eliminating the region’s infrastructure deficit and investment gap, providing we have the right rules and administrative structures in place to manage contracts between government and business. Such relationships would likely need to involve alternative financing and procurement (AFP) delivery models — or public-private partnerships (P3s) — and other innovative financing mechanisms.

AFPs are a proven and effective means of addressing the public infrastructure deficit. Based on a review of P3s in operation or under construction in Canada from 2003-2012, which was commissioned by the Canadian Council for Public Private Partnerships, the implementation of P3s contributed to the creation of 517,430 full-time equivalent jobs, the disbursement of $32.2 billion in total income/wages and benefits, and the addition of $48.2 billion to total gross domestic product. The use of P3s also supported the levying of $7.5 billion in tax revenue, and $9.9 billion in total cost savings.

The use of AFPs in the GLSLR, however, has been slow compared to many other jurisdictions. This is why the CGLR announced a commitment to action at CGI America that will identify ways of creating a more enabling environment for AFPs in the region. This work will complement other efforts aimed at encouraging private sector involvement in renewing public infrastructure in the United States and Canada, such as the Build America Investment Initiative, the National Governors Association’s State Resource Center on Innovative Infrastructure Strategies, and the Building Canada Plan.

In addition to AFPs, the quality of information sharing pertaining to regional growth and infrastructure planning is uneven in the GLSLR and the prioritization of investment decisions for large-scale transportation projects that cross jurisdictional boundaries is mostly uncoordinated. Planning and investment decisions occurring in silos and weak communication encumber our ability to boost the region’s competitive edge and secure its long-term success in globalized economy.

Discussion Questions

1) Are legislatures and federal, state/provincial and city governments doing enough to explore new ways of successfully delivering modern infrastructure?

2) When is it effective for government to partner with the private sector to deliver infrastructure, and how can government and business structure their partnerships to make investments?

3) What are the some of the barriers that are limiting the opportunity for governments and businesses to work together on new infrastructure investments?

4) How can investment in infrastructure become a driver for economic development in the Great Lakes region?

5) Do we have the right mechanisms in place to facilitate closer cooperation on sharing best practices with respect to innovative financing and procurement models as well as regional growth planning and the prioritization of regional infrastructure investments?
Economic Corridors and Clusters

The GLSLR gateway, which is defined by well-established trade corridors, provides a critical link to continental and global markets. Over the last decade, we have witnessed the development of clusters of innovation within the region’s metropolitan areas, from life sciences and aerospace to ICT and automotive.

An industry cluster is “a group of firms and related economic actors and institutions that are located near one another and that draw productive advantage from their mutual proximity and connections.” Clusters are a key organizational unit for understanding and improving the performance of regional economies.

Clusters break the rules of vertical integration where a firm performs all necessary functions in-house, and as Porter argues, the existence of a cluster may go unrecognized. Clusters are important for regions because they generate wealth, exports, jobs, and information. Firms gravitate towards clusters because they provide economies of scale, productivity advantages, marketing, and other competitive advantages.

The economies of scale that come from clusters reduce costs, expand pools of shared labor and expertise, and create positive synergies that spill over from one successful enterprise to the next. The value of clusters lies in the potential for entire value chains to be situated within a cluster, which are increasingly extending across the border: manufacturing, research, suppliers, distributors, academic institutions, support services, and so forth. This creates efficiency and spillover benefits and has the greatest potential for sustainability.

As the recovery from the Great Recession is firming up in both the United States and Canada, the physical and psychological barriers imposed by an international border within the GLSLR have challenged clusters that would normally emerge on the basis of geographic proximity. The border has reduced the expansionary prospects of clusters in some cases, but enterprises that have invested the time and resources to overcome border barriers have been rewarded.

Discussion Questions

1) What can we do to promote cluster formation, growth, and connectivity across the Great Lakes states and provinces?
2) What lessons are there from the massive cross-border automotive cluster?
3) How do we work together to strengthen the region’s trade corridors?

Blue Economy

Water, water, everywhere! The Great Lakes, containing roughly 21 percent of the world’s and 84 percent of North America’s fresh water, form the largest group of freshwater lakes on earth. They are often referred to as inland seas because of their size and natural processes. However, as large as they may be, only one percent of the waters of the Great Lakes are renewed annually by precipitation, run-off and groundwater. So while they are large, it doesn’t take much to put them at risk.

The development of a blue economy epitomizes the triple bottom line for the GLSLR: people, prosperity, and planet. Effective stewardship of the lakes is therefore critical, not only in terms of protecting the region’s natural places and preserving our outdoor lifestyle, but also our future prosperity. The lakes have been the foundation of the region’s industrial economy and will be at the center of global trade for decades to come.

The blue economy focuses on sustainable usage of shared resources. This principle is key to the larger restoration economy that we envision for the GLSLR — one in which our physical, social and cultural assets are preserved and where the legacies of past success become the seeds for future prosperity through the development of new green...
technologies and the export of services in areas like remediation, environmental engineering, and sustainable land use planning.

As illustrated at the Great Lakes-St. Lawrence Region Summit in 2011, nascent blue economy initiatives exist throughout the region, such as in Milwaukee, Cleveland, southwestern Ontario and many parts of Michigan, but they are not well networked with each other. As indicated in 2011, this sector needs to reach its full potential in attracting investors, exposing its products or tapping into global networks.

