

Current State of the Financial Technology Innovation Ecosystem in the Toronto Region

A REPORT FROM THE INNOVATION POLICY LAB
MUNK SCHOOL OF GLOBAL AFFAIRS
UNIVERSITY OF TORONTO
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At the Munk School of Global Affairs

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The Innovation Policy Lab

The Innovation Policy Lab (IPL) is the exciting new hub within the Munk School of Global Affairs whose mission is to study, teach, and apply novel methods and disciplines to the study of innovation and its impact on growth and society.

Bringing together teams of researchers from multiple schools and departments at the University of Toronto, as well as from other institutions in countries across the globe, the IPL focuses on core questions in a number of areas including innovation and growth, innovation and inequality, globalization and innovation, social innovation, new technologies and their impact on society, innovation in traditional industries, and arts and innovation. Since our aim is not only to advance basic research but also to effect change, we pay particular attention to the role of public policy in nurturing innovation, while at the same time enhancing its positive impacts on society and limiting its negative consequences.

About the Toronto Financial Services Alliance

The Toronto Financial Services Alliance (TFSA) is a unique, public-private partnership dedicated to growing Toronto region's financial services cluster and building it as a global financial services centre. Established in 2001, TFSA is a collaboration involving three levels of government, the financial services industry and academia.

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1.0

Introduction

The growth and dynamism of the financial service sector is crucial to Toronto's future economic success. Long viewed as one of the most stable and secure sectors in the Greater Toronto Area's (GTA) economic structure, the financial industry currently faces a growing number of challenges, chief among them is the rapid pace of information technology innovations (Fintech) that are altering the way financial services are delivered. The risk for established financial institutions is that they will lose many of their most profitable lines of business to the new competitors, while the new Fintech companies establish themselves as the trusted intermediaries between them and their customers. Technically, these dual threats are now called unbundling and disintermediation.

The rise of Fintech companies, coupled with the changing landscape of global finance have led to a growing recognition that Toronto's financial industry faces serious long-term challenges with the potential to destabilize the entire sector and with it, the local economy.² While there is a widespread acceptance within Toronto's financial industry of the need to marshal the full capabilities of the financial services institutions to respond to this challenge, it is not clear that this includes an adequate understanding of the importance of supporting the Fintech innovation ecosystem. A necessary first step in doing so is to analyze the nature and extent of the

resources and innovation assets available in the Toronto innovation ecosystem, so that we can design strategy and suggest policy options for the financial services sector.

To accomplish this, the Innovation Policy Lab, with support from the Toronto Financial Services Alliance, has undertaken a strategic mapping exercise of the actors, resources and innovation assets in the Toronto region using the ecosystem approach. We have used the resulting picture of the Fintech ecosystem in the GTA-KW corridor to suggest an approach leading toward a tailored strategic vision of how to move Toronto's financial industry forward, allowing us to chart a unique course of development, which will differentiate it from strategies developed elsewhere.

Summary of Key Findings

This reports maps the key dimensions of the Fintech ecosystem in the greater Toronto region, including the digital corridor that stretches from the western end of the GTA to Kitchener-Waterloo. In doing so, it provides answers to the key question posed in the report: what are the defining characteristics or unique capabilities of the innovation ecosystem that supports the financial services cluster in the Toronto region? To do so we identify the critical links between the key domains that define the Toronto financial services cluster, particularly the linkages between ICT and financial firms in the Toronto region.

² Tim Kildaze, "Too Big to Disrupt? Canada's banks fight back against the likes of Apple, Facebook," *The Globe and Mail*, December 19, 2014.

