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Our Journey Towards Sustainable Supply Chains[1]

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Industry, government, NGOs and academia have long been thinking about the elements of a sustainable supply chain. The road map for implementation in individual organizations though is a work-in-progress. This is a brief personal and selective overview of where we have been and what the road ahead looks like for the new George Weston Ltd Centre for Sustainable Supply Chains...so far. It is also a call for involvement. Two big ideas have come together over time to provide the direction for the centre: supply chain management and sustainability.

SUPPLY AS AN INTEGRATED CHAIN OF DECISIONS

The term "supply chain management" has its origins in the early 1980s as Booz Hamilton consultant Keith Oliver tried to sell Philips, a European electronics manufacturer, on "integrated inventory management". The big idea: if the company integrated the information stored in the functional silos that separated production, marketing, distribution, sales, and finance, inventory would be reduced and at the same time customer service would be improved. Unexcited by the new acronym (I^2M) the client got Oliver to focus on "the management of a chain of supply as though it were a single entity."[2] Out of small acorns mighty oak trees are born.

In the 1980s what were then called "Japanese Management" techniques spread across the world. They challenged the assumption that an organization's supply chain was just an internal problem of cost containment versus a better way to work and serve customers. One practice popularized by Toyota, an automobile company, was their Toyota Production System (TPS) Just-In-Time (JIT) manufacturing. To be effective it depended on an efficient and precise integration of ordering, manufacturing and delivery processes within and between customers and suppliers. Achieving such "lean" use of resources required high levels of reliability (i.e., "six sigma" levels of quality) with minimal buffers of inventory and capacity "just-in-case". Critical was disciplined communication within and across buying and supplying organizations. Making supply chains both reliable and responsive meant rethinking the location of factories, warehouses and offices. We learned that superior levels of productivity and quality required more than investment in automation (e.g., assembly robots) and advanced information technology systems (e.g., Material Requirements Planning). Processes, work roles, and personnel responsibilities within and across buying and supplying organizations also needed to be re-engineered.

[1] The following is an editorial perspective prepared by David A. Johnston and is intended for discussion versus a statement of policy by Schulich School of Business and the George Weston Ltd Centre for Sustainable Supply Chains. Copyright December, 2020.

Supply chains became a necessary "best" practice in the 1990s with the expansion of freer trade both between advanced economies and emerging economies such as China. Outsourcing and offshoring became popular options across sectors in advance economies. In developing economies this led to growth in new businesses, new jobs, higher standards of living and local domestic markets. Supply networks and the required supporting infrastructure became large, complex but strategic enablers of organizational growth and profitability. Traditionally separate, the functions of operations, logistics and transportation, and purchasing had to evolve in sophistication and become more integrated with the rest of the organization. Operations no longer just "made" goods and services; it had to coordinate with operations people in suppliers and customer organizations. Purchasing no longer just "bought" goods and services at the lowest per-unit cost; it needed to consider the total cost of ownership.

Logistics and transportation no longer just "moved the boxes"; it needed to optimally weave together the flow of goods carried on multiple transportation modes between multiple warehouses, distribution centers, and factories from and to wherever suppliers and customers were located.

With all this change I repeat a reflection made by Oliver in 2003 about the rise of supply chain management thinking. The challenge remains for individual organizations to:

1. Set supply chain policies strategically;
2. Analyze trade-offs holistically; and
3. Employ cross-functional support systems.

SUSTAINABILITY AS BALANCING PROFITS, PEOPLE AND PLANET

Like present day supply chain management, the elements of our present notion of sustainability lies in the science and practices brought to the public's attention over 50 years ago. In the 1960s advanced economies began to realize that our planet had finite resources that could not only constrain population and economic growth[3] but also threaten the survival of Earth itself. The environmental movement at the time highlighted the many ways we were failing in our stewardship of the natural environment and of human health. Our systems of production geared towards producing and delivering goods and services for maximal consumption at lowest economic cost produced troubling side effects, putting at risk critical natural resources of clean water, air and biodiversity. Growing evidence was discussed amongst the scientific community that human economic activity was changing the Earth's climate with potentially "inconvenient" outcomes. The Montreal Protocol on Substances that Deplete the Ozone Layer signed in 1987 represented the first major successful international agreement and subsequent widespread industry implementation aimed at averting catastrophic climate change.