**Discussion Questions**

1) What is the best way to encourage networking between the region’s blue economy clusters and collaboration with the region’s academic institutions?

2) What areas of the blue economy show the most promise in terms of investment attraction or product development in the short to medium term?

3) Should we launch an annual international Blue Economy Summit and Expo in the Great Lakes to showcase the region as a world leader in the blue economy?

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**Regulatory Cooperation**

The United States and Canada have world-class regulatory systems, but differences between regulations have emerged over time as our integrated economies evolved independently. These differences increase costs in an integrated supply chain, raise the administrative burden on business, and hinder cross-border trade.

The bi-national Regulatory Cooperation Council (RCC) was introduced in tandem with the BTB. It brought together federal regulators and businesses from both countries to make inspection and certification practices more efficient in 29 areas with a focus on four sectors: agriculture, transportation, health and personal care products, and the environment. The ultimate goal of this process is to reduce and eliminate duplicative and unnecessary regulatory requirements.

The experiment has yielded some successes in harmonizing regulations in areas such as dangerous goods, motor vehicle safety, and energy efficiency, but in other areas (e.g. preclearance, marine safety and environmental standards), progress has been slow. This has caused groups like the Canadian Chamber of Commerce to call for a broader and more institutionalized approach to regulatory harmonization that would go beyond the RCC.63

Stakeholders outside of the 29 focus areas are virtually unaware of its existence. The second phase of the RCC is moving from a product focus to a regulator focus, mandating that federal regulators meet regularly and agree to align standards and practices wherever possible. This should help to more deeply embed the practice of cooperation and increase access and awareness by other stakeholders.

**Discussion Questions**

1) Will the new approach yield broader results? Can a slow, technical initiative maintain the political momentum it needs to survive in the long term?

2) If not, how can we build more durable mechanisms for information sharing and regulatory alignment?

3) Are there unnecessary or duplicative state, provincial or municipal regulations that create additional burdens on the GLSLR?

4) If so, should we elevate these issues to the RCC or establish a separate regional process to address them?
Conclusion

The GLSLR has a wealth of assets including integrated transportation infrastructure, diverse ecosystems, innovative capacity and pools of talented workers. The region has taken a monumental step into the future as a distinct, unified sub-region, but much more work needs to be done in order to build the region together, move goods together, and innovate together.

The barriers to our future prosperity are real, and growing policy fragmentation in key areas such as transportation, energy, and infrastructure hinder the region’s ability to capitalize on new and emerging opportunities. The Council of the Great Lakes Region seeks to facilitate communication and consensus building so that stakeholders throughout the eight states and two provinces can restore, transform and grow the bi-national Great Lakes St. Lawrence economy.

Acknowledgments

The Council of the Great Lakes Region would like to thank the staff at Dawson Strategic for their assistance in preparing this report.
Endnotes

1 All figures in Canadian dollars unless otherwise noted.
3 Remarks by Laurence Fink, World Economic Forum.
6 A good example of reshoring is Whirlpool’s decision to move its commercial washing machine production from Monterrey, Mexico to Clyde, Ohio. For other case studies of American manufacturing companies reshoring operations back to the United States, see the Reshoring Initiative website at: http://www.reshorenow.org/case-studies/.
9 For a detailed analysis of the R&D and human capital assets of the region, please see ‘The Vital Connection’ by Austin et al.
11 Author’s calculations with data from U.S. Department of Education, New State-by-State College Attainment Numbers Show Progress Toward 2020 Goal, July 2012; Higher Education Quality of Council of Ontario, Quick Stats — Section 5 — Graduate Outcomes; and Institut de la statistique du Québec, Gender gap in university completion exceeds 10 percentage points in favour of women among those aged 25 to 34, December 2014.
13 National Science Foundation, Business Research and Development and Innovation Survey: 2011(December 2014); and Statistics Canada, Domestic spending on research and development (GERD), funding sector, by province (Canada), 2011(December 2014).
19 President’s Council of Advisors on Science and Technology, “Report to the President on Capturing Domestic Competitive Advantage in Advanced Manufacturing,” Executive Office of the President (July 2012).


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Message from Mark Fisher, President and CEO of CGLR

On April 26-28, 2015, CGLR is hosting the first-ever Great Lakes Economic Forum in Chicago, Illinois. This landmark event in the GLSLR will bring business, political, and government leaders together alongside experts from academia and the non-profit community to share insights on the most pressing economic policy issues facing the region.

On its own, the region is an economic powerhouse and key to Canada, the United States, and North America as a whole, crucial for increasing our mutual competitiveness and economic output in today’s aggressively borderless climate of global trade and commerce.

But in restoring, transforming, and growing the region’s bi-national economy, we must confront a number of challenges:

• Assembly-line manufacturing will no longer be the centerpiece of our region’s future economic expansion;
• Border protection in the aftermath of 9/11 and government rules that default to protectionism have made the border less permeable;
• Regulatory practices are choking and fragmenting supply chains;
• Our infrastructure is crumbling at a time when public finances are increasingly constrained; and,
• Unemployment remains stubbornly high in many communities throughout the region, especially for youth.

There is hope. The region’s indomitable spirit, foundation of hard work, and ability to find new policy choices across a broad spectrum of economic activities including infrastructure modernization, workforce development, labor mobility, energy, and multi-modal logistics and services, will set the stage for a new and exciting economy.