The key findings of the report are the following:

1. While the GTA has all the necessary components for a dynamic and thriving Fintech ecosystem, they are weakly linked. The consequence is that the parts do not currently add up to an effective ecosystem. In short: we have many of the essential parts, but are missing the system.
2. Despite encouraging signs, so far, Canadian financial institutions have not been as effective as their competitors in other international centres, like New York and London at developing strong partnerships with Fintech startups. Even where relationships between leading financial firms and local Fintech companies exist, they tend to be located at the margins of the financial institutions' main operations, in incubators or accelerators. Furthermore, the individuals assigned by the banks to represent them in such incubators often lack the executive power to make the strategic decisions required to fully realize the potential of the relationship. The result is that Canadian Fintech companies developing products with the aim of becoming partners or suppliers to domestic financial institutions are at a significant disadvantage vis-à-vis their American and UK competitors. In short, one of the greatest potential advantages of the GTA, the concentration of leading financial institutions, is being significantly underutilized in growing the ecosystem.
3. Without a more effective connection between financial services and ICT, the outcome will be that the main road to success for Fintech firms in the GTA, will be to develop products and strategies that do not need the banks as partners, do not see the banks as key customers for their products and services, or indeed, to develop offerings that directly compete with the established financial firms.
4. Canadian banks may in fact be more vulnerable to unbundling and disintermediation than is generally perceived. While there is a certain perception that Canada's current regulatory environment provides an effective 'moat' around the activities of its leading financial institutions, because of the relatively protected environment in which they operate, the financial institutions have been slow to react to the emerging challenge posed by the Fintech startups, and with a few notable exceptions, have been even slower to partner with the startups. Indeed, in many product offerings the perception is that the products of Canadian banks are both slower (in terms of transaction time) and more expensive than even the most basic products available elsewhere, such as in the case of cheque deposits. Further, Canadian banks are often slow to respond to opportunities to work with emerging Fintech firms. The head of one highly successful Fintech firm in Toronto observed that they had been contacted by virtually all the leading banks in the U.S. long before they heard from any Canadian financial institutions.
5. Canadian financial regulations, considered by some as "best in kind," are seen as a source of strength allowing Canada's financial industry to develop a trusted and secure brand in comparison with their international competitors. However, with the rapid rise of Fintech, there is a growing and significant disconnect between the regulators and the latest technological advances. The result is that current regulations make it extremely difficult to undertake the low-level-rapid-experimentation that is necessary to develop safe, useful Fintech products. Even what are now considered to be basic Fintech offerings - such as crowd sourcing and loans - cannot be developed and offered in Canada with the participation of a licensed bank. Thus, what has traditionally been seen as a source of competitive advantage for the financial service sector, our regulatory system, is now seen by many to be an obstacle in the context of the evolving Fintech ecosystem. We believe that it is possible to turn our regulatory

environment into an effective growth asset. If the financial sector in Toronto can brand Toronto as a Fintech centre that is safe and reliable, *as well as* flexible and innovative, it can create a powerful asset for the Fintech ecosystem.

6. One of the critical elements of the ecosystem that is currently missing in Toronto is the presence of large, *inexpensive* incubator centres offering basic services with high connectivity at highly discounted rates. While a number of incubators exist, the inexpensive ones are far below the scale currently found in London and New York, and the more expensive ones demand rents far above what startups can afford. The result is that in New York and London large numbers of Fintech startups are working in close proximity to each other and are building effective relationships with financial institutions, but not in Toronto.
7. It also appears that despite recent efforts by the federal and provincial governments to increase the supply of seed and very early venture capital available to startups in Canada and Ontario, there may still be a shortage. This suggests a more direct approach, for examples, grants or conditionally repayable loans as a policy area for increased government participation. Here Canada might wish to learn from other “best in kind” international cases such as Israel and Finland.
8. The combined effect of the lack of a true ecosystem, difficulties in collaborating with leading Canadian financial institutions, the regulatory environment, and the lack of scale-up resources, means that that even when successful Canadian Fintech companies opt to stay in Canada, they are slower to scale-up compared to their U.S and U.K. competitors. This prevents Toronto’s Fintech industry from reaching its potential and cementing itself as a leading global hub. Further, since most of the economic growth benefits accrue to the region when its companies scale-up, this is a significant lost economic benefit to the GTA.

The key challenge going forward, therefore, is to develop a vision as to what are the most appropriate policy interventions to increase the connections and linkages among the components of the ecosystem currently found in the Toronto region. We have all the ingredients for a dynamic Fintech ecosystem; what we are lacking are active organizations that see it as part of their core roles to strengthen the linkages between the siloed assets and transform them into a vibrant and active ecosystem. As part of this challenge the TFSA, working with its partners such as the Ontario Centres of Excellence (OCE), should develop a strategy to determine the most effective way to support the creation of an innovation platform (for example around payments or security) for the Fintech ecosystem to facilitate the rapid development of multiple new Fintech applications.

