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Actionable Supply Chain Management Insights for 2016 and Beyond

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ACTIONABLE SUPPLY CHAIN MANAGEMENT INSIGHTS FOR 2016 AND BEYOND

A White Paper based on the May 4th, 2016 Summit:
"World Class Supply Chain 2016: Critical to Prosperity"

Summit convened by the Lazaridis School in partnership with CN Rail
in Milton, Ontario

LAZARIDIS

School of Business & Economics

IN PARTNERSHIP WITH 

WORLD CLASS
SUPPLY CHAIN
2016

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WHITE PAPER PRODUCTION ASSISTANCE TEAM

The following student Research Assistants from the Lazaridis School provided indispensable help with the research and preliminary draft preparation required to produce this White Paper: **Danielle Kirkconnell**, **Kirti Lad**, and **Sheldon Rodrigues**.

SUMMIT DAY RESEARCH ASSISTANTS

During the summit, a team of 9 students systematically catalogued the day's deliberations on which this White Paper is based. The team comprised 7 from the Lazaridis School (**Tina Arabian**; **James Barber**; **Shervin Espahbod**; **Conor Fennell**; **Mohammad Jourabchi**; **Justin Pickford**; and **Sheldon Rodrigues**) and 2 from other universities (Ryerson University's **Avery Alday**; Athabasca University's **Shelley-Ann Solomon**)

SUMMIT DELEGATES

Much of the credit for the summit's success is due to the 115 delegates' enthusiasm, high energy, and seriousness of purpose in approaching the deliberations.

THE GRANITE RIDGE GOLF CLUB

The club's impressive hosting of the summit provided a first-class experience for attendees.

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Executive Summary

The summit "**World Class Supply Chain 2016: Critical to Prosperity**", contributed to addressing a need that the Supply Chain Management (SCM) field's current discourse has deemed as critical: that need is for more academia-industry collaboration to develop the field's body of actionable knowledge. Held on May 4th, 2016 in Milton, Ontario, the summit addressed that need in a way that proved to be both effective and distinctive in the Canadian SCM environment. The summit, convened in partnership between Wilfrid Laurier University's Lazaridis School of Business & Economics and CN Rail, focused on building actionable SCM knowledge to address three core questions:

- (i) *What are the most significant SCM issues to be confronted now and beyond 2016?*
- (ii) *What SCM practices are imperative now and beyond 2016?*
- (iii) *What are optimal ways of ensuring that (a) issues of interest to SCM practitioners inform the scholarly activities of research and teaching and (b) the knowledge generated from those scholarly activities reciprocally guide SCM practice?*

These are important questions for supply chain professionals in their efforts to make sense of today's business environment that is appropriately viewed as volatile, uncertain, complex, and ambiguous. The structure of the deliberations to address these questions comprised two keynote presentations and three panel discussions, all of which were designed to leverage the collective wisdom that comes from genuine peer-to-peer dialogue between the SCM **practitioners** and SCM **scholars**.

Specifically, the structure aimed for a balanced blend of industry and academic input and for coverage of the SCM issues of greatest interest to attendees (as determined through a pre-summit survey of attendees). The structure produced impressively wide-ranging deliberations on the aforementioned questions. The essence of the resulting findings from the summit can be distilled into three messages:

- (1) Given today's globally significant trends such as changes in population demographics, four highly impactful levers that SCM executives must expertly handle to attain excellence are: **collaboration; information; technology; and talent**
- (2) Government policy, especially for infrastructure, is a significant determinant of SCM excellence
- (3) There is tremendous potential for mutually beneficial industry-academia knowledge co-creation/sharing aimed at research and student training

This white paper reports on those findings as well as on the summit's success in realizing its vision of fostering mutually beneficial industry-academia dialogue. The paper also documents what emerged as matters that are inadequately understood and should therefore be targeted in the ongoing quest for deeper understanding of actionable SCM insights. Deliberations throughout the day on May 4th, 2016 and the encouraging results from the pre-summit and post-summit surveys have provided much inspiration to enthusiastically undertake that quest. The undertaking will be through initiatives that include future research projects as well as next year's summit –**World Class Supply Chain 2017**.

Introduction and Background: The Summit's Vision

Making sense of the volatility, uncertainty, complexity, and ambiguity in today's business world is essential in developing successful supply chain practices for that world. Among the clearest validations that such sense-making is vital for success is a study by Stank *et al.* (2015). The study compared megatrends and proactive supply chain practices relevant in the year 2000 with those relevant for 2013 through to 2025. In particular, the authors found that new practices are required. As an example, there has been a shift from emphasis on traditional historical *forecasting* of demand to an emphasis on *shaping* demand through use of technologies to achieve more real-time data capture. A naturally arising question from knowing that sense-making is valuable is *how should sense-making be done?*

The inaugural May 4th, 2016 summit **World Class Supply Chain 2016** was conceived as an answer to that question. That answer has its origins in an industry-academia partnership between CN Rail and Wilfrid Laurier University's Lazaridis School of Business & Economics. The partnership was formally established in March 2015 and focused on advancing the SCM field through initiatives in student training (internships, etc.) and research (e.g., support of faculty research and scholarships for graduate students in research-based programs – MSc and PhD). The five-year partnership (2015-2020) extends beyond the financial element; i.e., CN's \$500,000 support of the School's scholarly activities in SCM. As shown in the following excerpt of a press release by CN Rail's president, the partners' exchange of ideas is also a vital element:

"CN managers will also work with instructors and researchers to provide an industry perspective, and the company will help organize annual conferences attended by international experts."

With respect to the annual conferences, the partnership was built on the following shared vision of what constitutes effective sense-making:

*Genuine peer-to-peer dialogue among SCM practitioners and SCM scholars will provide a catalyst for their collective wisdom to naturally rise and be channelled towards **co-creating knowledge** aimed at pursuing **supply chain excellence**.*



As evidenced by documented SCM discourse, the SCM community at large subscribes to the essence of this vision. To illustrate, the research literature features increasingly persistent calls for the field's body of actionable knowledge to be developed through academia-industry collaboration; see, for example, Lambert and Enz (2015) and Liu *et al.* (2016). In light of the field's decidedly applied nature, such calls for knowledge co-creation approaches are valid. The fact that the calls arise in a context of pre-existing industry-academia knowledge co-creation initiatives (e.g., initiatives by the Center for Supply Chain Research in Penn State's Smeal College of Business) suggests the following: **industry and academia can still do more knowledge co-creation.**

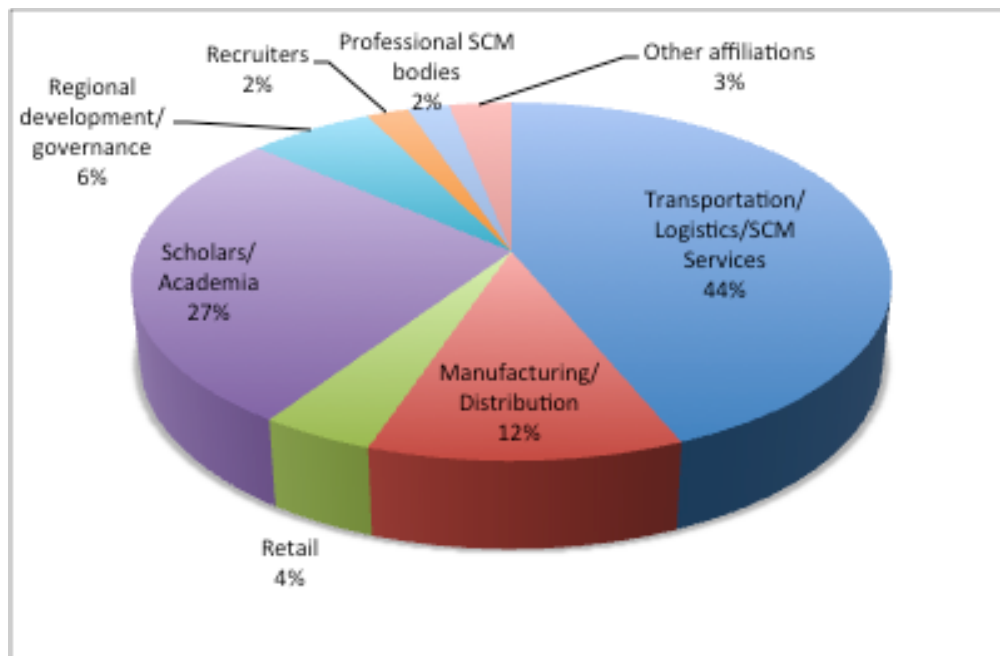
World Class Supply Chain 2016 sought to do exactly that by bringing together leaders from industry and academia to discuss the current and future states of supply chain and logistics and to provide insights on how opportunities and solutions can be leveraged. The 115 attendees to this new and distinctive industry-