We will need to collaborate more than ever to identify new solutions, fortify the region’s strategic advantage, and be able to capitalize on emerging opportunities within North America and around the world.

The first Great Lakes Economic Forum, From Partnership Flows to Prosperity, is our moment to define an ambitious and practical regional economic agenda that will drive us forward. Every business, level of government, organization, and individual has an important role to play in this process.

As Joseph Schumpeter, author of Capitalism, Socialism and Democracy notes, we must accept change from the old ways to make room for the new. This paper is intended to spur dialogue by framing the core themes and issues that will be discussed and debated at the economic forum:

• **Building Together**: Advanced Manufacturing — Great Lakes Energy Future — Workforce Development and Labor Mobility
• **Moving Together**: Multimodal Logistics — Border Management — Infrastructure Modernization and Financing
• **Innovating Together**: Regulatory Cooperation — Economic Clusters — Blue Economy

Further, this paper builds upon the considerable research that has already been conducted with respect to the state of the GLSLR economy, its unique assets, and an agenda for the future as outlined in seminal pieces like the Brookings Institution’s The Vital Connection: Reclaiming Great Lakes Economic Leadership in the Bi-National US-Canadian Region.

The authors argued then, as CGLR argues now, that Canada and the United States should harness the full potential of the GLSLR, recognizing this will only take place with serious political leadership and purposeful action from both countries.

The region’s indomitable spirit, foundation of hard work, and ability to find new policy choices across a broad spectrum of economic activities will set the stage for a new and exciting economy.
EACH YEAR, THE GREAT LAKES-ST. LAWRENCE REGION contributes roughly USD $184 billion to Canada-U.S. trade.

HOME TO 107 million people

The Great Lakes-St. Lawrence Region has a GDP of USD $5.2 trillion (non-farm economy).

THE REGION SUPPLIES 50 million JOBS

This accounts for roughly 28% of combined Canadian & U.S. economic activity.

The region is home to 19 of the top 100 universities in the world.

The region accounts for 24% of R&D in the U.S. & Canada.

72%

The region accounts for roughly 40% of total Canada-U.S. cross-border trade.

Restoration, Transformation and Growth
April 2015
In January 2015, the International Monetary Fund (IMF) revised its October 2014 global growth projections downward, to 3.5 percent, on account of a revised assessment of prospects in China, Russia, the Euro zone, and Japan. While economic activity is boosted by the lower oil price, significant downside risks remain, including shifts in sentiment and volatility in global financial markets, particularly emerging markets.²

Black Rock CEO Laurence Fink, at this year’s World Economic Forum in Davos, Switzerland, noted there is more pessimism about the state of the global economy than there was at the same meeting last year.²

However, in a volatile global economy, North America in general and the United States in particular are bright lights. The United States is the only major economy for which the IMF raised growth prospects in its 2015 World Economic Outlook update, suggesting that the United States is “again the engine of global growth,”¹ which, at its core, is fuelled by trade with Canada and Mexico.

The United States and Canada enjoy the largest trade relationship in the world, trading $782 billion in goods and services in 2013. Two-way trade has tripled since the signing of the Canada-U.S. Free Trade Agreement in 1989.

Trade and investment have also expanded in North America as a result of the North American Free Trade Agreement (NAFTA), which came into force in 1994. The region’s trade grew from less than USD$300 billion in 1993 to more than USD$1.1 trillion in 2013,⁶ evidence of the advantages of close proximity, shared business cultures, and integrated supply chains.

Recent developments present new opportunities for the North American economy, including: energy and fiscal reforms underway in Mexico, a boom in unconventional hydrocarbon production that has put North America in a leading position in global energy production, and a resurgence of manufacturing due in part to reshoring of investment back from China.⁶

Within the broader context of a re-invigorated U.S. and North American economy is the growing importance of economic sub-regions. The largest and most dynamic of these is the GLSLR, which comprises two provinces (Ontario and Quebec), eight states (Illinois, Indiana, Minnesota, Michigan, New York, Ohio, Pennsylvania, and Wisconsin), over forty First Nations, and numerous city and municipal governments, including several with global impact such as New York, Chicago, and Toronto.
Sub-regions are critical because they are the most likely units of economic organization, especially for small and medium-sized enterprises. Organizing companies and supply chains on a sub-regional basis makes sense because the production cycle is sensitive to distance — fuel costs, shipping time, etc. — especially when moving intermediate goods through a geographically disaggregated production cycle. Thus, from its vantage point as an economic sub-region, the GLSLR is a driver of North America's trade with the rest of the world.

"Cities and regions are competing with each other in the global economy more so than national states. Many regions are not within a single national state, but are instead located at international borders and transcend national territorial boundaries." 8

In spite of the image of the region as a declining rustbelt, the GLSLR has emerged as a dynamic economic region with an abundance of opportunity. The region accounts for roughly 40 percent of total Canada-U.S. cross-border trade and approximately one third of total Canada-U.S. two-way trade with the world.

With a population of 107 million and a GDP of USD $5.2 trillion, if taken as a separate economic unit the GLSLR would be the fourth largest economy in the world after the United States, China, and Japan, supporting some 50 million jobs or roughly a third of the combined American and Canadian workforce.