The information gathered in this report provides the basis for the development of a strategic vision for the region and an experimental evolutionary growth strategy based on a series of interventions. The report defines a vision for how the Toronto Fintech ecosystem can use the experimental steps as a basis for determining what interventions work best and which are likely to prove most effective in taking the financial services cluster to the next stage of development.

The Innovation Ecosystem Approach

The innovation ecosystem approach has been widely adopted to support the establishment of high growth firms and leverage the flow of knowledge between firms and research organizations in their economies.³ This approach is a sophisticated way of seeing the innovation system as a whole that enables both

³ The terms ‘entrepreneurial ecosystem’ and ‘innovation ecosystem’ are both used widely in the literature. While they each have a different specific meaning, they share many characteristics in common. We will adopt the term innovation ecosystem for purposes of this study, but draw upon the concepts and ideas that describe both.

practitioners and policy makers to focus on the collaborative, interdependent nature of the innovation process and identify the best means of stimulating productive networks and relationships between firms and a range of support organizations. A recent report from the OECD's Local Economic and Employment Development Program underlines the rationale for adopting the ecosystem perspective. The report notes that the factors which affect the success of these firms are grounded in the broader conditions of the urban and regional economy in which the firms are located, in other words the entrepreneurial ecosystem of that city or region.⁴

The innovation ecosystem perspective builds on the insight that *innovative behaviour and competitive capabilities are strongly conditioned by a broader set of factors embedded in the economic, social and organizational dynamics of the local or regional economy*. Rather than narrowly focusing on the contribution made by individual research infrastructures to specific industrial sectors or niches of regional specialization, the ecosystem perspective draws attention to the critical role played by innovation 'hubs' or 'communities of innovation' that provide needed support for entrepreneurial firms and facilitate more agile responses to shifting technological and market conditions. The structure of innovation ecosystems varies considerably due to the differences in regional priorities, local economic and political conditions, historical contexts, and the agency of local research and innovation actors. As a consequence, there are a number of variables that influence the interaction of innovation ecosystem members, the strength of the relationships formed, and more broadly, the ecosystem's capacity to innovate.

Daniel Isenberg suggests that successful ecosystems share a number of common properties. Each ecosystem consists of six general domains that include a culture

that is supportive of innovation and entrepreneurship, enabling policies and leadership, an adequate supply of financing to support startup firms, ready access to well-educated human capital, access to markets for the products or services that the ecosystem provides, and a range of necessary institutional and infrastructure supports. Although all successful ecosystems share these domains in common, each one is unique and the path to success is usually defined by a specific blend of factors and decisions that contributed to the growth and development of that ecosystem. In fact, most successful ecosystems are the result of critical interventions by key actors and local leaders, often within the context of a supportive policy environment, but rarely led exclusively by public sector actors. Isenberg argues that successful ecosystems are "usually the result of intelligent evolution, a process that blends the invisible hand of markets and the deliberate helping hand of public leadership . . ."⁵

The ecosystem approach has distinct implications for the way it views the role of government and the appropriate public policies at different levels of government. A critical role that government can play is to introduce mechanisms that facilitate a high degree of interaction among members of the ecosystem outlined above at the local level and provide needed mentoring and supports for the nascent or serial entrepreneurs through programs such as entrepreneurs-in-residence or locally organized peer-to-peer networking and other events for local entrepreneurs. The OECD report stresses the point that "an important task for local policy makers should be to support forms of business advice and business mentoring where ambitious and fast-growing entrepreneurs can learn how to achieve and manage business growth from the best sources of professional advice as well as from other experienced entrepreneurs (i.e. peer-to-peer learning)."⁶

⁵ Daniel Isenberg, "Introducing the Entrepreneurship Ecosystem: Four Defining Characteristics," *Forbes* May 25, 2011. Available online at <http://onforb.es/>

⁶ OECD, p. 134.

⁴ OECD, *Job Creation and Local Economic Development*, Paris: OECD Publishing, 2014.

