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The Blue Basket: A Tool to FastTrack Quebec's Digital and Ecological Transition

HENRI-PAUL **ROUSSEAU**

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Henri-Paul Rousseau holds a Bachelor of Arts and a Bachelor of Economics from the Université de Sherbrooke. He continued his studies at the University of Western Ontario, where he received a Ph.D. and the T.M. Brown Award for the best thesis in economics.

When he returned to Quebec, he began an academic career in 1973 at the Université du Quebec à Montréal, and then, in 1975, at Université Laval, where he became Chair of the Department of Economics in 1984. He also acted as an advisor to the Canadian and Quebec governments. More specifically, he was Director of Research and co-author of the *Report on Savings in Quebec* released in 1980. As an expert advisor to the House of Commons Standing Committee on Finance, Trade and Economic Affairs, he also co-authored an economic impact analysis released in 1985 as part of the White Paper on Personal Taxation.

In 1986, Henri-Paul Rousseau joined the National Bank, where he held several strategic positions, including Senior Vice-President, Treasury and Financial Markets. From September 1990 to April 1991, he served as Secretary of the Bélanger-Campeau Commission on the Political and Constitutional Future of Quebec. He was head of Boréal Assurances from 1992 to 1994 and then became President and Chief Executive Officer of Laurentian Bank of Canada before being appointed President and Chief Executive Officer of the Caisse de dépôt et placement du Quebec, a position he held from September 2002 to May 2008.

From January 2009 to the end of December 2017, he served as Vice-Chairman of the Board of Directors of Power Corporation of Canada and Power Financial Corporation. He is also a Director of several companies, including Great-West Lifeco and IGM Financial and their subsidiaries, as well as Putnam Investments in the United States. He was a Director of the Global Financial Markets Association from October 2010 to July 2014.

Henri-Paul Rousseau has served on the boards of Santander Bank since 2015, Santander Holdings USA since 2017 and Banco Santander International since 2020; he has been Chairman of Noovelia since 2018.

In 2004, Concordia University awarded him an honorary doctorate and he was elected to the Academy of Great Montrealers in the Economic Sector in 2006. That same year, on the fringe of the Entretiens Jacques Cartier - a forum for exchanges on major societal issues - the Université Lumière Lyon 2 awarded him an honorary doctorate. In 2007, the Université de Sherbrooke and Université Laval awarded him the same distinction. He received the medal of Commander of the Order of Montreal in 2016 and was named a member of the Order of Canada in 2018.

Henri-Paul Rousseau has been personally involved with several social and cultural institutions and in the education and health sectors by leading several fundraising campaigns. In addition, he has been a volunteer with the Montreal Heart Institute Foundation for more than 20 years, including nine years as Chairman of the Board of Directors, a position he held until July 2018. He was a member of the selection committee for the Apogee Canada 2015 and 2016 Research Excellence Fund.

Since 2012, Henri-Paul Rousseau has chaired the Tremplin Santé Foundation, which he created to encourage healthy lifestyle habits with young people in Quebec and Canada. Since 2010, he has been founding co-chair, with businessman Charles Sirois, of Réseau QG100, a private non-profit organization whose goal is to contribute to the growth of winning companies in Quebec by accelerating their growth worldwide.

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The idea of the Blue Basket was born out of a commitment to boost the Quebec economy and reduce the ecological footprint of our consumption through local purchasing, while strengthening Quebec's e-commerce specifically. However, this Blue Basket will require much more than the publication of a directory of Quebec suppliers, and efforts have been undertaken by its proponents to better define the project. This text is intended to contribute to the reflection on the matter.

Identifying whether a product or service is "Quebec made" and complex

In Quebec, as anywhere else in the world, the products and services delivered on our markets are the work of designers, suppliers, manufacturers and distributors whose activities are not necessarily based in Quebec. Indeed, Quebec imports account for 49.8% of its GDP, of which 34.3% originate from foreign countries and 15.5% from other Canadian provinces. In such an environment, identifying whether a product or service is "Quebec" becomes very complex. Actually, a good or a service available on the Quebec market may, at all intermediate stages of production and distribution, include local and imported inputs. For example, would a garment made by a Quebec designer, but sewn in Vietnam be qualified? Would a sophisticated robot designed in Quebec but assembled in Mexico be eligible? Exactness is essential in this exercise, as otherwise, Quebec businesses and consumers will quickly experience too much "blue washing" to believe in the validity of the Blue Basket.

