5-9-2018

# Innovation in a Complex, Uncertain World: Clarifying the Questions, Seeking the Answers

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# INNOVATION IN A COMPLEX, UNCERTAIN WORLD: CLARIFYING THE QUESTIONS, SEEKING THE ANSWERS

## A White Paper based on the
## *Third Annual World Class Supply Chain Summit*

## (May 9th, 2018)

Summit convened by the Lazaridis School in partnership with the Milton Chamber of Commerce and CN Rail
in Milton, Ontario

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## Executive Summary

*Innovation* has at least 40 definitions, many of which can lay claim to being reliable and valid guidelines for organizations to make improvements by doing something new and different. Towards the goal of providing insights to facilitate fruitful pursuit of supply chain, the ***Third Annual World Class Supply Chain Summit*** focused on the theme of ***Innovation in a Complex, Uncertain World***. At this invitation-only summit on May 9th, 2018 in Milton, Ontario, executives, scholars, and students discussed a range of innovation topics. The core of those discussions sought clarity on the following:

(i) *The complexities, uncertainties, and challenges that are prompting the need for innovation in contemporary supply chains*

(ii) *Effective ways for tapping into the potential to innovate*

(iii) *New ideas from the next generation of researchers and practitioners*

(iv) *Questions that demand rigorous research about innovation in supply chains*

The summit addressed those four issues with two keynote presentations, a panel discussion, and three-minute lightning talk presentations by five students (from the doctoral through to the undergraduate level). In addition to giving voice to the next generation (via the students' 3-minute presentations), the summit was also designed to uncover perspectives from business disciplines outside of supply chain management (SCM). This was reflected mainly in the inclusion of panelists whose expertise on the subject of innovation was built in the field of entrepreneurship. Incorporating perspectives from the next generation and from beyond the traditional scope of SCM proved useful in generating some insightful conclusions. Among those conclusions, four of the main ones are:

(1) Effective usage of supply chain analytics has the potential to yield meaningful returns for transportation services providers

(2) The creativity necessary for innovation can be learned so employers should invest in cultivating creativity and its application to challenges of interest, particularly for new and young employees

(3) Though seemingly bewildering, the complexity and challenges in modern supply chains represent opportunity for innovation

(4) Innovations need not be revolutionary in order to be of real value to an organization firm and its stakeholders

This white paper reports on (a) the underlying details of those points (e.g., specific real world examples presented to reinforce those points), (b) some critical unanswered questions that surround those points, and (c) potential research projects to address those questions. These helped to solidify the summit as a valuable contributor to industry-academia deliberations of relevance to the SCM field.

## Introduction and Background: The Summit's Philosophy

As with the two previous *World Class Supply Chain Summits* (May 4th, 2016 and May 10th, 2017), the central goal of the Third Annual summit –*World Class Supply Chain 2018*– was also to provide actionable knowledge aimed at attaining the highest levels of excellence in supply chains. Provision of such knowledge requires the joint efforts of industry and academia in deploying a three-phase process that is diagrammed in Figure 1.

Figure 1: The Knowledge Co-creation Process
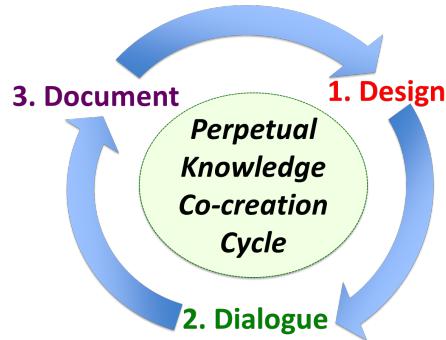


The process for the 2018 summit started with *design*, which aimed to ensure that the deliberations are both anchored to the 2018 summit theme (*Innovation in a complex, uncertain world*) and tuned to issues of real interest to the supply chain community. The design was informed by assessing the (i) the 2017 summit's content and post-summit survey and (ii) findings from the 2018 pre-summit survey of attendees' topics of interest (see **Exhibit 1**). The *dialogue phase* is what happens at the summit and the *document phase* is to articulate the summit's key insights into the present White Paper. Two key purposes of the document phase are to provide direction for future summits and scholarly research.

Being a co-created process, its richness depends on having a diverse range of perspectives; i.e., industry sectors, academic institutions, etc. Figure 1 depicts that diversity in terms of the attendees' range of affiliations (*academia, industry, government, etc*.).