2.0

Benchmarking the Toronto Region Fintech Ecosystem

While Toronto still scores relatively high on most international benchmarking exercises, our interviews with global firms indicate that they still place Toronto as a good secondary hub in their strategic global positioning. In the years immediately following the global financial crisis, Toronto was widely perceived as having the potential to become a tier one hub due to the stability of the sector and secure environment afforded to it by the prevailing regulatory regime. Whether the expectations were unrealistic or whether Toronto's current strengths are not adequately recognized, it is clear that more work needs to be done to continue to capitalize on the opportunity that the global crisis provided for the region and its financial sector. It is not too late to capitalize on the unique assets found in this region and the opportunities they provide for a dynamic financial services and Fintech ecosystem. But the time for action is growing shorter.

The economy of the GTA currently accounts for 1,384,390 jobs, an increase of 1.5 per cent jobs from the previous year.⁷ The range of economic activity in the GTA is quite diverse. While no single industry or sector dominates, Toronto's three largest industries (by percentage of GDP) are Financial Services

⁷ City of Toronto. *Profile Toronto: Toronto Employment Survey 2014*. Toronto: City of Toronto, 2014.

(14 per cent), Real Estate (14 per cent), and Wholesale and Retail Trade (12 per cent).⁸

The Toronto Employment Survey identifies several strong clusters supporting the city's economy. The largest clusters are nearly all service-oriented. These include the city's Financial Services cluster; Creative, Cultural & Multimedia Cluster; and its ICT cluster. The report asserts that these key service clusters have grown in each of the last three years and Toronto accounts for the highest concentration compared in the country as a whole.

PwC's *Cities of Opportunity 6* finds that there is significant correspondence between a city's economic clout, costs and the ease of doing business. In PwC's oft cited index only three cities ranked in the top five of this "economic trifecta": New York, San Francisco, and Toronto. According to PwC, this successful triad is known for their experience and 'clout' indicating many years of planning and building through "perpetual management, development, and, especially, resourcefulness".⁹ Toronto sets an example

⁸ Invest Toronto, *Key Business Sectors: Financial Services*. Toronto, 2015. Online posting: <http://www.investtoronto.ca/Business-Toronto/Key-Business-Sectors/Financial-Services.aspx>. Accessed 22 May 2015.

⁹ PwC Cities of Opportunity PwC 2014, PriceWaterhouseCoopers, New York, 2014, p. 55. Online posting: <http://www.pwc.com/us/en/cities-of-opportunity/2014/assets/cities-of-opportunity-2014.pdf>

as a “smaller city with outsized economic influence globally”.¹⁰ This is exemplified in Toronto’s out-ranking of such cities as London (5th), San Francisco (8th), Stockholm (10th), Tokyo (12th), Sydney (13th), and Paris (14th) in the study’s ‘Ease of Doing Business indicator’.

According to the Global Startup Ecosystem Ranking 2015 from New York-based accelerator and think tank Compass, Toronto is home to the largest startup ecosystem in Canada and, at 17th overall, the city ranks relatively high among global startup communities (Herrmann et al. 2015). The Toronto startup ecosystem experienced a significant fall in its standing since the last ranking in 2012, from 8th place to 17th. Nonetheless, Compass still comments that the ecosystem has grown over the past three years and now is comprised of between 2,500 to 4,100 active tech startups. The report observes that a critical issue for the Toronto ecosystem is access to later stage funding, an observation reflected in our interviews for this project. In the words of the report,

To ensure the city’s competitiveness on a global level, Toronto has to improve local access to venture capital (ranked #18). Most experts agree that access to seed and Series A funding are less of a concern. However, startups have been strongly dependent on U.S. VC firms for later-stage investments. A growing number of startups have been able to secure later stage funding, sometimes with local venture capitalists taking the lead, yet the structural gap around series B funding persists.¹¹

Financial Services in the Toronto Region

Home to nearly 30 per cent of Canada’s financial services workforce (over 245,000

employees), Toronto’s financial services sector is the largest in the country.¹² The Conference Board of Canada found that there were 469 financial services firms in the GTA in 2012; the majority of these firms (87.5 per cent) were small businesses with less than 20 employees.¹³ Expanding financial and high-tech centres attract major global employers and skilled talent.¹⁴ As a global financial hub, Toronto is an important second-tier centre. Toronto is most often inserted into a peer group with cities such as Frankfurt, Sydney, and Zurich.