The United Nations sponsored Brundtland Commission in 1987 defined the term "sustainability development" as the use of resources by society to meet the needs of the present without compromising the ability of future generations to meet their own needs.[4] The consideration of a longer-term horizon required a different approach to managerial decision making. The use of natural resources and the cumulative impact of such usage on society occurred over a time period greater than the quarterly or annual accounting cycle of a publicly held company The challenge for organizations was succinctly summarized by John Elkington in his popular 1994 book, "Cannibals with Forks", as achieving a "triple bottom line". This translated into a rallying cry to simultaneously balance the interests of "people, planet and profits" in economic decision making. The challenge for business in achieving this balance of outcomes was discussed earlier in academic work on Corporate Social Responsibility (CSR).

As early as 1979 academics were encouraging organizational leaders to ask: "(1) What is included in corporate social responsibility? (2) What are the social issues the organization must address? and (3) What is the organization's philosophy or mode of social responsiveness?"[5]

At the turn of the millennium, the academic study of supply chain management began to move beyond a linear view of the best way to design and control the intra- and inter- organizational processes that optimize the synergies and trade-offs among cost, quality and flexibility. Enter the idea of a circular economy to reuse and recycle unwanted materials into useful products and energy reducing the consumption of natural resources. How organizations manage the supply chain from the design of products to their disposal, impacts the "bottom line" of stakeholders other than just shareholders. We also learned that balancing people, planet and profit is not necessarily a "zero sum" game involving hard trade-offs. For example, organizations can be leaner, waste less resources and lower harmful environmental emissions and workplace rates of injury.

Events such as the Rana Plaza disaster in 2013 where over 1134 workers died in a collapsing garment factory in Bangladesh drew to attention that both purchasers and suppliers in other counties must be held accountable to a higher standard of care. This is both an ethical and an economic imperative. New international industry standards have been developed in the last 20 years to protect not only the health of individuals but that of their communities (e.g. fair-traded commodities). Unfortunately, disruptive events such as Covid-19 expose the "brittleness" of these supply chains and the vulnerability of all stakeholders to economic hardship.[6] Environment, Social and Governance (ESG) reporting by major corporations continues to grow, providing greater transparency and data to guide socially-conscious investing and a stakeholder-driven approach to business. Unfortunately, uneven adoption and inconsistent compliance to environmental and social standards up and down supply chains remains a unrelenting challenge.[7] Within organizations this requires leadership to align often conflicting values and priorities for the empowerment of action by employees and managers.

Our thinking is increasingly turning to how best to assure the financial sustainability of supply chains. We know that supply chain disruption can destroy shareholder value for publicly held firms . Supply chains in sectors such as power generation, healthcare, telecommunications and food will require large investments in technology and infrastructure to make them responsive to demand and resilient in the face of multiple disruptions such as those caused by pandemics and climate change. This requires an increasingly frank, inclusive and transparent conversation among stakeholders about how risks as well as rewards will be shared.

[2] Oliver, K., 2003. When will supply chain management grow up? Strategy+ Business, / Fall 2003 / Issue 32 (originally published by Booz & Company)

[3] Meadows, Donella H; Meadows, Dennis L; Randers, Jørgen; Behrens III, William W (1972). The Limits to Growth; A Report for the Club of Rome's Project on the Predicament of Mankind. New York: Universe Books

[4] World Commission on Environment and Development, 1987. Our Common Future. Oxford University Press, Oxford and New York

[5] Carroll, A.B., 1979. A three-dimensional conceptual model of corporate performance. Academy of management review, 4(4), pp.497-505.

[6] Leitheiser, E, Hossain, SN, Sen, S, Tasnim, G, Moon, J, Knudsen, JS & Rahman, S 2020, Early Impacts of Coronavirus on Bangladesh Apparel Supply Chains. RISC Briefing, April, The Regulation of International Supply Chains (RISC), Frederiksberg, Denmark.

[7] Villena, V.H. and Gioia, D.A., 2020. A more sustainable supply chain companies tend to focus on their top-tier suppliers, but the real risks come lower down. Harvard Business Review, 98(2), pp.84-93.