Figure 2: 2018 Summit Attendee Organizational Affiliations/Roles
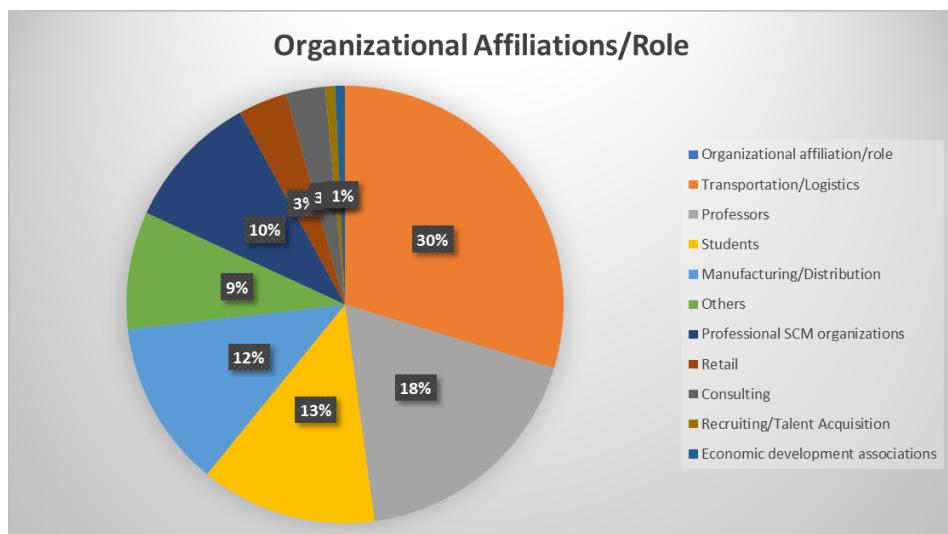
## The Summit's Content Delivery Model

Based on the pre-summit survey of attendees, the content deemed to be of high priority comprised all the innovation topics listed in survey Question 3A (**Exhibit 1 on pp. 17-18**) and the following three of innovation strategies stated in survey Question 2A: (i) *Innovate by changing current processes*; (ii) Exploit existing/new information and communication technology inventions; (iii) *Exploit technology created internally or jointly with supply chain partners.*

To address those interests in a way that yields actionable insights about the subject matter of *innovation* in the context of complexity and uncertainty in which modern supply chains operate, the summit deployed a content delivery model that featured the following:

1. *Two keynote presentations to headline the agenda*.  One of the keynote speakers was an industry executive who provided a practitioner viewpoint on leveraging innovation for supply chain excellence.  For industry/academia balance, the scholar keynote speaker presented a perspective from academia.

2. *A moderated panel discussion*.  This also reflected industry/academia balance as the three-member panel comprised an industry executive and two professors.

3. *Three-minute thesis* (*3MT*) *presentations by two PhD students*.  The students, each of whom is working on a dissertation research project in the SCM area, used a 3MT format to highlight the innovation-relevant significance of their research projects.

4. *Three-minute lightning talks* (*3MLT*) *by master's and bachelor's degree students*.  As for the doctoral students, the three minutes allotted to the one MBA student and two undergraduates meant they also had to be concise.  As well, they had to present insights on *innovation* (based on real-world examples they encountered during their degree programs).

In addition to the proven effective approach of having an audience question and answer segment for each presentation and the panel discussion, the content delivery model reflected two key objectives.

**Objective 1**: *Interdisciplinary deliberations*.   Because the concept of innovation is very important in fields such as entrepreneurship, SCM experts can benefit from conversations with experts from those other fields.  This minimizes the myopia that is possible when experts within a given field limit their conversation partners to other experts within the same field.  This motivated the decision to have the panel moderator and two of the panelists being experts in the entrepreneurship field instead of in the SCM field.  Additionally, one of the student speakers was selected from Wilfrid Laurier University's degree program in entrepreneurship.

**Objective 2**: *A blend of youth and experience*.  In the roster of eleven individuals with official speaking roles at the summit, having five of them being students enabled the summit to maintain its forward looking stance of keeping fingers on the pulse of the future.  Thus, the doctoral students' three-minute thesis presentations provided a preview of issues that will feature in the work of future academics.  Similarly, the non-doctoral students presentations based on their real-world projects gave the SCM experts in attendance a view of fresh and imaginative thinking that is fuelled by youthful energy, creativity, and curiosity.  That is thinking focused more on "*this is possible*" rather than on "*this can't be done*".

## The Industry Keynote Speaker's Content and Insights



**Steve Raetz**, Director of Research and Market Intelligence C.H. Robinson (North America's largest freight brokerage company) gave the Industry Keynote presentation. He provided an informative portrayal of North American trucking sector (mostly on the USA because of better access to USA data). In his engaging and conversational talk that covered a comprehensive range of the sector's realities, **Steve's** portrayal emphasized the major challenges. These included travel delays caused by traffic congestion and inefficient operations at consignor and consignee premises, driver shortage, and the aging workforce of drivers: 68% are 45-64 years old and 10% are 65+.

Because the driver shortage concern is not new (it has been a topic of discussion for at least a decade (see, e.g., Min and Lambert, 2002), **Steve** went beyond merely citing the concern and devoted effort on explicating some current contributing factors. These include the fact that potential and qualified existing drivers find the pay, work-life quality, etc. to be more attractive in sectors such as housing construction.