The region is home to leading research universities, colleges, and educational institutes that are critical for talent development and retention.9 19 of the top 100 universities in the world are Great Lakes institutions.10 Combined, the region produced 47% of university graduates in both countries (2010).11

Academic institutions in the GLSLR collaborate with a large-scale private sector research sector.12 In 2011, the U.S. portion of the Great Lakes Region accounted for nearly 24.1% (US $70,866 million) of the total research and development funding in the country. The Canadian portion accounted for nearly 72.1% ($22,694 million) of the total research and development funding in Canada,13 and generated 26.2% and 68% of patents in the United States and Canada respectively (2012).14

In terms of natural assets, the GLSLR is a bastion of biodiversity, ranging from boreal forests and lakes to wetlands and marshes. The region sustains one-fifth of all fish species in North America, hundreds of millions of migratory birds, and many other species.15 The great lakes themselves contain 84% of North America’s water supply and about 20% of global fresh water supply. The natural bounty of the region is the basis for all its life and activity.

World-class cities are important for the region as well. Two of the top five best cities in the world to live in are in the GLSLR, Toronto (#1) and Montreal (#2), according to a report by the Economist Intelligence Unit (EIU) that ranks 50 major cities across the world.16 This is at a time when more than half of the world’s population now lives in cities. In North America, the level of urbanization is 84% (EIU).
Advanced Manufacturing

Advanced manufacturing entails a shift from production driven by labour to technology-intensive production, which requires fewer workers to produce the same output. But clusters of productivity typically generate more enterprise activity overall in sectors that are directly or indirectly dependent on manufacturing.\(^\text{17}\)

As a result, manufacturing employment, which represented 11.9 percent of total employment in the GLSLR in 2013, may increase over time as advanced manufacturing brings with it the dual forces of reduced labour requirements and new manufacturing opportunities in key sectors (e.g. aerospace, robotics, automotive, food processing, life sciences, plastics and composites, and fabricated metals).

Even as manufacturing opportunities become available, technological advancements or other changes in the economy may mean that direct manufacturing employment never returns to previous levels in the GLSLR unless re-shoring also occurs at a much greater pace than predicted.\(^\text{22}\)

However, longitudinal declines in manufacturing as a percentage of total employment in the region (Figure 2) have been, and may continue to be, offset by employment gains in other sectors, notably education, health care, professional services (Figure Y).\(^\text{23}\)

**Figure 2: Manufacturing Jobs in the GLSLR: 2004-2013 (% of total employment)**

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Note: U.S. data are manufacturing as a share of total non-farm employment, while Canada data are manufacturing as a share of total employment.

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**Figure 1: What is Advanced Manufacturing?**

Advanced manufacturing involves both new ways to manufacture existing products, and the creation of new products arising from new advanced technologies.\(^\text{18}\)

The President’s Council of Advisors on Science and Technology defines advanced manufacturing as "a family of activities that [a] depend on the use of coordination of information, automation, computation, software, sensing and networking and/or [b] make use of cutting edge materials and emerging capabilities enabled by the physical and biological sciences, for example nanotechnology, chemistry, and biology."\(^\text{19}\)

Advanced manufacturing is best viewed as a cluster of economic activities encompassing much more than a single stand-alone enterprise. It has implications for all facets of research, development, production, sales, distribution, logistics, customer service, marketing, and support, extending from the development of physical products to the delivery of services.\(^\text{20}\)

Advanced manufacturing encompasses additive manufacturing (aka. 3D Printing), robotics, digital manufacturing, and the industrial Internet.\(^\text{21}\)
3D printing has the potential to revolutionize the way we make almost everything. The next industrial revolution in manufacturing will happen in America. — PRESIDENT BARACK OBAMA

3D printing, or “additive manufacturing,” is transforming traditional manufacturing and accelerating the shift from mass production to customization. American and Canadian manufacturers, big and small, are discovering the potential for 3D printing to improve traditional manufacturing processes and to produce products that were virtually impossible [or prohibitively expensive] using traditional methods. In a PWC survey of over 100 U.S. industrial manufacturers in the United States, two thirds said they are currently implementing 3DP in some way and one in four said they plan to adopt 3DP in the future.

3D printing has emerged as one of the more visible aspects of the broader wave of information and communications technologies that are empowering business processes in manufacturing and beyond. Advanced 3D design software increasingly enables modeling, prototyping, outsourcing, and testing to be done virtually. Timelines from conception to delivery are being compressed, and product adoption quickened.

America Makes was established in Youngstown, Ohio in 2012 as the pilot hub for the National Network for Manufacturing Innovation (NNMI). America Makes’ focus is to accelerate the adoption of additive manufacturing technologies in the U.S. manufacturing sector and to increase domestic manufacturing competitiveness. Its extensive network includes more than 100 companies, non-profit organizations, academic institutions, and government agencies.

Discussion Questions
1) What does your company need to accelerate the shift to advanced manufacturing?
2) What are the benefits of integrating additive manufacturing into your business?
3) How can government support bi-national manufacturing R&D and commercialization?
Workforce Development and Labor Mobility

There is immense human capital in the GLSLR ready to take advantage of the opportunities in advanced manufacturing, other knowledge-based sectors of our economy, and in skilled trades. However, in order to build the advanced workforce of the future, it will be critical to support and invest in science, engineering, technology, and math, together with creative thinking and hands-on skills development, at all levels of learning.