A "Quebec" identification of the Blue Basket is possible through digital technologies

To measure *the local content of a product, equivalent to its value-added*, microeconomic data should be collated on the source (local or imported) of all its inputs and their relative contribution at each stage of production and distribution of the product. By replicating this exercise for all goods and services available, it would be possible to determine which goods and services could be included in the Blue Basket. Unfortunately, such information is not collated, but it would be possible to collate it through a digitization of GST and QST. Digitizing GST and QST using traceability technologies would make it possible to determine the detailed source of goods and services, and decentralized distributed registry (blockchain) technologies would make it possible to certify their local content percentage. The digitization of both taxes would therefore be a great way to build the Blue Basket technology infrastructure.

Indeed, when these technologies are implemented, the customer pays the bill including taxes, and the amount of the taxes is paid directly to tax authorities; the seller's account is simultaneously credited with the net sale's amount; the same applies to all suppliers for that retailer or producer. Everything is concurrent and executed via *smart* contracts, without any risk of fraud, and "all relevant information" is *recorded*.

The GST and QST digitization therefore help Revenu Québec determine the value-added, and thus the local content percentage, of the individual goods and services available from businesses collecting GST and QST in Revenu Québec's jurisdiction. This certified content could be added to the QR Code, which also provides traceability information on the product or service available. This certified content is the instrument of the Blue Basket: a product or service 100% made from Quebec inputs would display a dark Blue Basket, and another 60% Quebec made, would carry a lighter Blue Basket. The Blue Basket would make it possible to fast-track the digital transition of our businesses, which, once digitized, will be more efficient and competitive on domestic and foreign markets.

A Blue Basket that could become the cornerstone of an ecological transition strategy for Quebec

Digitization also provides a significant ecological benefit that is too often ignored. Because it includes massive information on the components and origins of all inputs, in addition to manufacturing and distribution processes, it becomes possible to measure the ecological footprint of businesses.

For example, we can find out how far an input is sourced, the type and amount of energy used to manufacture a good, or fuel used to distribute it, the amount of material recycled to make it, or whether it is itself recyclable. The digital revolution therefore becomes a powerful instrument for fast-tracking the ecological transition. By adding shades of green, a Blue Basket could become turquoise: a basket of ecological products and services made in Quebec!

Obviously, as with any major public policy project, a cost-benefit analysis will indeed have to be completed; however, above all, it is important to understand the context of this project. This requires a cultural, organizational and financial shift, in addition to boldness, risk taking, a lot of capital and hiring of new skills. It will take several years to complete, but the project is equal to the challenges initiated by the dual digital and ecological transition. For the benefit of future generations, we must build not only physical but also digital infrastructures.

The idea of the Blue Basket was born out of a commitment to boost the Quebec economy and reduce the ecological footprint of our consumption by buying locally and strengthening Quebec's e-commerce. However, moving from the concept of a tool that would guarantee consumers and businesses that they are buying Quebec made products and services while relying on the "Blue Basket" will require much more than the publication of a directory of Quebec suppliers. Proponents already recognize the challenges associated with the Blue Basket and have launched a series of initiatives to improve it and ensure success. This text is intended to contribute to this reflection.

In Quebec, as anywhere else in the world, the products and services delivered on our markets result from the work of designers, suppliers, manufacturers and distributors whose activities are not necessarily based in Quebec. Indeed, Quebec imports account for 49.8% of its GDP, of which 34.3% originate from foreign countries and 15.5% from other Canadian provinces (Le Québec économique, 2018). In such a context, identifying whether a product or service is "Quebec made" becomes very complex. For example, would a garment made by a Quebec designer but sewn in Vietnam qualify for the Blue Basket? Would a sophisticated robot designed in Quebec but assembled in Mexico be eligible? Would a product imported in bulk and put in small bags to be sold in Quebec qualify because packaging and distribution create jobs in Quebec? Exactness is essential in this exercise, as otherwise, Quebec businesses and consumers will very quickly experience too much "blue washing" to believe in the validity of the Blue Basket.