The keynote presentation's emphasis the sector's critical challenges facilitated focus on opportunities to address those challenges – not just by making changes based on recent technological innovations but also through simple non-technological changes that need to be more widely practiced. Four of the most noteworthy recent changes (several of which have been made by some companies) that the industry keynote speaker highlighted were:

[1] *Apps for drivers' mobile devices*. One example presented was "*rate my warehouse*". This allows drivers to give their experience-based assessment of any warehouse where they collect and/or deliver freight. An objective of the app is that ratings based on the duration of delays will prompt warehouses to make the improvements to help reduce the costs that drivers incur as a result of loading/unloading delays.

[2] *Electronic Logging Devices (ELDs)*. On April 1st, 2018, the US mandated that drivers must use ELDs to log their activity (driving hours, vehicle safety checks, etc.). ELD usage is projected to have a considerable impact on addressing the sort of challenges addressed in the keynote presentation. That is because of the improved data accuracy (vis-à-vis paper based logging), which is vital in correctly identifying, diagnosing, and resolving issues related to trucking operations performance, safety, etc.

[3] *Decision support analytics*. Accurate data, computing hardware and software (e.g., statistical modeling software) are some of the key requirements for producing the analytics to accurately answer questions such as, what rate should I charge for delivering this load? In essence, the key insights about analytics are that (a) not many carriers have adopted analytics and (b) adopters (especially early adopters) are likely to outperform their peers.

[4] *Respectful driver treatment by consignors/consignees*. On the surface, it seems odd to include something so basic among meaningful changes. The oddity is based on the premise that respectful treatment such as a smile and offering drivers water seem to be a matter of basic human decency that should be innate and done reflexively. However, in the keynote speaker's view, respectful treatment of drivers is not as automatic and widespread as it should be. This view appears to have some corroboration in academic research (Johnson et al., 2010). As such, the speaker's view is that, for some companies, respectful driver treatment can justifiably be deemed as an innovative and beneficial change in the company's practices.

## The Expert Panel's Content and Insights
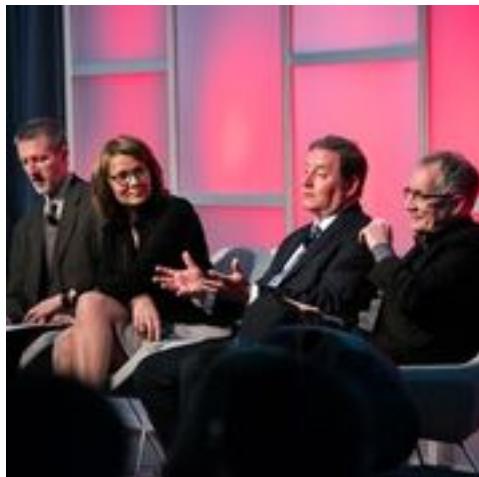


**Dr. Scott Ensign**, the Dobson Professor of Innovation and Entrepreneurship in Wilfrid Laurier University's Lazaridis School of Business & Economics, moderated the panel discussion. The panel comprised an industry executive (**Brad Carter**, Ocean Trade Lane Manager at Triumph Express Service Canada Inc.) and two professors in the field of entrepreneurship: **Laura Allan** from Wilfrid Laurier University's Lazaridis School of Business & Economics (where she is also Executive Director of the Schlegel Centre for Entrepreneurship and Social Innovation) and **David Roach** from Dalhousie University's Rowe School of Business).

Coming after the industry keynote presentation by **Steve Raetz**, the panel discussion touched on several of his points. As an example, for the moderator's opening question for each panelist to define *innovation*, the point concerning respectful treatment of truck drivers resurfaced. In particular, there was the rhetorical question of whether warehouse personnel's friendly smile to a driver is an innovation. In providing some entertaining levity in pondering the question, the panelists brought forth the important points that (a) what is innovative may well

depend on context and (b) an innovation need not be technological.  In fact, the various definitions suggested that even if something is not new to, say, a particular industry (because some companies have already adopted the innovation), a later adopting firm's novel ways of exploiting the innovation can be seen as innovative.

In their definitions and subsequent comments, the panelists touched on a wide range of topics that are widely seen as important.  These included *open innovation* networks (a.k.a. collaborative innovation networks), a topic for which Randhawa *et al*. (2016) recently reviewed the literature.  The panelists also debated issues such as incremental versus radical change and adoption versus innovation.  Their key insights can be condensed into the following four major points:

[1] *Creativity can be taught*.  With reference to the definition of *innovation* as the application of creative thinking, the panel discussion brought out the idea that the research literature has consistently shown that creativity is not genetic but can be taught: see, e.g., Scott *et al* (2004).  While this does not invalidate the recruiting mantra of "*in order to have a creative workforce, we must find creative people*", it shows that such a workforce can be built through proper training because, in the words of **Professor Laura Allan**, "we all have the potential to be creative."  A crucial aspect of such workforce building is to identify employees who are passionate about something and nurture their exploration.