High-quality post-secondary training and the concentration of skills in urban areas give the GLSLR advantages over other regions, but there are still skills shortages as employers struggle to deploy the right talent to the right areas at the right time. One of the major impediments to business growth and infrastructure development is the shortage of skilled trades workers available for deployment when and where they are required. Employers report that shortages in skilled trades are the number one barrier to Canadian competitiveness.

The changing nature of work to shorter-term, project-oriented employment, an aging workforce, and the shift from traditional to advanced manufacturing are all factors that are exacerbating the shortage in skilled trades in parts of the economy and the GLSLR.

The problems faced by sectors characterized by short-term deployments, such as construction, engineering, after-sales service, and information technology, face challenges that are particularly acute. The ideal situation would be unimpeded labor mobility throughout the region, but the reality is quite different. Skilled workers and those in certified professions face a quagmire of different certification requirements to do the same job in the eight states and two provinces of the region.

In addition to certification and licensing, workers in the region face border and immigration challenges. Even though Canadian and American workers can utilize various visa, intercompany transferee, or temporary worker programs, dozens of issues impede labour mobility. Crossing the border for work, whether for an hour or a year, is not for the faint of heart or ill prepared. Employers and employees avoid it whenever possible, creating supply chain inefficiencies and diminishing regional competitiveness. Some of the irritants include:

- Border delays related to paperwork;
- Burdensome or unclear procedures for low-risk business travellers;
- Delays in identifying labor market needs and occupational requirements;
- Health and safety equipment issues; and,
- Difficulty in obtaining waivers for minor criminal offences.

Discussion Questions

1) What skills do you see absent in today’s workforce?
2) How do you see your labor needs changing?
3) Should business and government work more closely to address skills gaps? If so, how?
4) Can labor market access rights — the right to work in multiple jurisdictions — be separated from citizenship rights?
5) Are there practices and models from other jurisdictions that could be emulated successfully here?

Energy

The U.S. and Canada enjoy the largest energy trade relationship in the world and Canada is the single largest foreign supplier of energy to the United States.

The North American energy landscape has been transformed since 2008 with the development of vast shale oil and gas reserves in the United States and the continued expansion of oil sands production in Canada. In 2013, the United States produced more oil and gas combined than any country in the world, ahead of both Russia and Saudi Arabia. Cheaper energy inputs driven by booming oil and gas
production in the United States and Canada are having a profound effect on industries from petrochemicals to steel manufacturing in both countries. In the United States, maturing shale gas development is boosting U.S. manufacturing through significant cost savings and job creation. Lower natural gas prices benefit manufacturing in two ways: both in direct use and indirectly when electricity generators pass on savings to industrial customers.

On a North American side — the availability of shale gas is changing the whole landscape for our industry. What it is doing is giving us an energy competitiveness as a North American manufacturer that we have not seen in decades.”
— RICHARD PATON, PRESIDENT AND CEO OF THE CANADIAN CHEMISTRY INDUSTRY ASSOCIATION

On top of this, Mexico recently opened its energy sector to foreign investment, a move that is expected to lead to increased production of hydrocarbons from that country. North America’s dependence on energy imports is dwindling and the region may one day be a net energy exporter. GLSLR business and policy leaders will have to think seriously about how the region fits into this new continental energy market.

The GLSLR is a strategic North American energy market and transit corridor with assets in production, distribution, and exploration of fossil fuels, nuclear power, and renewable energy. The region is powered by a diverse mix of sources including nuclear, coal, and hydroelectricity. Nuclear and hydroelectricity are predominant in Ontario and Quebec and both provinces sell surplus electricity to bordering states via a high voltage grid. Access to cheap and abundant electricity has been a vital feature of the region’s industrialization and will be a crucial component of its revitalization.

The region is home to substantial shale gas reserves, namely the Marcellus and Utica shale plays, but the states and provinces of the GLSLR have adopted differing positions regarding shale gas development. While New York and Quebec have a moratorium on hydraulic fracturing, neighboring Pennsylvania has moved forward aggressively with shale gas development.

Natural gas is expected to play an increasingly important role in the region, driven by mandates to close coal-fired power plants and the sustained low price of natural gas due to in part to high levels of production.

Across the globe, total renewable generation capacity is forecast to grow as technology costs drop and governments strengthen policies to combat climate change. In this regard, provincial, state, and municipal governments are looking at ways to get involved in the renewable sector, both as a source for clean energy and to create jobs and economic growth (e.g. In 2012 clean technology was Canada’s fastest growing industrial sector). The opportunities for deployment of renewable energy are vast, especially in transportation, industry and building management, and when combined with effective energy conservation and efficiency standards.

However, as stated by the International Energy Agency, the importance of “predictable, effective national policies to encourage investment, greater coordination to encourage the integration of renewables, and a common understanding on the future of nuclear power” cannot be overstated. But, like so many policy areas, action with respect to expanding the GLSLR energy mark in a North American context will require regional and national consensus.

Discussion Questions
1) Should the GLSLR have a regional energy strategy? How can the region reconcile divergent approaches to energy development?
2) Are there areas where jurisdictional differences create extra costs and diminish competitiveness?
3) What are the areas of opportunity for greater collaboration on energy research and technology?
4) What are the action items needed to improve cross-border energy infrastructure, inter-operability, and trade?
Border Management

Today, 38.1 million jobs in the U.S. depend on trade while one in five Canadian jobs is linked to exports. We are each other’s largest trading partners, with over $600 billion worth of two-way trade in goods and services in 2013.