The purpose of this text is to describe the problem surrounding the Quebec identification of a product or service, a problem arising from the difficulty in establishing their origin and measuring their Quebec content. This document proposes a solution to overcome these difficulties, which has the benefit of making a "three-step stone", i.e. stimulating local purchasing, fast-tracking digitization of the activities of our economic players, and facilitating the ecological transition of our economy. This solution requires the implementation of a genuine digital transition program, which could extend over several years and that would lead our businesses and governments to adopt modern traceability and decentralized distributed registry technologies (the blockchain). We will see, further in this text, that GST and QST digitization could become the springboard for this digital transition.

Would a product imported in bulk and put in small bags to be sold in Quebec qualify for the Blue Basket because packaging and distribution create jobs in Quebec?

The Challenges of Measuring the Quebec Origin and Content

In a completely closed, fullfledged economy, measuring the local content of a good or service, similar to all goods and services products, is not a problem, since they are 100% local. Measuring Gross Domestic Product (GDP) through expenditures does not require the subtraction of any import expenditure, because there is none. Similarly, the measurement of GDP through the inclusion of value-added (also known as the "measure by production factors") does not require the exclusion of any imported inputs, since the inputs are all local. GDP calculation, which measures the value of locally produced goods and services, is relatively simple in such a context.

Let's recall that the value-added of a good or service is the difference between its market value and the value of inputs required to produce it and that it can be calculated at each stage of their production and distribution. This spread matches exactly the amounts used to pay for local inputs, i.e. labour (wages and employee benefits) and capital (interest charges, dividends and corporate net income). Value-added is therefore, by definition, the right measure of a good or service local content.

In an open economy, GDP, calculated by including value-added, remains an adequate measurement of local content for the "overall economy"; the difficulty arises when we want to measure the value-added, i.e. the local content of *a specific good or service*. For a good or service available on the Quebec market may, at all intermediate stages of their production and distribution, sometimes include local inputs, sometimes imported inputs. Let us take the example of the value-added calculation shown in Table 1.

TABLE 1

Calculation of Value-added

	A	B	C	Others
Sales value	100	30	45	25
Intermediate purchase operations				
A				
B	30			
C	40	5		
Other		10	15	
Imports	15	5	20	22
Value-added	15	10	10	3
Rate of value-added	15.0%	33.3%	22.2%	12.0%
Quebec content in the sales of Firm A:				38.0%

Let us consider a product sold to a Quebec consumer for $100 by Firm A, which had to purchase inputs worth $30 from Firm B and inputs worth $40 from Firm C to produce it, in addition to imported inputs worth $15. Firm A's value-added is calculated by subtracting, from the total value of the good sold, the value of all inputs used to produce it, i.e., $15 ($15=$100-$40-$30-$15). Although the value-added of

> Therefore, to measure this value-added, equivalent to local content, of the individual goods and services available, it would be necessary to collate these microeconomic data on the source and relative contribution of inputs at each stage of the production and distribution of all goods and services.

this product is a good measure of its local content, at this last production stage, it would be wrong to state that this product is 15% local made because this would not consider the local contributions of previous suppliers.[1]

The way to consider this is to add up the values added of all companies, including those of previous suppliers. This gives a *total* value-added of $38, i.e. $15 from A, $10 from B, $10 from C and $3 from the other intermediate firms. As a net result, the good sold for $100 on the market includes $38 in value-added and $62 in imports. The $38 value-added provides us with the right measure of this good's local content. This product would be 38% blue.