[2] *Avoid the potentially counterproductive seduction of revolutionary change*.  This point emerged during a debate about whether the transportation and logistics sector has limited itself to incremental changes as opposed to highly innovative changes that yield significant competitive advantages.  The point is that, while firms should not try to close themselves off from opportunities to be radical innovators, they must avoid the risk of excessive focus on doing "big things" blinding them to prospects for making incremental improvements.  In fact, some firms may fare better as creative adopters of major innovations by others, instead of foolishly fancying themselves as "game changers" or "disruptors".  Thus, as a practical matter, what should be more salient for a firm doing something new is not how revolutionary it is or even whether the firm is its originator, but whether the result benefits any of the firm's stakeholders.

[3] *There is need for "soft" innovation to complement technological innovation*.  An audience member noted this point by making the observation that technological innovation (e.g., ELDs and social media apps such as rate my warehouse) requires innovative approaches to facilitate user acceptance.  For the trucking sector, this seems particularly important in light of an aging workforce that is among the least comfortable with technology.

[4] *Information/communication technology need to be better leveraged to address pressing issues*.  One of the issues cited for this point as driver shortage.  An example of existing technology that could help to address the issue is RoadLaunch's shipper-carrier communication platform (www.roadlaunch.com).  By enabling real-time geographic matching between demand and supply, the platform can yield an increase in the *effective trucking capacity*; i.e., a reduction in capacity shortages. Using reverse logic, one (of several) defensible hypotheses is that the persistence and intensity of driver shortages stem from underutilization of such platforms.

# The Scholar Keynote Speaker's Content and Insights



The centrepiece of the keynote address by Professor **Thomas Goldsby** was on the contrasts between what he saw as two major stages in the evolution of supply chains: *Supply Chain 1.0* and today's *Supply Chain 2.0*. He elucidated the contrast in terms of the greater SCM challenge associated with transitioning to *Supply Chain 2.0*. Three of the key points highlighted to clarify the transition were:

(a) The larger set of performance metrics that many firms must focus – the elevated importance of non-financial metrics, leading to the popularization of the concept of the *triple bottom line* (3BL); i.e., firms are expected to perform at high levels on social, environmental (or ecological), and financial criteria.

(b) Firms having to view their environmental obligations in terms of *cradle-to-cradle* instead of *cradle-to-grave*; i.e., a firm's reverse logistics operations must also consider what sustainability experts call the 6Rs: *redesign*, *re-manufacture*, *recover*, *reduce*, *reuse*, *recycle*. This expanded ecological responsibility is mainly because the life of a product (or of its components) might not truly end when a customer first deems it no longer usable.

(c) Larger and more managerially complex supply chain networks. A major source of complexity is related to the 6Rs notion. That is, a firm will have to evaluate and coordinate with a larger set of partners that includes 6Rs services providers (see Figure 3 below from Badurdeen *et al*., 2009) and its process to assess partners must account for partners' ability to support 6Rs (e.g., a foreign supplier's ability to provide components that meet criteria such as easy disassembly and sub-component recovery). The greater managerial complexity also because of a larger risk management task; i.e., propagation of risk is greater because a single firm's failing can adversely affect many other firms in the network.

Figure 3: Supply Chain Network Model Extended to Include Reverse Logistics Services Providers
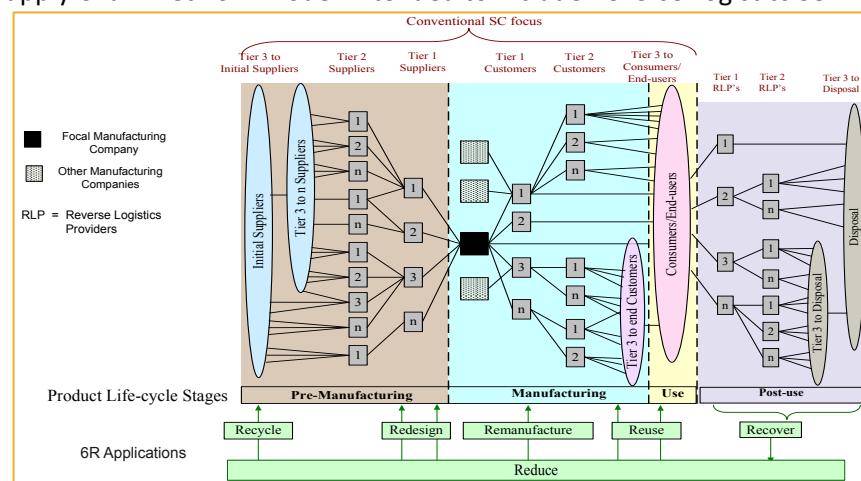
As with the industry keynote presentation, the scholar keynote speaker's focus on an environment of new challenges and complexity, naturally leads to thinking about the opportunities for innovative responses to that environment. Some of the key ones were either mentioned or could be readily inferred. Case in point is that although some firms see 6Rs purely as obligations (e.g., compliance with environmental regulations), others see opportunity for competitive advantage; e.g., attract customers whose purchase decisions are influenced by environmental considerations. Similarly, for the risk management, several methodologies were discussed. Examples included colour-coded *risk maps* to specify and classify risks in terms of likelihood and severity, and *tornado graphs*: a type of bar graph to help ascertain how sensitive a given outcome (e.g., product non-conformance to specifications) is to various risk factors. Figure 4 illustrates those two methods.