academia event on the Canadian SCM landscape were specially invited (Figure 1 shows a breakdown of the attendees' affiliations). This feature of having people attend by invitation only rather than charging a registration fee to anyone who wished to attend was based on the following principle:

What is of value at the summit is not the attendees' money but instead their capacity to meaningfully contribute to our understanding of supply chains within and beyond Canada.



Figure 1: Summit Attendee Affiliations



The Summit's Design and Operation

The summit's major design elements comprised the (1) key substantive SCM content covered; (2) content coverage structure; and (3) meaningful contribution of participants to the summit's deliberations.

1. *Substantive content.* As a knowledge co-creation platform, the summit's over-arching focus was on the following three core questions regarding **SCM issues**, **SCM practices**, and **industry-academia partnerships** –



SCM ISSUES:

(1) *What are the major SCM issues to be confronted now and beyond 2016?*

SCM PRACTICES:

(2) *What supply chain practices are imperative now and beyond 2016?*

INDUSTRY-ACADEMIA PARTNERSHIPS:

(3) *What are optimal ways to build and sustain mutually beneficial partnerships between industry and academia?*

2. *Content coverage structure.* The summit's three core questions were addressed through five sessions comprising two keynote presentations and three (sequential) moderated panels. Personnel were selected for these sessions to assure a balanced representation between industry and academic perspectives; e.g., having both an executive and a scholar give keynote talks. **Exhibit 1** in the appendix shows the summit's complete schedule with credentials and affiliations of the speakers, panelists, and moderators.

SUMMIT SESSIONS

- *Industry perspective keynote* by Michael Tan (Executive Vice President, Supply Chain, Logistics, Global Sourcing, and Strategic Sourcing at Indigo). This presentation covered a current global overview of supply chain and logistics, challenges, opportunities, and insights.
- *Academia perspective keynote* by Chad Autry (Professor of SCM at the University of Tennessee and Editor-in-Chief of the Journal of Supply Chain Management). This presentation covered megatrends that will shape future supply chains and what it will take to be prepared for that future.
- Panel 1 (themed "*Understanding the Now, seeing the Tomorrow*"). The panel of two scholars and two executives from different industries discussed the latest SCM developments; e.g., initiatives undertaken to achieve SCM excellence.
- Panel 2 (themed "*Driving future prosperity through Supply Chain excellence*"). The industry-diverse panel of three executives discussed SCM initiatives for achieving prosperity within and beyond Canada.
- Panel 3 (themed "*Providing Knowledge and Skills*"). The panel of two industry leaders and two SCM scholars discussed the educational and research initiatives required to provide leading edge knowledge for handling top priority SCM issues.



3. *Participant contribution to the dialogue.* Beyond the standard participant involvement of raising comments and questions during the question and answer (Q&A) periods of the keynotes and panels, a key feature of the summit was to ensure that the participants' most pressing SCM interests shaped the deliberations. This was done through a 5-question pre-summit survey that asked each participant to specify up to three:

- (i) Questions or themes that Panel 1 should address and whether each question is targeted to an executive or a scholar on the panel (to spark their thinking, participants were told that questions could be geared towards the latest SCM developments in areas such as: inter/intra-company collaboration; innovation/technology; global networks; business analytics; and human capital).
- (ii) Questions or themes that Panel 2 should address regarding what initiatives are required to achieve supply chain excellence.
- (iii) Ideas for leveraging supply chains to enhance Canada's prosperity.
- (iv) Questions or themes that Panel 3 should address regarding what research by scholars has the potential to create leading edge knowledge of issues such as: (inter/intra-company collaboration; innovation and technology; global networks; business analytics; and human capital).
- (v) Ideas for achieving mutually beneficial links between industry and SCM scholars (to spark their thinking, participants were given the following illustrative idea: a government/industry/university initiative in which a company hosts a MSc. or PhD student as a research intern to work on a professor-supervised thesis topic of interest to the company).

From the survey responses, each panel moderator compiled a coherently sequenced list of questions that adequately represented the participants' SCM issues of greatest interest. The pre-summit survey results were also shared with the keynote speakers and panelists to help them prepare for the summit. **Exhibits 2, 3, and 4** in the Appendix depict what the panel moderators compiled for Panels 1, 2, and 3, respectively. To reflect each moderator's unique approach to their task, those three Exhibits show the questions in the original format submitted by each moderator.



The Summit's Findings

To properly convey the depth and breadth of the summit's deliberations on SCM issues, practices, and ongoing industry-academia linkages, the findings are organized under the following five categories:

- The context that the keynote speakers laid out as comprising the broad strategic trends that modern supply chain professionals must be cognizant of
- The themes/issues that the pre-summit survey and summit day deliberations revealed as being of the highest priority to Canada's supply chain leaders
- Key levers that supply chain executives can leverage to produce success and prosperity
- Participants' perspectives on a crucial prosperity determinant that lies beyond direct control of supply chain leaders – that determinant is **government policy**, especially regarding infrastructure
- Ideas for *creating* and *sustaining* mutually beneficial knowledge co-creation/sharing partnerships between industry and academia

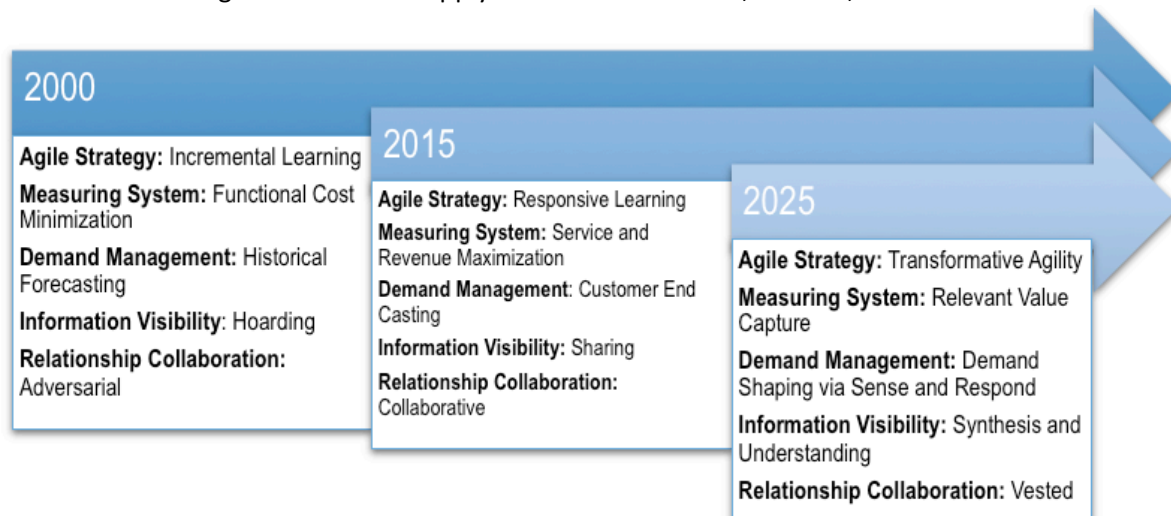
Findings: Trends of Strategic Significance