Therefore, to measure this *value-added equivalent to the local content of* the individual goods and services available, we would have to collate microeconomic data on the source and relative contribution of inputs at each stage of the production and distribution of all goods and services; however, unfortunately, such information is not collated, at least for the time being. Yet, two modern digital technologies could do exactly that: traceability technologies and decentralized distributed ledger (blockchain) technologies applied to indirect taxation.

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[1] I would like to thank André Lemelin for suggesting this example.

Scanning to Generate Traceability Data Identifying the Source of Products and Inputs

To illustrate how digital traceability technologies would make it possible to determine the detailed source of products and services, nothing is better than a concrete example of a successful digital transformation: the experience of *Les Patates Dolbec* of Saint-Ubalde (patatesdolbec.com).

When potatoes arrive at the Dolbec plant, they are stored according to the field where they were harvested and immediately, features are associated with them, such as the variety of potatoes, the personnel who harvested them, and the harvest date and time. *This generates a lot of data right from the start.* From there, they are carried by conveyors to washing machines, and then passed to an optical sorter to determine their shape, size, colour, imperfections or diseases. Potatoes are then placed in bins matching their sorting, which are then weighed and sent to a cold store where they are stored for a few hours or days, waiting to be bagged in order to fulfill customer orders.

Merchants can order the quantity and type of potatoes they wish to buy directly over the internet. A planning exercise follows in order to schedule bagging operations: robots/shuttles bring the bins from the cold store to the robotic packers who take care of putting the potatoes into bags bearing the merchant's brand and reference to the fields harvested and other traceability data (e.g. lot, date, time, etc.). The firm's inventories are recorded automatically and in real time in the enterprise management system (ERP).

At every stage of harvesting and production, from washing to grading, packaging and delivery, the cyber-physical system generates data which are read by sensors, RFID (radio frequency identification and detection technology), "actuators" or digital photo images, and software and wireless solutions. The overall process, from the ground to

the table, is therefore fully digitized and automated and allows a "smart" management of the firm.

Since the digitization of its plant, *Patates Dolbec* delivers more potatoes than before, with the same number of workers, and has managed to substantially reduce its turnaround times. This helps the firm provide its customers with fresh products yearround.

The experience of potato merchants and consumers is greatly improved as a result. Thanks to the numerous data resulting from digitization, product traceability from farm to table is complete and provides an unequalled level of transparency for consumers. Through a simple barcode, they know the exact source of the product they are consuming. In addition, the producer exercises a complete control over the quality of his product and can, if required, recall a specific batch of potatoes, because he knows who bought what, when and from which batches potatoes come from. *Epsilia* and *Divel* are the two partners who have coached *Patates Dolbec* in this digital transformation. Since 2019, they have become subsidiaries of *Noovelia*, a company involved in the digital transformation of small and medium-sized businesses in Quebec. There are many examples of agri-food and manufacturing companies which have already integrated traceability technologies into their business model (Petrillo et al., 2018 and Poore et al., 2018).

> Thanks to the numerous data resulting from digitization, product traceability from farm to table is complete and provides an unequalled level of transparency for consumers. Through a simple barcode, they know the exact source of the product they are consuming.

Applying Distributed Ledger Technologies to GST and QST to Measure the Local Content of Economic Activity

I n addition to tracing the source of products, digitization provides a wealth of data which would, *in principle*, help measure the relative importance of local inputs to imported inputs at each stage of the production and distribution processes. But how can all economic activity be digitized in such a way as to capture this huge amount of data, share it in a standardized and secure way between consenting stakeholders, while complying with the confidential and strategic nature of personal and/or business data that sometimes compete? This is where decentralized distributed ledger (blockchain) technologies come into play (Fernandez-Caramés et al., 2019; OECD, 2019).