Given this dual challenge/opportunity message by the scholar keynote speaker, what might be one of the more noteworthy takeaways is based on his interesting team sports analogy. Specifically, he contrasted a championship team with an all-star team. As the name indicates, an all-star team in any professional team sports league is made up of the best players from the league's teams, so on paper, it is the best team that one can assemble. However, an all-star team will probably lack the optimum cohesion needed for sustainable success. Alternatively, a championship team contains role players who, despite lacking all-star status, specialize in roles that are essential for team cohesion and, consequently, success. In a supply chain context, the takeaway may be summarized as follows:

> *The most effective supply chain is not necessarily the one that comprises the best supplier, the best trucking company, best manufacturer, etc. but rather the best assemblage of partners, because they can work cohesively towards the goals of the supply chain as a whole.*

Figure 4: Examples of Risk Management Tools
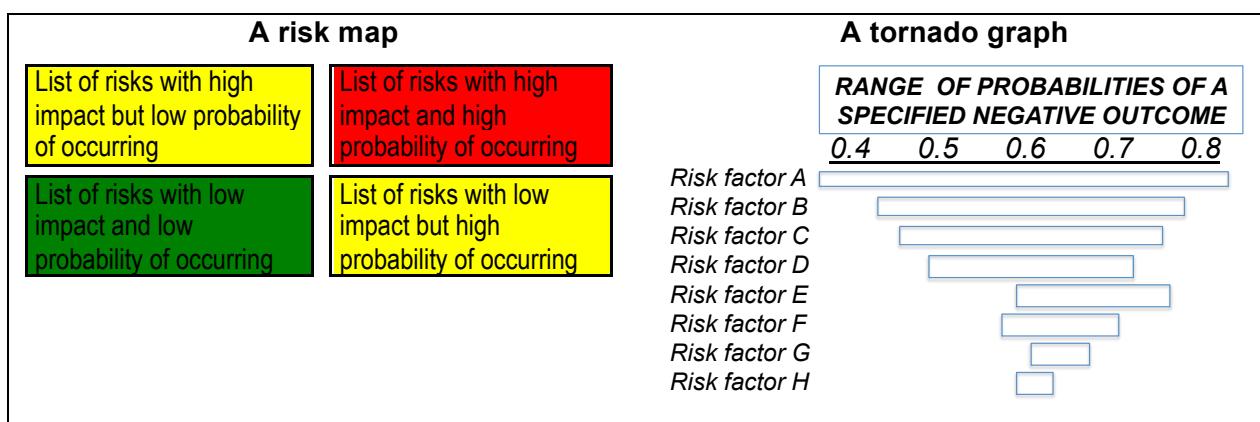
# The Student Speakers' Content and Insights

Two doctoral students gave three-minute thesis (3MT) presentations of research they are working on for their dissertation. Both students were required to clarify the implications of their work for the concept of innovation. For illustration, one of each student's stated implications is summarized below.

*(1)* **Sara Babaee** (**Wilfrid Laurier University's PhD program in Management – Specialization in Supply Chain Operations & Technology Management**). Her research aims to assess the financial benefits of using RFID and sensor technologies to track the freshness of cold chain products such as meats. Her preliminary findings are that by using RFID-produced real-time data on freshness to decide pricing and transportation options, a firm can increase the profits in its distribution by up to 13%

> **An innovation implication:** *Although RFID and its ability to provide real-time freshness data are not breaking news, what is innovative is <u>the leveraging of that data</u> for transportation and pricing decisions*.



*(2)* **Cynthia Waltho** (**University of Waterloo's PhD program in Management Sciences**). Her research focuses on the following question: "*how should a company design its supply chain network in order to maximize profit, in light of increasing consumer sensitivity to their carbon footprint*?" To clarify the practical significance of the question, a key observation noted is the cultural shift, particularly among millenials, towards greater willingness to pay a premium for products that are produced and delivered by ecologically sustainable means. Cynthia has built a preliminary mathematical model to help answer the question and is in the process of seeking real-world data to help validate the model.