The combined material of the two keynote speakers can be described as presenting supply chain leaders with a call to action for pursuing supply chain excellence. Responding to that call requires awareness of trends that are either (a) influencers of necessary changes in current and future SCM practices or (b) actual emerging SCM practices. As for the former, 11 focal points for the path to excellence were provided:

- 1: Drive towards sales productivity by looking for synergies of melding different supply chains into one where feasible (e.g., toys and books in the case of Indigo)
- 2: Keep up with the digital era and disruptive technologies
- 3: Use unconventional revenue reporting if it conveys useful information; e.g., Amazon's revenue per click for online purchases
- 4: Control the enormous shipping expense for dedicated deliveries (used, e.g., at Amazon Prime)
- 5: Build a supply chain infrastructure to support smaller loads more often because that is an emerging pattern of customer demand
- 6: Access real-time data (e.g., through vertical integration) to enable quick reaction to customer demand and any other developments/issues within hours, minutes or even seconds
- 7: Address the shortage of personnel with these key business skills: **customer centricity**, **business acumen**, **technical knowledge**, and **fluency in the supply chain's shared (and customer-focused) language**
- 8: Optimize customer experience in omnichannel environments by going "*phygital*"; i.e., jointly leverage the merits of the physical (brick and mortar retail store) and the digital (on-line customer interaction with the business)
- 9: Minimizing unfavourable incidents in omni network supply chains
- 10: Address the industry's lack of female talent resulting from gender bias and the glass ceiling
- 11: Account for two key trends that are likely to have long-term effects on the structure of global supply chain networks: (a) the increasing concentration of population and demand some regions; e.g., the Asiatic circle; (b) off-shoring/re-shoring factors; e.g., China's labour and exchange rates

As for actual emerging practices, Figure 2 depicts those practices by contrasting them with practices that were dominant in the past. For example, the diagram shows that while earlier performance measurement systems typically focused on cost minimization and myopic units of analysis (e.g., the individual business department/function within firms) the trend is now towards greater focus on *value that is relevant to the business as a whole*. In the presentation of these developments, attention was also drawn to the need for a capacity to make tough choices in order to reap the fruits of these practices. To illustrate, the strategic decision to focus resources on select segments/products that support a firm's value proposition is often politically fraught with unpopular choices of which customer segments to drop.

Figure 2 Effective Supply Chain Practices: Past, Present, and Future



Findings: The SCM Community's Priority Issues

Resonant with the above trends of strategic significance are the themes of highest priority for the SCM community. Figure 3 below concisely presents those themes via infographics based on word frequency in the transcripts of the summit (larger fonts indicate more frequent mention). The infographic in Figure 3(a) is based on the pre-summit survey responses while the one in Figure 3(b) is based on the summit day deliberations.

Figure 3(a)
Word Frequency in Pre-Summit Survey Responses



Figure 3(b)
Word Frequency in Summit Deliberations



A conspicuous feature in these infographics is the prominence of the terms **collaboration**, **technology**, and **talent**. In addition to their frequency of mention, the breadth and depth of summit dialogue on those terms confirm that attendees viewed them as being among the most impactful levers that executives can use to pursue supply chain excellence. Also from the standpoint of breadth and depth of dialogue, there were two other notable features about determinants of excellence. First, **information** was seen as another highly impactful lever for SCM executives. Second, **government policy** on matters such as the **infrastructure** over which supply chains operate was also seen as influential –although it is a factor that SCM executives cannot leverage autonomously; i.e., not without cooperating with the government as an important supply chain stakeholder.

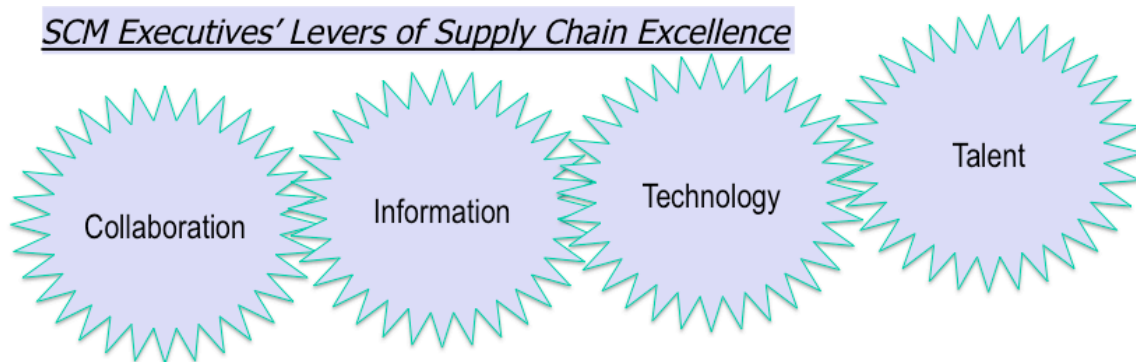
Although, in the interest of concision, issues other than the aforementioned levers and the government policy factor cannot be fully discussed herein, it is still important to note those other issues in order to adequately portray the wide-ranging scope of the summit deliberations. Table 1 provides that summary portrayal as an idea bank of the pre-summit survey responses. The bank consolidates, summarizes, and presents the major issues with some short descriptions.

Table 1 Pre-Summit Survey Responses "Idea Bank"

PANEL 1: Understanding the Now and Seeing the Tomorrow			
Questions/Themes for Panel 1 to address			
<ul style="list-style-type: none"> • Pull supply success with off-shoring • Internet of things impact • Ecommerce • Innovation drivers • China trade flows 	<ul style="list-style-type: none"> • Attracting talent • Universal data dashboards • Network transparency • Graduate skills • Mega container vessels 	<ul style="list-style-type: none"> • Changing purchasing habits • Changing demand • ROI strategies for cost recovery • Automated vehicle SC evolution • Baby boomers and millennials 	
PANEL 2: Driving future prosperity through Supply Chain Excellence			
Questions/Themes for Panel 2 to address		Ideas to achieve prosperity by leveraging supply chains	
<ul style="list-style-type: none"> • Key metrics for excellence • Effects of cabotage • Trade barrier removal • SC economic impact • Strategic vendor alignment • Creating mutual value • Consensus on infrastructure funding 	<ul style="list-style-type: none"> • Automation productivity • Canada's TPP inclusion • Analysis paralysis • Cost saving driver kpis • Lean thinking • International SC consistency • Viability of cooperation 	<ul style="list-style-type: none"> • Lean logistics and 5s • Sourcing sustainability • Governmental SCs for emerging technology • Research centre networks • Infrastructure investment • TransCan investment 	<ul style="list-style-type: none"> • Operationalizing business analytics • Breaking traditional practices • Standardized analytical systems • Drone delivery • Crowdsourcing-strategic outsourcing
PANEL 3: Providing Knowledge and Skills			
Questions/Themes for Panel 3 to address		Ideas to create beneficial industry-academia linkages	
<ul style="list-style-type: none"> • Research accessibility • SC management and risk assessment research • Skill shortage • Off-shoring effect on skill development • Fostering entrepreneurship • Informative webinars and seminars 	<ul style="list-style-type: none"> • Dealing with financial and capacity problems • SC communication transparency • Dealing with unionized work forces • Social media coverage • Inventory control and visibility • Better SC field promotion 	<ul style="list-style-type: none"> • Case studies • Internship programs • Incubators/accelerators • Student consultants to industry problems • Accessible industry contacts • Actionable research • Databases and links to previous research • Accessible raw shipping data 	<ul style="list-style-type: none"> • Sharing business data with universities • Industry contributions to scholarly articles • Progressive learning tool developments • Break knowledge silos • University/business advisory committees • Tailored curricula • Government incentives for university initiatives

Findings: Executives' Levers of Supply Chain Excellence

As noted in the previous subsection, the deliberations suggested the following levers as four of the most impactful for SCM executives in pursuing excellence.