[8] Hendricks, K.B. and Singhal, V.R., 2005. An empirical analysis of the effect of supply chain disruptions on long run stock price performance and equity risk of the firm. Production and Operations management, 14(1), pp.35-52.

EMERGING OPPORTUNITIES AND CHALLENGES FOR SUSTAINABLE SUPPLY CHAINS

There are a few topics that will appear on every organization's road map whether public, private or NGO. They were around before the pandemic and have either been elevated or accelerated during the pandemic. They are the potent enablers or barriers to sustainable supply chains.

1

Digital Transformation. Big data and advanced analytics such as artificial intelligence promise levels of real time, transparency leading to deep insights that can transform supply chain processes and relationships. Unfortunately, information technology infrastructure in many organizations is not at a level sufficient to realize this potential. Poorly implemented technology to automate physical and white collar processes and offer omni channel sales and distribution is risky. Securing and sharing the flow of information appropriately within and between customers, suppliers and intermediaries will be critical for creating trustworthy digital supply chains. Supply chains that are both efficient and responsive to consumer demand, and, that can strike the right balance among people, planet and profit.

2

Accountability for Sustainability. Currently there are over 360 ESG reporting standards globally supported by various configurations of governments, industry and NGOs.[9] These does not have the immediacy and simplicity of financial reporting that fuels other arbiters of value such as stock exchanges. So what is the standard of care to be a good manager? In the absence of internationally agreed upon standards to value the externalities of economic activity, such as a price on carbon, how do we make trade-offs that balance the interests of people, planet and profit? Industry and government will need to elevate dialogue around acceptable levels of regulation and compliance. This includes the boundary of what is fair competition and desirable cooperation in a market-driven economy.

3

The Art and Science of Managing Risk. Long before pandemics, organizations were told to have a business continuity plan, assess their appetite for risk and have systems and processes ready to go to prevent, mitigate and recover from disruption. The tale of 2020 will be one of successes and failures for individual organizations in this regard. What we do know is that reliable and resilient organizations defer to the knowledge of experts who know the risks and the science of mitigating risky situations. Managers who own risks and collaborate effectively with salient stakeholders minimize the impact of disruptions and, in recovery, build back better. On the table for discussion is the riskiness of supply chain strategies such as dual sourcing, local versus international procurement, and buffering and bridging investments in organizational assets.[10]

4

Talent Acquisition and Retention. There is a Canadian supply chain management talent shortage. The requisite skills needed must address the changing landscape already mentioned. Like many sustainability problems in supply chains, it is not only the amount of talent but the distribution of that talent across the economy that is at issue. For example, the depth of talent across small and medium sized firms. In addition, we need to remove barriers to diversity that limit the available talent pool. This puts responsibility squarely on the shoulders of educational institutions such as Schulich School of Business to change to whom, what and how we teach in programs such as the Master of Supply Chain Management. We have numerous questions to answer. For example, how do we best partner with industry to develop inclusive supply chain curriculum to educate the next generation of supply chain leaders? How can organizations better prepare to recruit and promote talent who will be held accountable for a balanced scorecard of priorities and metrics for achieving sustainable supply chains?

[9] The Soup; The proliferation of sustainability accounting standards comes with costs. The Economist, Oct 3 2020.

[10] Improving Supply Chain Resilience to Manage Climate Change Risks. Dr. Christy Slay and Dr. Kevin Dooley, The Sustainability Consortium, June 2020.

OUR WAY FORWARD

The George Weston Ltd Centre for Sustainable Supply Chains is formulating an ambitious agenda of engaging work with industry, government and representatives of civil society on the sustainability of supply chains. Let's have a conversation. Please send us your thoughts.

In addition, we welcome your answers to the following questions:

1	Where are we lacking credible answers to critical managerial questions about sustainable supply chains?	3	How do we hold managers accountable for sustainable supply chains?
2	How do we share best sustainable supply chain practices across sectors and communities of practice?	4	What are the platforms for exploring and resolving trade-offs between the interests of customers, suppliers, employees and communities when making supply chain decisions for the long term?

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