To understand how these technologies work, let us take the example of a real estate transaction. When a house is sold, the transaction is recorded in the land registry, which confirms that it has indeed taken place, at what price, between a buyer and a seller, etc. Before being completed, this transaction has been reviewed by a notary who has checked in other registries, the validity of the land registry, the name of the owner of the house, etc.; the bank has also checked, in its registries and other credit files, the solvency of the buyer before granting a loan. There are many different registries, and each one has the function of certifying the veracity of the information it contains so that transactions can be made with confidence. The same real estate transaction carried out by the "blockchain" technology would instantly be carried out on a single registry shared by all the agents involved in the transaction. The veracity of this registry would be guaranteed by its transparency, as it would be fully accessible and verifiable by all those who share it and as it could not be modified without the consent of all parties involved in this shared registry.

> The veracity of this ledger would be guaranteed by its transparency, as it would be fully accessible and auditable by all those who share it and it could not be changed without the consent of all stakeholders in this shared ledger.

For it must be understood that it is in the DNA of distributed ledger technology to record the complete history of the steps leading up to the most recent transaction.

These blockchain technologies, that have been publicized through Bitcoin, are gaining prominence in the financial and industrial sectors, but they are also attracting increasing interest from governments (Moné, 2019; Owens, 2017). Many of these government initiatives relate to areas such as currency and payment systems, recording of real estate transactions, public health systems, identity management, etc. (Moné, 2019; Owens, 2017). The Quebec Government has also announced plans to provide Quebecers with a digital identity using blockchain technologies.

More recently, a large number of countries and experts have focussed on the application of this technology to taxation systems because of its many benefits. It appears that, once implemented, this technology helps improve compliance with laws, reduce transaction costs and eliminate tax evasion and fraud, in addition to its positive impact on corruption prevention, the verification of business-to-business transfer pricing and the improvement of collection of customs duties and excise taxes. (Bulk, 2018; Deloitte, 2017; PWC, 2018; VATBOX, 2018).

To better appreciate the benefits of this technology in the context of the collection of the GST and QST, it is useful to remember that currently, this collection effort requires at least six steps: (1) an invoice including taxes is issued by the seller; (2) the customer pays the invoice including taxes; (3) the information concerning this transaction is recorded in the seller's systems; (4) the seller, for its part, pays its suppliers' invoices (including taxes); (5) the seller makes a monthly report to tax authorities; and (6) the seller pays or receives the net amount of taxes collected minus taxes paid. These six steps are replicated each time a transaction takes place, at all intermediate levels of production and distribution of a good or service, as illustrated in the example in Table 1.

In a regime using distributed ledger technology, a customer pays the invoice including taxes, and the amount of taxes is remitted directly to tax authorities, and the seller's account is credited simultaneously; the same applies to all suppliers of that retailer or producer. Everything is concurrent and executed through *smart* contracts, without risk of fraud, and all tax-related information is *recorded*.

The digitization of GST and QST would help Revenu Québec determine the valueadded of the individual products and services sold in its jurisdiction. For it must be understood that it is in the DNA of distributed ledger technology to record the complete history of the steps leading to the most recent transaction. Since Revenu Québec would be involved in all GST and QST transactions, it would have a complete picture, from start to finish, of all sales and the value of all inputs for the individual goods and services sold on the market at each intermediate stage of manufacturing and distribution.

This information is precisely the one that is used to calculate the value-added of a product or service. Revenu Québec would therefore be in a position to certify the valueadded and therefore, the percentage of local content of the individual goods and services available from businesses collecting the GST and QST in its jurisdiction. This certified percentage could be added to the QR Code, which would also include traceability information on the product or service available on the market. This certified percentage is the Blue Basket instrument: a product or service 100% made from Quebec inputs would display a dark Blue Basket, another 60% Quebec-made product would display a lighter Blue Basket.

It should be specified from the outset that this information would be recorded on highly secure ledgers to protect the confidentiality of the information of the businesses and individuals involved, because of the type of network that would be used. In the world of distributed ledger technology, there is a fundamental distinction between public, private and federal networks (Casino et al., 2019). In the context of the application of this technology to indirect taxation, the selected network would normally be a private or federated network because they are more secure than public networks and help stakeholders, buyers and sellers get to know each other; in addition, these types of networks are very efficient, less energy intensive and able to approve transactions almost instantaneously. However, since the federal and provincial governments would be stakeholders in all these private networks, the governance and management mechanisms would make them federated networks.