These levers of excellence are not presented here as exhaustive but as representative of the essence of the summit's extensive deliberations. The ensuing discussion of the four levers will cover the highlight points of the deliberations with respect to four important takeaways for readers of this report: (a) why the lever matters; (b) challenges to achieving success with the lever; (c) lever-specific managerial actions proposed or actually deployed and (d) one question that remains intriguing and is therefore a matter for possible future research and/or discussion. Such questions (each captioned as **A QUESTION OF INTRIGUE**) are based on matters that remained unsettled (in some cases, even after energetic debate). As is the case with focusing on four levers, the focus on the above highlight points for each lever means that this report, rather than being a comprehensive account of the summit's content, shines the spotlight on what genuinely engaged the summit's attendees.



LEVER 1: COLLABORATION

VOICES OF THE SUMMIT

"The world of freight is undergoing significant changes and the need for organizations to work together has become stronger than ever"



A QUESTION OF INTRIGUE

Under what conditions is an external consolidator the appropriate facilitator of collaboration?

Overview

Consistent with the general dictionary definition of collaboration ("*the action of working with others to produce or create something*"), the discussions covered the full spectrum of considerations: from the rewards of successful collaboration through to the frustrations when collaborators work at cross purposes as well as from collaborations that are intra-organizational (different business units/functions within a firm) through to those that cross organizational boundaries.

Why does it matter?

A comment by an attendee (shown in the first **Voices of the Summit** box above) gets to the heart of why it matters. The scholar keynote corroborated this point by (a) citing that in interviews with over 700 executives, their number one wish was "*an organization where the functional silo walls have come down*" and (b) presenting the following statistics from existing research on the benefits of cross-functional integration: **Revenue ↑10-16%** **Fill rates ↑10-48%** **Cost ↓10-32%** **Inventory ↓15-46%**

Challenges to successful deployment

Three challenges were prominent in the discussions:

- Being able to trust that the close working relationships won't risk the unauthorized and damaging disclosure or use of company secrets, proprietary business practices, and innovations
- Unproductive fights between supply chain partners who use different metrics that purportedly measure the same thing yet produce statistics that lead to conflicting interpretations.
- The dangerous myopia of failing to see that the focus of collaboration should be on what the customer wants instead of solely on what each collaborator gets. An example to illustrate the point concerned shippers who relentlessly pressure ocean carriers for lower rates without seeing that it could create an unsustainable situation (see the **Voices of the Summit** box below).

VOICES OF THE SUMMIT

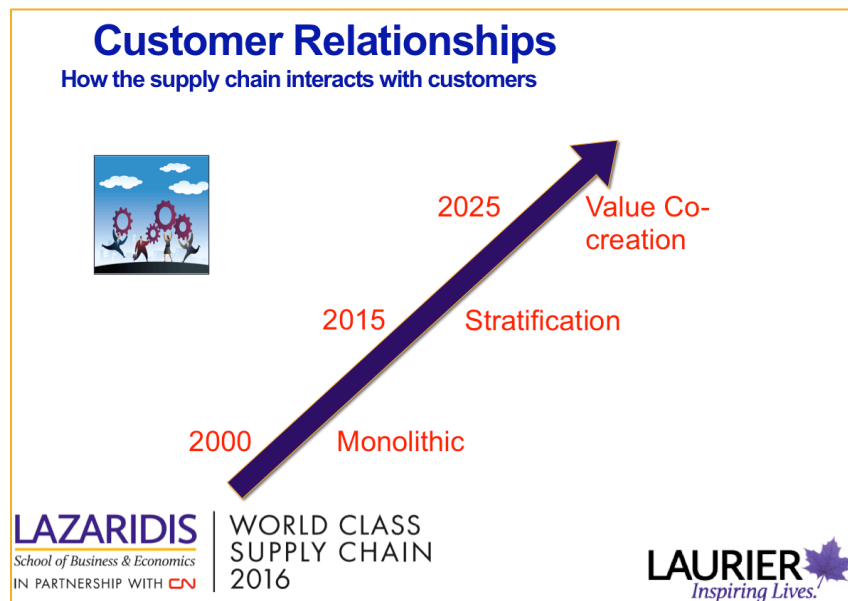
"For proper collaboration, there needs to be in-depth discussion about what the customer wants, not just price"

Taking successful action

Of the three highlight examples cited, the first is from an attendee's direct personal experience as an executive with an ocean liner company.

- 1) **COOPERATIVE PROBLEM SOLVING:** "We experienced service issues in temperature controls for products shipped from North America to Japan. To solve the problem, we worked with a railroad company to research and develop an intelligent reefer container that adapted and adjusted the temperature. This resulted in less conflict and an increase in success with suppliers and customers. Everyone knew the priorities of the task and shared information accordingly."
- 2) **CUSTOMER FOCUS:** McDonald's suppliers are paid above market margins based on end-customer consumption; i.e., when a burger is sold. This incentivizes suppliers to focus their efforts (product quality, etc.) based on a view that the most important customer is not McDonalds but rather, the end consumer.
- 3) **IMPROVED VALUE:** The case of the collaboration between OfficeMax and Avery Dennison that yielded increased end-customer revenue (+22%), better availability (to 99.2%), less inventory (-34%) and less cost (-\$11million).

Figure 4: Keynote Speaker's Slide on Trends in Collaboration Via Customer Relationships



(Slide courtesy of Professor Chad Autry, University of Tennessee)

LEVER 2: INFORMATION

VOICES OF THE SUMMIT

"Inter-company collaboration requires visibility and transparency. How do we get it?"



A QUESTION OF INTRIGUE

Do firms selling in First World markets have the resources to properly monitor their supply chains' Third World locations?

Overview

Although, for presentational convenience, **information** is discussed as a separate lever from **collaboration**, that is being done with full awareness that the two are inextricably linked (indeed, one can find noteworthy links among all four levers). One attendee articulated the essence of the information-collaboration link with the question in the **Voices of the Summit** box (see above). The required information elements the attendee specified –*visibility* and *transparency*– were focal discussion points and were treated as essentially synonymous because of their identical practical implications; i.e., *flawed decisions and actions result if parties lack full access to the information relevant to those decisions/actions*.

Why does it matter?

To unequivocal expressions of agreement from other attendees, one panelist cited visibility as the most significant opportunity for realizing supply chain excellence. Another panelist reinforced the point on the transparency element, not by citing only the usual direct economic benefits of full information access, but also the disastrous human consequences of inadequate access. Specifically, the panelist cited the 2013 collapse of the Rana Plaza factory in Bangladesh as an example of First World companies' apparent oblivion to the factory's safety and human rights violations. This tragic outcome is in addition to the over \$27 million that those companies paid to the Clean Clothes campaign to compensate the workers and their families.

In addition to providing a more complete perspective on why visibility and transparency matter, the Rana Plaza example helped to address a fundamental but thought-provoking pre-summit survey question of how to measure supply chain excellence. Specifically, the example poignantly bolsters the summit's answer that metrics for excellence are not just those that have direct and, invariably, immediate impacts on profits; i.e., operational/economic efficiency metrics such as percent of deliveries on-time. The ***gauge for supply chain excellence*** must *also* include metrics focused on human lives (compliance with human rights requirements, safety, etc.) and metrics focused on environmental ***sustainability*** (e.g., CO₂ emissions from freight transport operations).