Each year, the GLSLR generates approximately $184 billion in two-way trade, which accounts for approximately one third of Canada-U.S. trade with the rest of the world (2013 figures). What’s more, aside from the significance of the GLSLR with respect to the volume and value of trade passing through this continental gateway, four out of the five busiest land crossings between the U.S. and Canada are located in Ontario, with more trade flowing between Windsor and Detroit than through any other border crossing in the world.

It is difficult to overstate the importance of free flowing goods and efficient border management for the GLSLR. The Government of Canada estimates conservatively that border management policies that thicken the border cost the Canadian economy $16 billion a year. A Fraser Institute report (2012) also makes a clear link between additional administration costs attributable to border security and crossing wait times and negative affects on bilateral trade.

Properly trained people are an important part of a smart border. For example, U.S. estimates suggest that the addition of one extra Customs and Border Protection staff member to facilitate border crossings generates an additional USD$2 million in U.S. GDP. Technology and data are also crucial elements.

In 2011, President Obama and Prime Minister Harper announced the Beyond the Border Action Plan (BTB) in order to reduce barriers to the movement of goods and people between the two countries.

BTB has provided a good first step to reducing delays by attempting to move certain activities, such as cargo inspection, away from the border, and reducing inspection duplication through the principle of “inspected once, cleared twice.” However, despite the gains that are speeding up legitimate trade and travel, there is still a gap between the objectives of high-level initiatives like BTB and the realities of moving goods and people across the border.

A 2014 survey by the Canadian Employee Relocation Council identifies ongoing problems for business travelers, especially the failure to consistently apply rules at the border and officials who are not aware of the needs of business travellers. Shippers face many of the same challenges and have added worries about the slow pace of pilot projects involving pre-inspection, pre-clearance, and single window programs that could lead to the adoption of new practices and technology in freeing up the movement of goods.

In the early days of NAFTA, we proudly claimed that automotive components crossed the borders many times during the production of finished vehicle. This was evidence that North America was becoming a seamless, integrated market. Now, border and regulatory delays diminish this advantage. A North American vehicle is subject to customs inspections dozens of times, but a vehicle entering North America from China is inspected only once.
The reduction of tariffs through the trade agreements of the 1980s and 1990s made a significant contribution to North American competitiveness by reducing transaction costs. Today, while big data analytics have helped to create risk assessment models to help customs officials target likely offenders and make most crossings faster and more routine, we need to find ways to eliminate, as far as possible, border-related transaction costs so that we can function as a truly integrated market in a borderless global economy.

Discussion Questions
1) What is your vision of the border?
2) Has the BTB had a positive impact on your business in the first three years of operation? Successes? Ongoing challenges?
3) Are there dimensions to the border that are unique to the GLSLR that could be addressed by better partnerships between federal authorities and key stakeholder groups? If so, what are they and is there avenue to bring these interests together?
4) Should we be doing a better job of engaging federal as well as state/provincial legislators on border issues?
5) Can we be more ambitious than NAFTA? Will a Trans-Pacific Partnership force accelerated NAFTA changes?

Multimodal Logistics

The GLSLR is home to one of the world’s most interconnected and integrated multi-modal systems, from the United States’ largest rail hub in Chicago to the vast network of airports, roads, pipelines, ports, and waterways (Figure X) that move major commodities including coal, iron ore, agricultural and food products, automotive parts and machinery, and petroleum products.

Put simply, it is an economic platform that ties every aspect of commerce in the region together and connects the region to the North American marketplace and the rest of the world.

The economic impact of this system on the GLSLR is staggering. According to a report prepared for the U.S. Transportation Research Board, the direct and indirect impacts from freight transportation industries in the region accounted for 3.8 million jobs, USD$627 billion in gross output, USD$311 billion in gross domestic product, USD$200 billion in personal income, and USD$87 billion in taxes in 2007.

Further, this system plays a critical role in supporting America’s and Canada’s global trade agenda. Almost 25 percent of marine traffic in the Great Lakes-St. Lawrence Seaway system travels to and from overseas ports in Europe, the Middle East, and Africa. In 2014, a new Cleveland-Europe scheduled liner service was launched and the first-ever international cargo shipments passed through the Port of Munroe. This is a promising development in the U.S. Administration’s desire to conclude a Transatlantic Trade and Investment Partnership with Europe and the recent conclusion of negotiations between Canada and the European Union on a Comprehensive Economic and Trade Agreement.

Capacity bottlenecks are a particular challenge for road and rail modes around major hubs. On the other hand, there is untapped potential for greater utilization of the region’s air and water modes, both of which have excess capacity. Jurisdictions with access to competitive transportation infrastructure and services, and who are able to fully optimize all-modes, are at a distinct strategic advantage in attracting investment, creating jobs and realizing economic growth.

“Serious constraints and barriers in the multi-modal system exist in the form of hard infrastructure constraints [e.g. congestion and age] and regulatory and operational issues that hinder the free movement of goods and commerce in the region.”