Toronto also performs well among its peers on two of the foremost global financial centre indices: MasterCard’s *Worldwide Centers of Commerce Index* and Z/Yen Group’s bi-annual *Global Financial Centres Index*.

MasterCard’s (2008) *Worldwide Centers of Commerce Index* rated 75 cities on seven weighted dimensions that aggregate available data on the following region-specific considerations: legal and political framework, economic stability, ease of doing business, financial flow, business centre, knowledge creation and information flow, and livability. The index solidifies London’s position as ‘the world’s best financial and commercial city’, though several other global financial hubs are highlighted as emerging powerhouses within the international banking scene. The index’s North American regional sub-rankings gives top spot to Los Angeles followed by New York, Chicago and Toronto respectively out of 14 cities (including 11 US cities and three Canadian Cities: Toronto, Montreal and Vancouver).

¹² Invest Toronto, 2015.

¹³ Michael, B., K. Audette and C. Sutherland. *Ensuring the Future: Understanding the Importance of Toronto’s Financial Services Sector*. The Conference Board of Canada, Ottawa, 2013.

¹⁴ DeVol, R., M. Ratnatunga and A. Bedroussian, *2014 Best-Performing Cities: Where America’s Jobs Are Created and Sustained*. Milken Institute, Santa Monica, CA. January 2015. Online posting: <http://www.best-cities.org/2014/best-performing-cities-report-2014.pdf>; S, Evans, *The Future Outlook for People Risk*. London, UK: Aon Hewitt, 2013. Online posting: http://www.tfsa.ca/storage/reports/The_Future_Outlook_For_People_Risk_%20AON%20Hewitt_%20March2013.pdf.

¹⁰ PwC, p. 56.

¹¹ Herrmann, B. L., J-F Gauthier, D. Holtschke, R. Berman, and M. Marmer. *The Global Startup Ecosystem Ranking*, Compass, New York, 2015, p. 112.

Sponsored by the City of London, The Global Financial Centres Index (GFCI) is an ongoing series of biannual reports produced by the commercial think-tank and consultancy firm, Z/Yen Group. Financial centre assessments are based on evidence collected through both primary and secondary research, including mixed methodology questionnaires completed by a sample of international financial services professionals and analysis of over 100 indices from international organizations that rank the competitiveness of international cities and their supporting industries. To rate and rank the world's top financial centres, the GFCI utilizes five general assessment categories that look at instrumental factors of global financial services competitiveness. These factors include sub-indices that examine five core competitiveness indicators: people, business environment, market access, infrastructure and general competitiveness.

In the most recent edition of the index, GFCI 18, eight North American financial centres occupy spots within the index's top 20. Analysis of North American-based financial centres reveals that four out of the top five North American centres moved up in the rankings. Interestingly, Fintech hotbed San Francisco moved a slight step down, having lost some of the Fintech gains made in GFCI 16 to cities such as Chicago, Boston, and Toronto - all of whom saw positional improvements over the previous GFCI measures. After two years in which Toronto ranked just outside the GFCI's overall top 10, this year Toronto moved to number 8. This put it just behind the pack leaders consisting of: New York, London, Hong Kong, Singapore, Tokyo, Zurich, Seoul, and just above Washington (DC), Chicago, Boston and San Francisco.

Additionally, the GFCI's individual centre profiles further group centres into three levels (global, transnational, and local) and categories based on similarities among the financial centre's economic significance (either a global, regional, or local scope); diversity (from broad, diversified to specialized) and sector maturation. Toronto falls into the most significant profile category, 'Broad & Deep Global Leaders', counting among its peers Frankfurt, Hong Kong, London, New York

City, Seoul, Tokyo, and Zurich. Using the data collected through surveys of professionals working in relevant industry sub-sectors, the GFCI assesses a centre's depth within the following industry 'specialty' sectors: investment management, banking, insurance, professional services and government and regulatory. In GFCI 18's industry sub-sector rankings, Toronto ranks in the top 10 in two subsectors: Investment Management and Government and Regulatory.¹⁵