Figure 5: Rana Plaza Garment Factory Collapse in Bangladesh 2013



The Associated Press (2015)

Challenges to successful deployment

Three challenges were prominent in the discussions:

- How can you know all the details of a long and geographically extensive supply chain? For example, how can a North American food company know for certain that the overseas factory making ingredients is sound with respect to food safety and working conditions?
- Unproductive fights result when supply chain partners use different metrics that purportedly measure the same thing yet produce statistics that lead to conflicting interpretations (although already cited under the collaboration lever, this bears restating because multiple attendees saw it as symptomatic of flaws in either the collaboration, the information, or both).
- The impressive analytical power associated with Big Data can lull organizations into *analysis paralysis*; i.e., excessively analyzing a situation without reaching/deploying a decision.

Taking successful action

The two prominent examples were from a panelist's direct personal experience as an executive in a firm that provides ground transportation services.

- 1) **TRANSPARENCY:** "Through electronic data interchange (EDI), we made our data on metrics such as on-time delivery (OTD) performance available to suppliers, even though the suppliers themselves were using their own transportation management and dispatch software to calculate OTD. A benefit of this sharing of information revealed discrepancies between our metrics and theirs. More importantly, the openness in sharing the data engendered the trust that enabled a cooperative approach to understanding and resolving the discrepancies. As a result, we are now working in sync with each other and filling in each other's knowledge gaps."
- 2) **CLARITY OF PURPOSE:** "A way to ensure that information sharing and data analysis are not wasteful but focused on what truly matters is to just specify what truly matters *clearly* and *early* – as early as the start of the strategic planning process. For example, a key performance indicator (KPI) that matters to us relates to *sustainability* so we make it clear to our suppliers that one of our emissions reduction targets is to raise fuel efficiency from 5-6 to at least 7 miles per gallon." This example is consistent with the results of a study reporting that supply chain executives ranked '*implementing the right metrics and setting the right goals*' as their number one interest.

LEVER 3: TECHNOLOGY

VOICES OF THE SUMMIT

"Technology can help facilitate inter-company collaboration to enable a flow of information, which can decrease costs and increase sales across many companies in an industry"



A QUESTION OF INTRIGUE

What must the freight transportation sector learn from occurrences regarding Über in the passenger transportation sector; e.g., conflicts between taxi drivers and Über?

Overview

The content spanned both information technologies (cloud computing, vehicle/asset tracking systems, etc.) and equipment technologies (e.g., Amazon delivery drones). Discussions expanded beyond the usual meaning of new technology (i.e., a new tangible thing) to the broader concept of supply chain **innovation**. That is, coming up with a new piece of technology is not the only way for companies to innovate; creatively adapting what already exists (such as Über) to SCM contexts is also innovative. The deliberations reinforced the familiar notion that it is futile to push back against new technologies and the increasingly rapid pace of their development. As such, a core decision for firms wishing to thrive is not whether to invest in new technology but which technology to invest in, **while ensuring that the investment is fiscally prudent**. One panelist illustrated the point of fiscal prudence with reference to cloud computing; i.e., it is a solution for which the user pays a variable cost based on use (of storage and processing) rather than having to make the large investment in owned computing resources.

Why does it matter?

Discussions of why it matters covered various supply chain stages from upstream where products originate to downstream where products are consumed. For example, at the warehouse stage, where order picking typically accounts for 50% of total labour costs and 70% of order pickers' time, there is significant potential for reducing costs by using **augmented reality technologies**; e.g., the sophisticated eyeglasses that give pickers a more complete view of the warehouse. An example at the end-customer stage of the supply chain concerns technologies that detect if a customer is in or near a store or staring at a product. In that case, a personalized coupon may be texted to said customer if the discounted price on a purchase now is better than having the product sit on the shelf longer and incur the associated inventory cost. See the **Voices of the Summit** box above for a succinct statement of why technology matters.

Challenges to successful deployment

The two major challenges discussed surrounded the implications of 'Überizing' freight transportation and the management of supply chain innovation.

- *Understanding the situations for which Über is suited.* Since crowdsourced delivery (another name for the Über concept in a freight transportation context) is ideally suited to sporadic and small online purchase behaviour, we have to think carefully about how to make the concept useful in high traffic, large volume operations.
- *Having a healthy tolerance for failure.* The idea here is that in order to encourage supply chain innovation, a firm must be prepared to live with the reality that any successful innovation is very likely to come only after many failed attempts. The second **Voices of the Summit** box below summarizes the importance of an appropriate tolerance of failure.

VOICES OF THE SUMMIT

"You need to allow people in your organization to come up with these crazy ideas that you know 9 times out of 10 will fail and that one is going to be a hit"

Taking successful action

As with the challenges, the examples focused on Über and on the organizational facilitation of innovation.

- 1) ÜBERIZE FREIGHT TRANSPORTATION: ÜberRUSH (courier delivery)) and ÜberEATS (meal delivery) were cited as examples of successful adoption of the Über concept in freight transportation.
- 2) FACILITATE INNOVATION: Walmart's Innovation Laboratory was cited in response to a rhetorical question: "if you don't have a group for supply chain innovation, how can you perfect anything other than what you do right now?" The example was used to show that having an organizational unit that focuses on innovation clearly conveys that a firm values *continuous innovation*. A panelist from the freight transportation sector gave a second example by describing his firm's innovation practice from the standpoint of its healthy tolerance for flawed ideas as an acceptable price for the eventual fruitful idea. Of note in the discussions is that such nurturing of the innovative drive need not fall *solely* on the shoulders of individual firms such as the one that the panelist is affiliated with but can also be developed through post-secondary education. One illustration of that is in Figure 6 below.

Figure 6: Illustration of a University Environment that Facilitates Innovation



LEVER 4: TALENT

VOICES OF THE SUMMIT

"Compared to something like stock trading (which we can teach in a lab), supply chains are far more complex, with a lot more interacting parts, and involve both quantitative and soft issues so deep understanding of the complexity requires experience in the actual environment"



A QUESTION OF INTRIGUE

Based on payoff-to-effort ratios, which of the talent-development initiatives proposed by attendees should be the highest priority for Canadian companies?

Overview

The discussions unfolded in a way that produced consensus on two points.

- ✓ First, the critical competencies of top supply chain talent: are (a) Global orientation; (b) Leadership skills; (c) Technical savvy; and (d) Superior business skills.
- ✓ Second, leading companies de-emphasize traditional training, which is focused on specific tasks and functional areas, while emphasizing training that encompasses holistic cross-functional thinking and orients employees in a way to improve overall organizational performance.

While producing this consensus, the discussions of talent featured lively debates that eventually yielded clarification of two additional and very important points.

- ✓ Through multiple real world case studies in their degree programs, students are, in fact, getting exposure to practical business realities. The scholar panelists illustrated the point by citing their business schools' extensive use of case studies, including *live cases* (i.e., a case on a company still wrestling with an issue and seeking guidance on what course of action to take).
- ✓ It is infeasible for post-secondary institutions to graduate students as completely polished end products ready for whatever entry-level job they find in industry. The point was that while universities can assure learning outcomes such as a solid grasp of fundamental SCM concepts and analytical tools and provide some level of experiential activities (e.g., co-ops, case studies, and simulations), deep knowledge required to manage realistic supply chains necessitates immersion in the actual supply chain environment. This is an area in which universities need the help of industry (see the two **Voices of the Summit** boxes on this page).

VOICES OF THE SUMMIT

"We deliver a diverse range of coursework assignments, but we need help from industry for co-op and MSc internships in supply chain to train specific expertise. We need to have access to industry."