Discussion Questions

1) Why are shippers and shipping lines not making better use of the maritime transportation system in the GLSLR?
2) What are the barriers to optimizing transportation choices in the GLSLR?
3) What interests and incentives need to be better addressed/aligned to make better use of marine transportation in the GLSLR?
4) Would a regional multi-modal vision and strategy for the GLSLR help to move freight and remove bottlenecks? How would this work?
Infrastructure Modernization and Financing

The GLSLR economy of today and the future requires significant investment in public and private infrastructure. The need for renewal applies to the wide range of physical assets in the region, from our waterways, roads, bridges, rail lines, airports and energy systems to our drinking water and wastewater facilities.

The costs of renewal are astounding. McKinsey estimates that $57 trillion will be needed by 2030 in order to keep pace with projected global GDP growth. By 2020, it is estimated that the infrastructure investment shortfall for the U.S. will be USD$1.6 trillion. According to the Federation of Canadian Municipalities, Canadian cities have an existing infrastructure deficit of $172 billion.

Important steps are being taken in the region to invest in the critical corridors that support the movement of goods throughout the region. For example, a January 2015 survey by Martin Associates finds that a total of $7.1 billion is being invested in asset renewal and modernization of vessels, ports and terminals, and waterway infrastructure in the Great Lakes-St. Lawrence seaway navigation system.

Yet, like many parts of the United States and Canada, the GLSLR continues to face challenges with respect to building and renewing public infrastructure, particularly as governments at all levels struggle to keep pace with growing demands for improved infrastructure and better services at a time of increasing government debt and tighter controls on operating budgets.

Compounding these challenges is the reality that traditional approaches to financing will not suffice. By giving the private sector a role alongside government in designing, building, financing, operating and maintaining public infrastructure, we can harness private sector know-how, ingenuity and capital in eliminating the region’s infrastructure deficit and investment gap, providing we have the right rules and administrative structures in place to manage contracts between government and business. Such relationships would likely need to involve alternative financing and procurement (AFP) delivery models — or public-private partnerships (P3s) — and other innovative financing mechanisms.

AFPs are a proven and effective means of addressing the public infrastructure deficit. Based on a review of P3s in operation or under construction in Canada from 2003-2012, which was commissioned by the Canadian Council for Public Private Partnerships, the implementation of P3s contributed to the creation of 517,430 full-time equivalent jobs, the disbursement of $32.2 billion in total income/wages and benefits, and the addition of $48.2 billion to total gross domestic product. The use of P3s also supported the levying of $7.5 billion in tax revenue, and $9.9 billion in total cost savings.

The use of AFPS in the GLSLR, however, has been slow compared to many other jurisdictions. This is why the CGLR announced a commitment to action at CGI America that will identify ways of creating a more enabling environment for AFPS in the region. This work will complement other efforts aimed at encouraging private sector involvement in renewing public infrastructure in the United States and Canada, such as the Build America Investment Initiative, the National Governors Association’s State Resource Center on Innovative Infrastructure Strategies, and the Building Canada Plan.

In addition to AFPs, the quality of information sharing pertaining to regional growth and infrastructure planning is uneven in the GLSLR and the prioritization of investment decisions for large-scale transportation projects that cross jurisdictional boundaries is mostly uncoordinated. Planning and investment decisions occurring in silos and weak communication encumber our ability to boost the region’s competitive edge and secure its long-term success in globalized economy.

Discussion Questions

1) Are legislatures and federal, state/provincial and city governments doing enough to explore new ways of successfully delivering modern infrastructure?
2) When is it effective for government to partner with the private sector to deliver infrastructure, and how can government and business structure their partnerships to make investments?
3) What are some of the barriers that are limiting the opportunity for governments and businesses to work together on new infrastructure investments?
4) How can investment in infrastructure become a driver for economic development in the Great Lakes region?
5) Do we have the right mechanisms in place to facilitate closer cooperation on sharing best practices with respect to innovative financing and procurement models as well as regional growth planning and the prioritization of regional infrastructure investments?
Economic Corridors and Clusters

The GLSLR gateway, which is defined by well-established trade corridors, provides a critical link to continental and global markets. Over the last decade, we have witnessed the development of clusters of innovation within the region’s metropolitan areas, from life sciences and aerospace to ICT and automotive.

An industry cluster is “a group of firms and related economic actors and institutions that are located near one another and that draw productive advantage from their mutual proximity and connections.” Clusters are a key organizational unit for understanding and improving the performance of regional economies.

Clusters break the rules of vertical integration where a firm performs all necessary functions in-house, and as Porter argues, the existence of a cluster may go unrecognized. Clusters are important for regions because they generate wealth, exports, jobs, and information. Firms gravitate towards clusters because they provide economies of scale, productivity advantages, marketing, and other competitive advantages.

The economies of scale that come from clusters reduce costs, expand pools of shared labor and expertise, and create positive synergies that spill over from one successful enterprise to the next.

The value of clusters lies in the potential for entire value chains to be situated within a cluster, which are increasingly extending across the border: manufacturing, research, suppliers, distributors, academic institutions, support services, and so forth. This creates efficiency and spillover benefits and has the greatest potential for sustainability.

As the recovery from the Great Recession is firming up in both the United States and Canada, the physical and psychological barriers imposed by an international border within the GLSLR have challenged clusters that would normally emerge on the basis of geographic proximity. The border has reduced the expansionary prospects of clusters in some cases, but enterprises that have invested the time and resources to overcome border barriers have been rewarded.