The great benefits of this version of blockchain technology are transparency, efficiency, robustness and safety, which are recognized here. The implementation of this technology, however, requires an approach that engages all components of the ecosystem of the taxation regime where the decentralized distributed ledger will be implemented. In a recent study on the possible application of this technology to the Dutch tax system (Ryjswijk, 2018), the authors stressed the need to properly plan and execute such a digital transformation. They argue that in an ideal scenario, governments will be leaders in the adoption of this technology, industries will use it first to optimize their supply and distribution chains, and the civil society will eventually accept and trust it if it is convinced that it complies with the privacy of individuals. Fortunately, this is one of the strengths of this technology, in a private or federated network. This feature will prevent competitors from being able to calculate

> Based on these criteria and the need to measure local content at a very granular level to obtain a credible and effective Blue Basket, full digitization of GST and QST through distributed ledger technology appears to be the best approach.

the profit margins of companies involved in this private and federated network. Data would be encrypted only on government ledgers where the calculation would be performed by appropriate algorithms.

Based on these criteria and the need to measure local content at a very granular level to obtain a credible and effective Blue Basket, full digitization of GST and QST through distributed ledger technology appears to be the best approach. Indeed, these two taxes appear in all industrial sectors and in all businesses (even if some products are exempt, the distributors of these products claim taxes they have paid on inputs) and they involve all Canadian governments.

Costs and Benefits of the Proposal

It will be easy to object to this proposal for a digital transformation of our indirect taxation system by referring the complexity, risks and costs of this transformation. As with any major public policy project, a cost-benefit analysis will indeed have to be completed by experts, but it is paramount to understand the context of this project.

The entire planet is in the midst of a digital and scientific revolution, and Quebec clients, similar to clients in the regions and countries where we export, expect highquality products and services adapted to the digital age. Advances in Industry 4.0 and digitization are redefining business supply chains and optimizing production processes while shifting the sources of value creation. Every digitized manufacturing and agri-food activity and every digitized service process remains in continuous contact with other objects and other agents so that data is constantly being produced and traded. "Data" becomes gold for understanding issues and making decisions. This data production will grow dramatically as all sectors of the global economy become digitized and the technologies of "blockchain" and artificial technologies and virtual and augmented reality become more widespread. The number of interconnected objects already stands at 25 billion and is expected to triple by 2025! This is the main source of productivity growth in the years to come. This revolution will take a quantum leap when 5G communications technologies are rolled out, as data capture capabilities will be almost infinite and data transfer will be exponentially faster (Burke, 2019 and Pansanen et al., 2020).

Several practical considerations will need to be addressed in the implementation of this proposal; for example, at the level of individual firms, there will need to be a "proper" allocation of local inputs and imported inputs in principle to each product. In practice, however, this is likely to be completed for groups of products, and in some cases even this value-added calculation will be performed at the level of a section of the plant or

business, or even at the level of the entire plant or business. It will be important to use judgment to avoid that the best alternative becomes the enemy of the good.

Many regret the fact that digitization and robotization are destroying jobs and increasing inequalities.[2] It must be recognized that technological change, while increasing productivity, creates winners and losers; this is why it is essential that public policies follow up these technological changes with training and transition programs for the workers who will be the victims; several companies are successfully completing their digital transition by retaining the staff they train to work with the new technologies; the *Patates Dolbec* case is a good example of this. This is why in refusing to accept this change; there is no point in waging war on it; rather, we must use it as an ally, as otherwise our ability to remain competitive and to sell on foreign markets and even on our own domestic markets will be reduced, and we will all lose out.

We should add that in the context of the health crisis, due to the growing concern of consumers and distributors about the quality and safety of the food and products they buy, and under the new rules governing international trade treaties, the countries that import our products, food and services are increasingly demanding full traceability of the goods we make available to them. Our international customers, like Quebecers, want to know the source and exact composition of the inputs used to produce the goods and the products made available to them. The digitization of manufacturing and agrifood activity using shared ledger technology is a key step in their traceability.