Why does it matter?

The answer to why it matters is captured in this crisp and compelling assertion by one of the speakers *"Talent is the number one requirement for transforming a supply chain"*. A panelist put the assertion in concrete terms by relating how a *talent pool strategy* is integral to his company's overall corporate strategy.

Challenges to successful deployment

The major challenges cited concerned the perceived shortage of personnel and skills.

- *Attracting talent to SCM programs and, ultimately, to SCM careers.* The speakers posited the following as among the main reasons that some students might not choose the SCM field:
 - o Recruiters in other fields either offer better remuneration (e.g., the finance field) or present students with attractive long-term benefits and rotational training programs (e.g., banking)
 - o Students prefer the comfort and safety of traditional fields (e.g., accounting) because they are widely known as well-defined career pursuits (sometimes called ‘*destination*’ careers)
 - o Students not being aware that the field is about handling interesting business issues and is not an engineering field where only mathematical skills matter.
- Lack of female talent in SCM because of gender bias and the glass ceiling
- Likely skill gaps and new workplace dynamics as more baby boomers are replaced by millennials

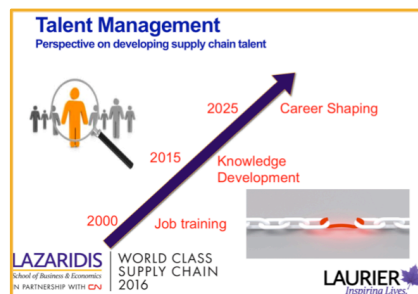
Taking successful action

The three major action points focused on attracting talent and developing talent (through collaboration between industry and post-secondary institutions).

As with the challenges, the examples focused on Über and on the organizational facilitation of innovation.

- 1) ATTRACT TALENT – *Academia’s role*: Since students have a high regard for what recent alumni say, universities (and even high schools) should make more use of alumni as ambassadors to speak to current students about the interesting and rewarding nature of a career in SCM.
- 2) ATTRACT TALENT – *Industry’s role*: Firms recruiting for SCM roles must act early (e.g., Fall term campus recruiting visits) or risk missing out on the best available talent.
- 3) DEVELOP TALENT: To maximize the value they get from employing university/college graduates, businesses must –**with the full support of post-secondary institutions**– play active and supportive roles in enriching the experiential element of the students’ education. Such roles include being job shadow hosts and providing meaningful co-op/internship work and real world examples for classroom and case study assignments. Once the career begins, **on-going career shaping** must be paramount (See Figure 7 below and the associated key insight).

Figure 7: Keynote Speaker’s Slide on Talent Management Trends and A Key Insight



(Slide courtesy of Professor Chad Autry, University of Tennessee)

KEY INSIGHT: *To effectively prepare current students for future managerial roles in industry, then rather than just focus on equipping them with tools for existing roles (some of which may become obsolete), equip them to **flexibly** adapt to change and to utilize **ongoing** career shaping opportunities.*

Findings: Government Policy for Infrastructural and Human Capital

In the pre-summit survey responses, 30% of the respondents cited the relevance of government policies to the pursuit of supply chain excellence. What is clear from those respondents is the perspective that policies to support the efforts of supply chain leaders are necessary conditions for excellence and prosperity. The points of emphasis in that perspective concerns the need for supportive policy with respect to two resources: Canada's physical **infrastructure** and its **human capital**. As one of the scholars on a panel put it with respect to infrastructure:

"Infrastructure is problematic and the government needs to take a look at this"

Other illustrations of the same sentiment are in the four **Voices of the Summit** box below. Those quotes are among attendees' responses to the question of what is needed to help in leveraging supply chains to attain prosperity.

VOICES OF THE SUMMIT

"Government providing the necessary transportation network infrastructure (roads, rails and rivers) to ensure the supply chain does not stop, causing significant waste, such as GTA roads from 7 am to 10 am and 3 pm to 6 pm for transportation moving within and through the GTA. Expensive, polluting, and loss of resources."

"National/Provincial/Municipal: Roads, interchanges, bridges must support national supply chain strategies/trade corridors/ first mile - last mile. How can we achieve harmony across all levels of government?"

"Developing Canada as a 'transit hub': air and marine (infrastructure, regulatory regime, data)."

"A clear infrastructure policy, heavy investment in the Trans Can around the Lakehead or work with the US for an easier way Canadian carriers can access their highway system to facilitate efficient travel of goods between Canada east and west."

Amidst these concerns about Canada's infrastructure, hopeful tones were struck. These focused on supply chain leaders' initiatives to reduce stress on the infrastructure and still attain goals that benefit Canadians: lower costs of goods (due to lower transportation costs) and lower CO₂ emissions. The key initiative cited was **utilization of intermodal collaboration between truck and rail**.

The scope of collaboration must extend beyond just what occurs between commercial supply chain parties such as rail and trucking firms. That is, government officials are also essential participants in efforts to articulate and deploy the means for achieving Canada's supply chain potential. This applies to efforts focused on the infrastructure (such as the highway system) and on **human capital**. This point was highlighted by a pre-summit survey question that pushed for discussion regarding the government's:

"funding and training initiatives to get to the right status when it comes to developing global supply chains from within Canada"

Findings: Building and Sustaining Industry-Academia Partnerships

The attendees' suggestions on how to build and sustain industry-academia partnerships focused on student training and research and were specifically aimed at **co-creating and sharing knowledge** with a view to:

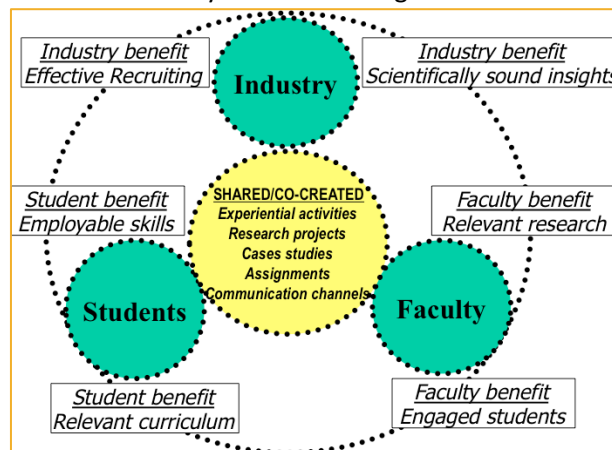
Ensuring that (a) issues of interest to SCM practitioners inform research and teaching activities and (b) insights and findings from those scholarly activities reciprocally guide SCM practice.

Student training suggestions (e.g., co-op and internship placements) were highlighted in discussing the SCM lever of **talent** (see pp. 18-19). The combination of those suggestions with suggestions that have a more explicit research slant can be summarized as five knowledge co-creation/sharing elements:

- (a) **Experiential activities**; i.e., co-op, internships, student job shadowing of SCM executives, etc.
- (b) **Research projects** to gain scientifically sound insights on SCM issues of genuine interest to industry (by involving students as research assistants (RAs), research projects also contribute to student learning of research skills and of the substantive SCM topics being researched)
- (c) **Case studies** of companies' actual SCM situations (e.g., cases co-authored by a team comprising professors, RAs, and company personnel)
- (d) **Assignments** based on real-world situations (these assignments –often called "mini-cases" because they are typically no longer than a page– can contribute to the curriculum by being used to teach key concepts: pricing of logistics services, carrier choice, multi-shipper coordination, routing, etc.)
- (e) **Communication channels** for information exchanges (either in person through lectures, meetings, and the like or electronically) with a focus on any/all of: (i) sharing industry perspectives with students (e.g., as guest lecturers); (ii) bringing industry views to help define a research project's parameters (e.g., views from the advisory board members of a university's SCM research centre or institute); (iii) disseminating new research findings by professors and/or students (via seminar presentations, on-line posting of papers for industry access, etc.)