Discussion Questions

1) What can we do to promote cluster formation, growth, and connectivity across the Great Lakes states and provinces?
2) What lessons are there from the massive cross-border automotive cluster?
3) How do we work together to strengthen the region’s trade corridors?

Blue Economy

Water, water, everywhere! The Great Lakes, containing roughly 21 percent of the world’s and 84 percent of North America’s fresh water, form the largest group of freshwater lakes on earth. They are often referred to as inland seas because of their size and natural processes. However, as large as they may be, only one percent of the waters of the Great Lakes are renewed annually by precipitation, run-off and groundwater. So while they are large, it doesn’t take much to put them at risk.

The development of a blue economy epitomizes the triple bottom line for the GLSLR: people, prosperity, and planet. Effective stewardship of the lakes is therefore critical, not only in terms of protecting the region’s natural places and preserving our outdoor lifestyle, but also our future prosperity. The lakes have been the foundation of the region’s industrial economy and will be at the center of global trade for decades to come.

The blue economy focuses on sustainable usage of shared resources. This principle is key to the larger restoration economy that we envision for the GLSLR — one in which our physical, social and cultural assets are preserved and where the legacies of past success become the seeds for future prosperity through the development of new green
technologies and the export of services in areas like remediation, environmental engineering, and sustainable land use planning.

As illustrated at the Great Lakes-St. Lawrence Region Summit in 2011, nascent blue economy initiatives exist throughout the region, such as in Milwaukee, Cleveland, southwestern Ontario and many parts of Michigan, but they are not well networked with each other. As indicated in 2011, this sector needs to reach its full potential in attracting investors, exposing its products or tapping into global networks.

Discussion Questions
1) What is the best way to encourage networking between the region’s blue economy clusters and collaboration with the region’s academic institutions?
2) What areas of the blue economy show the most promise in terms of investment attraction or product development in the short to medium term?
3) Should we launch an annual international Blue Economy Summit and Expo in the Great Lakes to showcase the region as a world leader in the blue economy?

Regulatory Cooperation

The United States and Canada have world-class regulatory systems, but differences between regulations have emerged over time as our integrated economies evolved independently. These differences increase costs in an integrated supply chain, raise the administrative burden on business, and hinder cross-border trade.

The bi-national Regulatory Cooperation Council (RCC) was introduced in tandem with the BTB. It brought together federal regulators and businesses from both countries to make inspection and certification practices more efficient in 29 areas with a focus on four sectors: agriculture, transportation, health and personal care products, and the environment. The ultimate goal of this process is to reduce and eliminate duplicative and unnecessary regulatory requirements.

The experiment has yielded some successes in harmonizing regulations in areas such as dangerous goods, motor vehicle safety, and energy efficiency, but in other areas (e.g. preclearance, marine safety and environmental standards), progress has been slow. This has caused groups like the Canadian Chamber of Commerce to call for a broader and more institutionalized approach to regulatory harmonization that would go beyond the RCC.63

Stakeholders outside of the 29 focus areas are virtually unaware of its existence. The second phase of the RCC is moving from a product focus to a regulator focus, mandating that federal regulators meet regularly and agree to align standards and practices wherever possible. This should help to more deeply embed the practice of cooperation and increase access and awareness by other stakeholders.

Discussion Questions
1) Will the new approach yield broader results? Can a slow, technical initiative maintain the political momentum it needs to survive in the long term?
2) If not, how can we build more durable mechanisms for information sharing and regulatory alignment?
3) Are there unnecessary or duplicative state, provincial or municipal regulations that create additional burdens on the GLSLR?
4) If so, should we elevate these issues to the RCC or establish a separate regional process to address them?
Conclusion

The GLSLR has a wealth of assets including integrated transportation infrastructure, diverse ecosystems, innovative capacity and pools of talented workers. The region has taken a monumental step into the future as a distinct, unified sub-region, but much more work needs to be done in order to build the region together, move goods together, and innovate together.

The barriers to our future prosperity are real, and growing policy fragmentation in key areas such as transportation, energy, and infrastructure hinder the region’s ability to capitalize on new and emerging opportunities. The Council of the Great Lakes Region seeks to facilitate communication and consensus building so that stakeholders throughout the eight states and two provinces can restore, transform and grow the bi-national Great Lakes St. Lawrence economy.

If you are interested in becoming a member of the Council of the Great Lakes Region and/or a financial sponsor of its events and research projects, please contact:

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Endnotes

1  All figures in Canadian dollars unless otherwise noted.
3  Remarks by Laurence Fink. World Economic Forum.
6  A good example of reshoring is Whirlpool’s decision to move its commercial washing machine production from Monterrey, Mexico to Clyde, Ohio. For other case studies of American manufacturing companies reshoring operations back to the United States, see the Reshoring Initiative website at: http://www.reshorenow.org/case-studies/.
9  For a detailed analysis of the R&D and human capital assets of the region, please see ‘The Vital Connection’ by Austin et al.
11  Author’s calculations with data from U.S. Department of Education, New State-by-State College Attainment Numbers Show Progress Toward 2020 Goal, July 2012; Higher Education Quality of Council of Ontario, Quick Stats — Section 5 — Graduate Outcomes; and Institut de la statistique du Québec, Gender gap in university completion exceeds 10 percentage points in favour of women among those aged 25 to 34, December 2014.
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