The ICT Sector in the Toronto Region

The Information and Communications Technology (ICT) sector is another major component of Toronto's economy. The sector employs 161,000 people in the City of Toronto, in 11,500 firms. Unlike the financial services sectors, however, where the firms tend to be large, the vast majority of firms in this sector have fewer than 50 employees.¹⁶

The financial services industry is one of the largest consumers of information and communication technologies and services, and these tech products and services are transforming the region's financial services sector, enabling financial services firms to meet the needs of consumers; to more efficiently identify risks and opportunities; to reach a wider market, and to enhance competitiveness. According to data compiled by the Canadian Bankers Association, the largest banks alone collectively spent \$55.8 billion on technology between 1996 and 2009, and \$7 billion in 2011 alone, with the bulk of this spending concentrated in the Toronto region. The ICT industry in the Toronto region earns 16 per cent of its sales from financial and business services. A previous study of the links between the financial services and ICT sectors documented the complex and nuanced interrelations between the two sectors in the Toronto region, but suggested that

¹⁵ Z/Yen Group and M. Yeandle, *The Global Financial Centres Index 18*. London, UK: Z/Yen Group, Long Finance, & Qatar Financial Centre Authority. October 2015.

¹⁶ City of Toronto, *Canada's High Tech Hub: Toronto*. Toronto. 2010.

financial services was not fully exploiting the regional capabilities of indigenous ICT firms, especially in the software sector, to develop the region's unique capabilities and exploit niche opportunities in the global marketplace for financial services.¹⁷

Benchmarking Toronto against Global Fintech Centres

While the Fintech sector is too young to have generated substantial benchmarking reports on a global basis, a number of reports surveyed for this study suggest that among the leading Fintech centres on a global basis are some of the cities already recognized as leading global financial centres, such as New York and London, but also some surprising upstarts, who through a combination of effective leadership and visionary policies are rapidly emerging as global Fintech centres in their own right. What we can do is analyze key centres through the lens of specific technologies.

For example, demand for mobile, analytics, cloud, compliance and security technology-solutions on the part of banks, capital markets firms and insurers is driving the growth of the information technology sector. With an estimated global spend of \$486 billion on IT in 2014, "The financial services industry is more focused on technology innovation than at any other point in its history; and it has serious buying power."¹⁸ Between 2010 and 2013, the global investment in Fintech companies grew at a rate that is four times faster than the growth of total venture capital investment.¹⁹

¹⁷ D. Wolfe et al., *Innovation and Knowledge Flows in the Financial Services and ICT Sectors of the Toronto Region*. A report prepared for the Ontario Ministry of Research and Innovation, the Toronto Region Research Alliance, and the City of Toronto. Toronto: November 2011.

¹⁸ Accenture, *The Rise of Fintech: New York's Opportunity for Tech Leadership*. New York: Accenture & Partnership Fund for New York City, 2014, p. 4. Online posting: www.fintechinnovationlab.com.

¹⁹ Ibid.

According to a recent report by Accenture:

Open source software and cloud technology have lowered barriers to entry for new technology startups, contributing to the proliferation of new Fintech ventures. At the same time, financial institutions are under increasing pressure to cut costs and exploit the growth opportunities offered by the digital revolution at a time when the legacy of the financial crisis and tougher capital requirements has made it more difficult to do so in-house. Rather like the pharmaceutical industry, more and more innovation and new product development is being done by small, independent firms.²⁰

While the global investment in Fintech grew exponentially in 2014, there remain both global and regional imbalances. Of the over \$12.21 billion invested world-wide, the US-based Fintech sector accounted for well over \$9 billion of that amount (Accenture 2015). While the US maintained its Fintech investment dominance, it was Europe that experienced the highest level of investment growth in 2014 with an increase of 215 per cent since 2013.