> **An innovation implication:** *Models that unveil a firm's carbon-related cost of lost customers and negative ecological externalities will prompt radical shifts from traditional network designs that ignored those costs*.

Two undergraduate students and an MBA student presented material based on real-world situations that highlight one or more aspects of innovation.  The students were directed to focus on situations they learned about through their studies (e.g., case assignments) and/or immersive experiences beyond the classroom (e.g., co-op jobs).  The following are summaries each student's three-minute lightning talk and an illustrative innovation-related implication.

*(1)* **Abigail Bibbings** (**Wilfrid Laurier University's Bachelor of Business Administration (BBA) program**).  She presented a creative approach she designed and executed to pursue UN Sustainable Development Goals: ***Innovation teams***. As a member of the student's entrepreneurship club at Laurier, Abigail's approach was involved running a 10-week workshop for 9 student teams (totalling 54 students) to generate and pitch their innovative social enterprise ideas.  The four ideas that survived to the incubation stage included a coffee cup sleeve made of coffee grinds and a strip of paper that dissolves into shampoo when rubbed.

**An innovation implication:** *Less can sometimes be more because young people need not be over-managed in order to innovate; the freedom to explore what inspires them is often enough and valuable.*



*(2)* **Mark Gooyers** (**Wilfrid Laurier University's Master of Business Administration (MBA) program**).  He presented a case study of last-mile delivery of pharmaceuticals to Zambia and Gambia.  The issue is that in international pharmaceutical supply chains, the airport-to-airport leg of the journey is the easy part.  The harder par is getting much needed medicine to a population in which 62% live in rural areas and only 20-30% live within 2 km of road.  Four-wheel motor vehicles are inefficient for traversing the rugged landscape (e.g., frequent breakdowns, vehicle damage, and costly rescue of disabled vehicles).  This prompted a novel idea: *Riders for Health*.  This idea, in which health care personnel were trained to use motorcycles, proved its efficacy on all the key metrics; e.g., more people treated, fewer delays in reaching people in need, greater geographic coverage, and lower cost per km of travel.

**An innovation implication:** *Valid answers require context-specific knowledge – answers based on what only works elsewhere (i.e., use 4-wheeled motorized vehicles for last-mile delivery) might miss the mark.*

(3) **Serena Truong** (**Wilfrid Laurier University's Bachelor of Business Administration (BBA) program**).  She presented the classic case study of Zara (the Spanish retailer) overhauling its information systems at a time of impressive growth in the early/mid 2000s.  It is natural to depict the in-house development of many of the new systems (e.g., the point-of-sale (POS) system) as remarkable; i.e., because doing something new is normally viewed as more impressive when the talent behind it is internal rather than external (or jointly internal/external). However, what cannot be overlooked as remarkable is that the system development work went beyond the POS and gave a Zara an important early-mover advantage in the communications infrastructure for its supply chains.  For example, through improved internal communication among stores, the overhaul enabled Zara to manage its inventory better than many of its competitors in the retail fashion industry.

**An innovation implication:** *First mover innovation to gain competitive edge is not just about new products but also about innovative use of information technologies to improve supply chain performance.*

## Building on the Summit's Deliberations: Some Questions for Future Research

The set of discussion points that emerged during the one-day summit suggested two categories of needed research. One category focuses on questions that are quite specific to logistics/SCM field. The other category focuses on questions that transcend the field but can provide logistics/SCM-relevant insights. In the following list of five (5) questions, the first four relate to the first category. Question 5 is meant to be illustrative of the kinds of questions that address philosophical issues about innovation; e.g., the issues raised in a recent article by Blok (2018).

*Question 1: Why are the full capabilities of analytics being underutilized?* The discussions cited that many carriers are not utilizing the power of analytics for decisions such as spot market pricing and whether to accept or deny a request for their services. Whether this stems from carriers being unclear or unconvinced about the business case for those analytics or from other factors (e.g., discomfort with using analytics) is an open question worth exploring.

*Question 2: Why are shipper-carrier communication platforms not helping to ease driver shortage problems?* This seems paradoxical because such platforms should help to reduce the empty travel that is believed to be a contributor to driver shortage (i.e., drivers are unavailable to deliver loads because they are occupied driving empty vehicles). The possible reasons may be analogous to those cited for Question 1; e.g., carriers are yet to be convinced about the business case for joining such platforms.

*Question 3: What "soft" innovations are effective in yielding acceptance of "hard" innovations?* As noted on page 8, an attendee mused that (a) truck drivers' acceptance levels for "hard" (i.e., technological) innovations such as social media apps lags behind the range of technologies available to be used and (b) this may reflect a lack of innovate acceptance-inducing approaches that are tuned to the demographics of targeted users. It would be worthwhile to ascertain what those soft innovation approaches are and how they are being deployed.