In 2020, managing an agri-food, manufacturing or service company means managing an increasingly technological company, and therefore technological risk is added to the usual financial and business risks. Managers and their shareholders must therefore decide on the degree of digitization, connection, automation, and the level of security they wish to implement in order to remain competitive and ensure the sustainability and growth of their business. This new, very promising business paradigm makes it possible to renew the ways to create, produce and distribute goods and services, but it requires a cultural, organizational and financial shift which involves boldness, risktaking, a lot of capital and hiring of new skills. This is quite a challenge!

However, a CEFRIO study for the Ministère de l'Économie, de la Science et de l'Innovation (2017, update 2020) emphasized that only 55% of manufacturing companies in Quebec were aware of 4.0 and that only 22% had a digital strategy to complete a transition with smart manufacturing. This study is in line with the concerns of Quebec International (2017). Digitizing GST and QST would encourage, if not

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[2] According to the *CIRANO Barometer*, 61% of Quebecers believe that IA will change workers' tasks and 53% believe that IA will cause many workers to lose their jobs. (De Marcellis-Warin and Peignier, 2018).

force, businesses to digitize their operations. This would create the momentum needed to complete the transition.

What About a Turquoise Basket?

Because it provides a lot of information about the components and origins of all inputs, in addition to manufacturing and distribution processes, digitization makes it possible to measure a firm's environmental footprint.

The Blue Basket is sound if it fast-tracks the digital transition of our businesses, because once digitized, they will be more efficient and competitive in domestic and foreign markets. Theoretically, this should translate into an increase in their share of digital markets. But make no mistake about it: Quebec will remain an open economy that will still benefit greatly from its foreign trade in terms of both imports and exports, which is a desirable benefit. The difference is that consumers and manufacturers will be able to make an informed choice to buy or not to buy a local product or service.

We should also add that in a completely digitalized world, it would even be possible to measure the Quebec content of an imported input to be used to manufacture a Quebec product. For example, a book printed in Quebec on paper made in Ontario from trees exported from Quebec to Ontario would be fully traceable. This world would in fact provide the digital infrastructure for the circular economy! But already, digitization provides a first significant ecological benefit, which is often ignored. Because it provides a wealth of information on the components and origins of all inputs, in addition to manufacturing and distribution processes, it becomes possible to measure a firm's ecological footprint. For example, we can find out how far a company travels to source a specific input, the type and amount of energy used to manufacture a good, or the fuel used to distribute it, the amount of material recycled to make it, or whether it is itself recyclable. Other types of information could also be collected on wastewater discharges, soil contamination resulting from the production processes, etc. This greater "transparency" therefore makes it easier to identify and measure the positive and negative externalities arising from an economic activity. The digital revolution therefore becomes a powerful instrument to fast-track the ecological transition (Brady et al., 2019; Kaan et al., 2017). The Blue Basket could therefore become the cornerstone of an ecological transition strategy by adding shades of green to become turquoise: a basket of Quebec made ecological products and services!

Obviously, the same policies could be implemented by all Canadian governments in order to fast-track the country's dual digital and ecological transition. Such a project is certainly bold, but it is a response to the challenges we are now facing. The previous generations built large physical transportation and communications infrastructures, such as the railways, the Trans-Canada Highway and the St. Lawrence Seaway, which

have contributed to our wealth today. We also benefit from a very large hydro-electric power grid and land-based and wireless telephone networks that are on the critical path of digital transformation. It is now up to us to build the platforms of the New "Digital" World to make our businesses more competitive and to address the ecological emergency.

Other countries are already seeking to identify this bold trajectory to fast-track the dual green digital transition in order to produce and deliver quality, environmentally friendly goods and services to future generations. Once implemented, traceability could even be useful for green finance, socially responsible investment and inclusive capitalism through the emergence of rainbow-coloured certified QR Codes. The technology will then become an ally of economic progress that is not only more ecological, but also more humane.

It is now up to us to build the platforms of the New "Digital" World to make our companies more competitive and face the ecological emergency.

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