Figure 8 encapsulates these five elements as part of a virtuous cycle in which the three primary knowledge co-creation/sharing stakeholders –industry, faculty, and students–receive benefits from and produce benefits for fellow stakeholders.

Figure 8: The Virtuous Cycle of Knowledge Co-creation and Sharing



A very encouraging aspect of the many and thoughtful suggestions from attendees is that, generally, acting on those suggestions would require no extra administrative machinery. To take from the deliberations just one example that simultaneously attains the goals of research and student training, consider that the Lazaridis School's MBA program already requires students to conduct a two-term *applied business research project* (popularly referred to by just the official course code: **BU610**). The project assigns a faculty-supervised team of students to study an actual company's business issues then present the team's recommendations to the company and to faculty. Being an established aspect of the curriculum, the BU610 project requires routine administrative effort; e.g., co-ordinate meetings and site visits to define the company's business issues and to collect the relevant data. This yields a high payoff-to-effort ratio for the project. That would also hold true for any post-secondary institution's well-designed and well-executed course that also utilizes the approach of faculty supervising/guiding students' research and other experiential activities.

To be sure, attendees made suggestions that, at first glance, *may* reasonably be seen as requiring efforts beyond what is routine for the typical institutional and administrative frameworks within post-secondary educational institutions, government, and industry (see the ***Voices of the Summit*** box below for those suggestions). Yet, rather than be daunted by the *appearance* of immense implementation effort, we must view the challenge as an opportunity to be innovative – especially if there is the possibility of an attractive payoff-to-effort ratio. After all, closer scrutiny of those suggestions may well yield discovery of creative and efficient ways to implement them. In this regard, the case of the CN-Laurier partnership to enhance the SCM field is an instructive aspirational benchmark. That is, while the partnership's novelty necessitated new set-up and operational tasks that could not have been easily foreseen, ongoing learning has lessened the weight of those tasks, thereby helping to raise the partnership's payoff-to-effort ratio.

VOICES OF THE SUMMIT

“Creating publicly/privately funded grants for SCM-focused research”

“A 3-4 month internship being a required component of a MSc degree program”

“Financial assistance for small and medium business to create internships and co-op positions in SCM”

Conclusions and A Look Forward

The **World Class Supply Chain 2016** summit was conceived and deployed to meet an ambitious goal: raise knowledge of contemporary SCM issues through *genuine peer-to-peer dialogue among practitioners and scholars*. The post-summit survey results corroborated what was evident in the day's spirited discussions: that is, **the aforementioned goal was reached**. For example, 74% of the survey respondents reported that the **summit exceeded their expectations** (the remaining 26% reported that it met their expectations) and, on a 5-point scale, the mean score was 4.32 for the summit's content. Equally gratifying is that 42% of the comments **cited industry-academia interaction as the most beneficial aspect of the summit**. Following are some of the respondents' comments that underlie those statistics (**Exhibit 5** shows the survey instrument).

SAMPLE POST-SUMMIT SURVEY RESPONSES

"The keynote speakers were excellent"

"The interaction between academia and industry was so interesting and their conversations helped me to recognize a number of research gaps"

"It is a great platform to learn and understand relevant supply chain trends and insights through information exchanges between academia and business leaders - theoretical vs. practicality. I believe this type of conference format will help ensure alignment between supply chain educational curriculum and business needs - not just for today but for the future"

The summit's success was due in large measure to the 115 participants: their high energy, enthusiasm, and seriousness of purpose in approaching the discussions yielded dialogue that was impressive in its breadth, depth, and quality. As a result, in addressing the summit's three core questions –i.e., the questions to gain insights on (1) **SCM issues**, (2) **SCM practices**, and (3) **industry-academia partnerships**– much was learned regarding what many participants were most keenly interested in. That is, interest in examples of SCM excellence (e.g., exemplars of effective vendor/customer relations) and in being prepared for what might lie ahead (potentially disruptive technologies, China's economic policies and performance, etc.). Still, as is to be expected when a field's thought leaders engage in earnest dialogue: we develop a clearer sense of what we need to understand more fully. To bring about the needed understanding, the SCM field's knowledge co-creation process must continue. A combination of what emerged during the deliberations and what attendees stated in their responses to the post-summit survey suggested the following as six of the themes worthy of consideration for deeper coverage in the 2017 summit and in future research endeavours.

Visionary supply chain leadership

Humanitarian logistics/SCM

Infrastructure investments

**Supply chain collaboration projects
(fuller details on challenges, etc.)**

**Supply chain risks
(safety, security, etc.)**

**Scholarly research findings and
research topics on the horizon**

The feedback on suggested themes is highly appreciated and is being considered in the already begun work of (a) writing a second White Paper that will look closely at the research literature in relation to SCM issues deemed at the summit as inadequately understood and (b) planning **World Class Supply Chain 2017**. In this planning, all aspects of the summit are being carefully reviewed (content, schedule, format, etc.) to ensure continuous improvement in the participants' experience at the summit each year.

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EXHIBIT 1: The World Class Supply Chain 2016 (WCSC2016) Event Schedule

7:00 – 8:00 REGISTRATION & BREAKFAST	
8:00 – 9:00 OPENING REMARKS <i>Teresa Fijarczuk, President of the Milton Chamber of Commerce, will welcome attendees, and serve as MC. Followed by remarks by:</i> <i>Dr. Michedil J. Kelly, Dean, Lazaridis School of Business & Economics, Wilfrid Laurier University</i> <i>Keith Reardon, Vice-President Intermodal Services, CN</i> <i>Dr. Michael A. Haughton, Professor of Operations and Decision Sciences in Wilfrid Laurier University's School of Business and Economics and CN Rail Fellow in Supply Chain Management</i>	11:45 – 1:00 LUNCH & KEYNOTE PRESENTATION <i>Supply Chain 2026: Megatrends</i> <i>A renowned thought leader reveals what the supply chain function will look like in 10 years, and what it will take to be prepared for that future.</i> Keynote: <i>Chad Autry, William J. Taylor Professor of Supply Chain Management and Editor in Chief, Journal of Supply Chain Management, the Haslam College of Business at the University of Tennessee</i>
9:00 – 10:00 KEYNOTE PRESENTATION <i>The Supply Chain in 2016: Challenges and Opportunities</i> <i>An industry leader gives a current global overview of supply chain and logistics, discussing the challenges and opportunities, and providing insights.</i> Keynote: <i>Michael Tan, Executive Vice President, Supply Chain, Logistics, Global Sourcing, and Strategic Sourcing, Indigo</i>	1:00 – 2:00 PANEL DISCUSSION <i>Driving Future Prosperity Through Supply Chain Excellence</i> <i>A panel of executives from different industries will discuss supply chain initiatives for achieving prosperity in Canada and beyond.</i> Moderator: <i>Clarence Woodsma, Director, School of Planning and Associate Professor, University of Waterloo</i> Panellist: <i>Joe Lombardo, Director, Transportation and Terminal Operations, Purolator</i> <i>Tim Bergen, Director, Freight and Logistics at Alliance Grain Traders (AGT)</i> <i>Tim Harrington, Vice President, MOL (Canada) Inc.</i>
10:00 – 10:15 BREAK	
10:15 – 11:45 PANEL DISCUSSION <i>Understanding the 'Now', seeing the 'Tomorrow'</i> <i>A panel comprising executives from different industries and scholars will discuss the latest developments in the supply chain environment. These developments include initiatives being undertaken to achieve supply chain excellence in areas such as: (1) global networks; (2) technology/innovation; (3) business analytics; (4) human capital; and (5) intra-organizational/inter-organizational collaboration.</i> Moderator: <i>William Morrison, Associate Professor, Economics, Wilfrid Laurier University</i> Panellists: <i>Shailendra Jha, Associate Professor, Operations and Decision Sciences, Wilfrid Laurier University</i> <i>Fraser Johnson, Leenders Supply Chain Management Association Chair, Professor, Operations Management, Ivey Business School, Western University</i> <i>Hamed Noori, Laurier Chair Professor in Enterprise Integration & Technology Management ; Director: Laurier EMTM, PhD and Research-Based Program</i> <i>Doug Munro, CEO, Maritime-Ontario</i> <i>Brian McDonald, President and CEO, Montship</i>	2:00 – 2:15 BREAK 2:15 – 3:15 PANEL & GROUP DISCUSSION <i>Providing Knowledge and Skills</i> <i>A panel of industry leaders and supply chain management scholars will discuss the research initiatives required to provide leading edge knowledge for handling the top priority supply chain issues.</i> Moderator: <i>Mitali De, Professor, Operations and Decision Sciences, Director, Centre for Supply Chain Management, Lazaridis School of Business & Economics, Wilfrid Laurier University</i> Panellists: <i>Fraser Johnson, Leenders Supply Chain Management Association Chair, Professor, Operations Management, Ivey Business School, Western University</i> <i>Hamed Noori, Laurier Chair Professor in Enterprise Integration & Technology Management ; Director: Laurier EMTM, PhD and Research-Based Program</i> <i>Doug Munro, CEO, Maritime-Ontario</i> <i>Pamela Ruebusch, CEO, TSI Group</i>
	3:15 – 3:30 BREAK
	3:30 – 4:00 FINAL REMARKS & CLOSING <i>Laurier's Dr. Michael A. Haughton and CN's Keith Reardon share their insights and observations on the Summit, and officially close the proceedings.</i>
	4:00 – 5:00 POST-SUMMIT NETWORKING OPPORTUNITY