*Question 4: Are carriers adequately contributing to and benefitting from Open Innovation (OI) networks?* An implicit focus of the literature on open innovation (innovating through collaboration across organizational boundaries) is that the collaborating parties are involved in producing merchandise. This largely ignores the merchandise carrier, whose importance may well go beyond the basics (freight transportation) and into being a source of innovative ideas. The research literature needs to offer sound **OI** guidelines for how carriers and their merchandise owning/producing partners can collaborate effectively.

*Question 5: How do firms prevent the economic paradigm from limiting the scope of their innovations?* In examining some philosophical perspectives on innovation, Blok (2018) wondered if we have put too much stock in the conventional *economic paradigm*; i.e., we over-value innovations that satisfy commercial criteria. If we have, then efforts might be getting channelled away from socially valuable innovations for which economic success is not immediately obvious. Yet, it seems plausible that some firms will accept that such success might exist and could become clearer with the passage of time. In other words, there must be firms that are using approaches that give those innovations a fighting chance; e.g., as regards the new product development process, one approach might be to defy the conventional suggestion in many management textbooks that the process should have an early screening stage based on financial viability.

## Conclusions, Plans, and Projections

Through discussions anchored to the theme of *Innovation in a complex, uncertain world*, the **Third Annual World Class Supply Chain Summit** explored issues of significant interest to the supply chain community. That exploration illuminated both (a) supply chain improvement opportunities and (b) questions that are worth deeper examination. The more notable improvement opportunities relate to (1) *greater use of supply chain analytics*; (2) *nurturing creativity in young professionals*; and (3) *awareness of small changes that can yield substantial returns*.

The high priority research questions should seek to ascertain (i) reasons for the seeming underutilization of innovations in analytics and information technology; (ii) the kinds of "soft innovation" being used to enable adoption of hard innovations; (iii) effective ways for carriers and their clients to collaborate in *Open Innovation* (*OI*) networks; and (iv) how to prevent the traditional *economic paradigm* from limiting the range of desirable innovations.

The three parties that planned and convened the summit (Wilfrid Laurier University's Lazaridis School of Business & Economics; CN Rail; and the City of Milton Chamber of Commerce) will plan the 2019 summit by fully utilizing the insights from the previous three summits. Their continuous improvement efforts will draw on a review of content in past summits as well as on the content delivery structure. Those efforts will be motivated by the attendees' encouraging feedback on the 2018 summit: scores of 4.3 out of 5 for content and 4.5 out of 5 across all non-content elements such as the networking sessions. Based on the attendees' stated preferences for themes that should anchor the 2019 summit, the projected focus will be on considerations of how to prepare a new generation of supply chain professionals for the kind of world that lies ahead.

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**EXHIBIT 1: The World Class Supply Chain 2018 Event Schedule**

AGENDA

**7:00 – 8:00  REGISTRATION AND BREAKFAST**

**8:00 – 9:00  WELCOME REMARKS**
*Teresa Fujarczuk, Past Chair of the Milton Chamber of Commerce, will serve as our Master of Ceremonies and welcome attendees.*
*Also speaking:*
- *R. Stacey Laforme, Chief, Mississaugas of the New Credit Nation.*
- *Scott McCammon, President and CEO of the Milton Chamber of Commerce.*
- *Summit Co-Chairs: Dr. Michael Haughton of the Lazaridis School of Business & Economics, Wilfrid Laurier University, and Keith Reardon of CN.*

**9:00 – 10:15  INDUSTRY KEYNOTE PRESENTATION**
*Steve Raetz, Director of Research and Market Intelligence at C.H. Robinson, will share his deep practical knowledge about the "what and how" of innovation as a vital pathway toward supply chain excellence.*

**10:15 – 10:30 BREAK**

**10:30 – 11:45 PANEL DISCUSSION**
*A panel of experts from industry and academia will address crucial questions concerning ways to master uncertainty and complexity through innovation in supply chains.*

*Moderator:*
- *Scott Ensign, Lazaridis Institute, Lazaridis School of Business & Economics, Wilfrid Laurier University.*

*Panelists:*
- *Laura Allan, Lazaridis School of Business & Economics, Wilfrid Laurier University.*
- *Brad Carter, Triumph Express Services Canada Inc.*
- *David Roach, Rowe School of Business, Dalhousie University.*

**11:45 – 1:00  LUNCH AND NETWORKING**

**1:00 – 1:50  SCHOLAR KEYNOTE PRESENTATION**
*Dr. Thomas J. Goldsby, the Harry T. Mangurian, Jr. Foundation Professor in Business and Professor of Logistics at The Ohio State University, will present research-based findings and insights on innovation.*

**1:50 – 2:15  DOCTORAL STUDENT PRESENTATIONS**
*Two doctoral students will discuss the central goals, findings, and practical innovation-related significance of their doctoral research projects, then answer questions from delegates.*