NOTE: The summit webpage is at https://legacy.wlu.ca/news_detail.php?grp_id=31&nws_id=15107&pv=1

EXHIBIT 2: Panel 1 Moderator Questions

World Class Supply Chain (SC) 2016

Morning Panel Discussion (programme schedule: 10:15 -11:45) – but note that duration is to be 80 minutes total.

Moderator: Bill Morrison

Panel: Shelly Jha (S); Fraser Johnson (S); Greg Christopher (E); Brian McDonald (E)

A=all panelists; E=executive; S=Scholar

Time duration	Action	Details/topics	First go-to on the panel
1min	Brief intro from the Moderator		
15 mins	Theme 1: New technology	Augmented reality Cloud computing Internet of things Can tech solve intermodal problems? Role of mobile devices Cargo traceability Impact of driverless vehicles	A S E E A
15 mins	Theme 2: Collaborative Relationships	CPFR (collaborative planning, forecasting and replenishment– are there real SC initiatives of this type? Examples of collaboration between SC and customers Importance of supplier development Role/impact of social networks Visibility and transparency in SC operations How can industry and academia collaborate more or more effectively?	E E S S E A
15 mins	Theme 3: Business analytics and data	What is the current role of business analytics (BA) – how much importance do companies place in BA? Is there a divide between BA professionals and SC managers? How possible is it to create a multi-modal dashboard that provides real-time info to the SC industry? What are the key metrics for SC companies or divisions?	E S S E
15 mins	Theme 4: Education/Human resources/Innovation	What skill sets do/will SC employers require? Is the education sector providing the right skills for the SC sector? What are the gaps in attracting and retaining top talent? How do SC leaders manage baby-boomers and millennials working on the same team? What are the biggest drivers of innovation?	E S E E S
15 mins	Q&A from the floor		
4 mins	Wrap-up and thanks from the moderator		

EXHIBIT 3: Panel 2 Moderator Questions

Panel discussion: *Driving future prosperity through Supply Chain excellence*

The panel of executives from different industries will discuss initiatives for achieving prosperity through supply chain initiatives.

Tim Harrington, Vice President, MOL (Canada) Steamship Lines

Joe Lomardo, Director of Transportation, Purolator

Tim Bergen, Director of Freight and Logistics, AGT Foods

First – we'll have a discussion – and then open the floor --

1. **Can you give us an overview** of your firm's core activities and your understanding of "supply chain excellence". (This is the chance for you to give us your context)
2. **What are the key metrics that reflect SC excellence?** (related from pre-conference survey - What business analytics should customers be using to maximize their supply chains?)
3. **What amount of focus should a company put on its global supply chain to achieve excellence?** (from survey)- paraphrased – discuss the links between SC excellence and future prosperity – how much does it matter
4. **What strategies must be adopted to drive future prosperity through Supply Chain Excellence?** (from survey)
5. **Who are the key stakeholders in achieving excellence – e.g., business partners, the various levels of government, - and how do their roles influence your path to excellence?**
6. **From your perspective – what is the key barrier to overcome in working towards SC excellence – why is it the key and what will it take to overcome?**

EXHIBIT 4: Panel 3 Moderator Questions

Panel discussion: *Providing Knowledge and Skills*

1) **Academic Research and Industry Collaboration:**

Pre-summit survey inputs: How does your organization draw and benefit from the current research in academia? Is it supply chain specific or in other areas? Please provide success examples that have made sense on how the scholars have led this industry. How has research by scholars helped us to create leading edge knowledge and are we leading the pack or following the pack from a global learning perspective? Which area of research has led to the biggest gains and which area has not fared so well?

Starting question for Panel: How has the SC Academic research and education contributed to the SC industry SC Industry?

2) **Role of Business Analytics and Big Data Analysis:**

Pre-summit survey inputs: What is leading edge knowledge - back to big data - how do you sort through the info (S). Business Analytics, Big Data Analysis. With "analysis paralysis" slowing down progress, is there a method and approach that balances analytics with real and practical business actions. Why is business analytics emphasized when there is such limited data broadly available? (S)

Starting question for Panel: What are the Opportunities and Challenges faced by the SC Industry from Business Analytics /Big Data Analysis?

3) **Role of Innovation/Technology:**

Pre-summit survey inputs: Given some skills shortages should we focus on innovation in autonomous companies? inter/intra-company collaboration. Recent developments (e.g., on the research side) on creating an open SC information technology ecosystem to better integrate the current proprietary systems. How can collaboration platforms such as social media be used to solve supply chain issues? What is the status of research in creating an information database for small and medium business interested in global expansion?

Starting question for Panel: How can the SC Industry benefit from the adopting technology and integrating innovation?

4) **Human Capital:**

Pre-summit survey inputs: Supply Chain Talent comparisons Canada/US/Europe (E). Should our education institutions focus on skills for jobs or foster knowledge toward entrepreneurial endeavours? Should Canada adopt a European model of supply chain related apprenticeship programs? (S). How can the supply chain industry be better promoted for the development of future professionals? (E)

Starting question for the Panel: What are challenges and gaps of matching in developing human capital targeted to SC Industry

5) **Global Networks:**

What skills are required to meet challenges in a global network (S) & (E) {Use as starting question for the panel}

EXHIBIT 5: The Post-Summit Survey Instrument

Name _____

Organization _____

Title _____

Email _____

1) Please indicate if this event:

- Exceeded your expectations
- Met your expectations
- Did not meet your expectations

2) What was the most beneficial aspect of the conference? _____

3) Please indicate your overall satisfaction with each of the following components of this conference.
Use a scale from 1 = Not Satisfied to 5 = Very Satisfied

- Conference Schedule
- Conference Content
- Registration Process
- Venue
- Food & Beverage

4) Were there any topics you were hoping to be discussed that were not? _____

5) Do you have any other comments, questions, or concerns? _____

NOTE: The survey (administered via survey monkey) sought open-ended responses for questions 2, 4, and 5.