**2:15 – 2:30  BREAK**

**2:30 – 3:00  MASTER'S DEGREE AND BACHELOR'S DEGREE STUDENT PRESENTATIONS**
*A Master's degree student and two undergraduate students will present their insights on innovation (using a variety of sources, such as real-world case studies in their program of study, co-op job experiences, and class and research projects), then answer questions from delegates.*

**3:00 – 3:30  FINAL REMARKS AND CLOSING**
- *Scott McCammon, President and CEO of the Milton Chamber of Commerce.*
- *Summit Co-Chairs, Dr. Michael Haughton of the Lazaridis School of Business & Economics, Wilfrid Laurier University, and Keith Reardon of CN, will share their insights and observations on the Summit and officially close the proceedings.*

**3:30 – 5:00  POST-SUMMIT NETWORKING**

LAURIER

2

**Exhibit 2: PRE-SUMMIT SURVEY**

Dear summit attendee,

By responding to this survey, which should take you less than 10 minutes, you will help to enhance the quality of the 2018 summit's discussion on the theme of ***Innovation in a complex, uncertain world***.

So that you have some context for answering the questions, you can refer to the following definition and explanation of innovation (although there are an estimated 40 different definitions, the one below is among the most comprehensive in that it highlights both the process and purpose of innovation)

> *Innovation can be defined as the process of deliberately applying information, imagination, and initiative in order to translate an idea or invention into products and/or services that must satisfy specific needs in resource-efficient ways*.

To be valuable, an innovation need not be as famous as the classic 1913 case of Ford introducing the continuously moving assembly line for the Model T or FedEx using information technology inventions to create its patented package tracking systems. Furthermore, impactful innovations do not always depend on new technology inventions. For example, UPS saved millions of dollars just by reconfiguring its North American parcel delivery routes to have fewer left hand turns. The savings resulted from the fact that drivers previously wasted significant amounts of time and fuel in idling vehicles at left hand turns; e.g., while awaiting a green light filter. A less celebrated non-technological innovation is the simple yet brilliant proposal by a Toronto hospital nurse that the head surgeon should wear a bright orange vest during trauma surgery. The rationale is that with more than a dozen nurses, respiratory therapists, and physicians huddled over a trauma victim, quickly identifying who is in charge can be a matter of life and death.

## YOUR BACKGROUND

**1: *Which of the following roles do you play in your organization? (check all that apply)***

| Innovation Visionary | Innovation Leader | Innovation Facilitator | Innovation Sponsor | Innovation Advocate | Innovation Follower | Manager/ Executive | Professor | Student | OTHER |
|---|---|---|---|---|---|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## KNOWLEDGE OF IMPORTANCE TO YOU

**2A: *How important is it to you that the summit's discussions address the following innovation strategies?***

| INNOVATION STRATEGY | Absolutely essential | Very important | Moderately important | Slightly important | Not at all important |
|---|---|---|---|---|---|
| Innovate by creating new products/services | | | | | |
| Innovate by changing current processes | | | | | |
| Exploit existing/new equipment technology inventions | | | | | |
| Exploit existing/new information/communication technology inventions | | | | | |
| Exploit technology created internally or jointly with supply chain partners | | | | | |

**2B: *Please state up to TWO other innovation strategies you want the summit discussions to address.***

| (i) |
|---|
| (ii) |

**3A: *How important is it to you that the summit's discussions address the following 12 topics?***

| INNOVATION TOPIC | Absolutely essential | Very important | Moderately important | Slightly important | Not at all important |
|---|---|---|---|---|---|
| 1. Pros and cons of an organization having a formal innovation strategy or an established process or division explicitly focused on innovation | | | | | |
| 2. Business and supply chain successes that contemporary organizations can expect from being innovative | | | | | |
| 3. Actions, skills, and attitudes required of (a) management and (b) other staff in order for their organizations to be successful innovators | | | | | |
| 4. How a firm should involve supply chain partners in its innovation efforts | | | | | |
| 5. The major constraints to successful innovation | | | | | |
| 6. Some current real-world stories of innovation success, and lessons that personnel involved in innovation can take from those stories | | | | | |
| 7. The most common/prominent pitfalls to avoid in trying to be innovative | | | | | |
| 8. Supply chains that should most aggressively seek to innovatively exploit new inventions/technologies (*blockchain*, *drones*, *robotics*, etc.) | | | | | |
| 9. What universities/colleges and employers must do to build and sustain innovativeness/entrepreneurism in early/pre-career individuals | | | | | |
| 10. How to effectively include customers in innovation ventures | | | | | |
| 11. How to recover from unsuccessful innovation ventures | | | | | |
| 12. The impact of government policy on innovation | | | | | |

**3B: *Please state up to THREE other topics you are interested in hearing about at the summit.***

| (i) |
|---|
| (ii) |
| (iii) |