Accenture's 2015 report *The Future of Fintech and Banking* points to three key areas of emphasis needed for financial services companies to have future Fintech success: open innovation, collaboration, and investment. Accenture suggests that financial organizations, in particular, international banks must 'act open' in order to reap the benefits of Fintech innovation. This ideally involves, opening up the organisation's own intellectual property (IP), assets and expertise to outside innovators to help generate new ideas, change organisational culture, identify and attract new skills, and discover new areas for growth".²¹ Collaboration involves a 'culture shift' toward a more open approach to partnerships with 'non-core' industries and engagement with startups. This is seen as a persistent challenge among traditional

²⁰ Ibid, p. 2

²¹ Accenture. *The Future of Fintech and Banking: Digitally disrupted or reimagined?* London, UK: Accenture, 2015, p. 8.

financial services organizations. Accenture asserts that cross-industry collaboration is at the heart of Fintech successes and a vital component to firm-level growth: "In order to maintain and grow value in these times of change, established players should look to collaborate more closely with those in different industries and with different outlooks to identify new ways to generate value."²²

M-commerce / Mobile Payments

According to A.T. Kearney's *2014 Global Retail Development Index*, one of the chief concerns of global retailers is their ability to introduce m-commerce and take advantage of growing consumer demand for such financial vehicles as credit cards, cash-on-delivery, and mobile payments within new markets.²³ Similarly, the World Economic Forum (WEF) argues that branchless banking "is changing the economics of providing financial services by leveraging existing and widespread retail outlets and technology, particularly mobile telephones, to provide more services to more people at lower cost".²⁴

In its inaugural examination of mobile financial services development, WEF (2011) used three broad categories or environments to assess a country's competitive advantage around the adoption and scalability of m-commerce:

- Institutional environment - the characteristics related to regulation and consumer protection that support the development of mobile financial services.

²² Accenture, 2015, p. 9.

²³ H. Ben-Shabat, M. Moriarty, H. Rhim, and F. Salman, *The 2014 Global Retail Development Index*. New York: A.T. Kearney, Inc., 2014.

²⁴ World Economic Forum. (2011). *The Mobile Financial Services Development Report 2011*. (Eds) James Bilodeau, William Hoffman, & Sjoerd Nikkelen. New York: World Economic Forum USA Inc. 2011, p. 37.

- Market environment - the market competitiveness of the private sector players, degree of innovation, and presence of catalysts for the development of mobile financial services.
- End-user environment - the robustness of distribution and empowerment of individuals to access and adopt mobile financial services.

The WEF found that, while a number of technological and intangible factors impact the adoption of m-commerce, regulatory bodies most often present the key obstacle to providing a full rollout of branchless banking services, in particular the issuance of e-money by 'non-banks', such as mobile network operators.

The *MasterCard Mobile Payments Readiness Index* assesses 34 global markets through quantitative analysis of a country's (or geographic region's) 'readiness' to support a robust mobile payments industry.²⁵ The markets assessed in the study represent nearly 85 per cent of global consumer expenditure. Ultimately, *MasterCard's* index aims to appeal to international companies and innovators inclined to mitigate risks involved in new product innovation by adhering to 'market-pull' or 'demand pull' approaches to the development and/or rollout of new mobile payment technologies and systems.

MasterCard examines such dynamic factors as environment, regulation, infrastructure, financial services, and mobile commerce clusters arguing that such variables impact a market's readiness for the adoption of mobile payment systems, m-commerce, and person-to-person (P2P) payment. The index finds that 'consumer readiness' is a critical success factor, if not a necessary condition for the development of mobile payment systems. Additionally, interplay among such market forces as business environment, infrastructure, regulation, and financial

²⁵ MasterCard Worldwide. *Mastercard Mobile Payment Index*. 2012. Available: <http://mobilereadiness.mastercard.com/the-index/>. Accessed: May 16, 2015.

services is important to market readiness, since partnerships between key players in the mobile payments ecosystem and market and consumer segmentation are success factors in accelerating the development of necessary infrastructure and technology adoption. According to the index's accompanying white paper, "The most advanced infrastructures in the world, with responsive legal systems, mature economies, and sophisticated technology networks, may be fertile ground, but until consumers embrace mobile payments, that ground will remain fallow".²⁶

Canada took second spot on the *MasterCard Mobile Payments Readiness Index*, ranking behind first place Singapore.²⁷ MasterCard's index reveals that Canadian consumers are embracing the advanced communications technologies that are the backbone of mobile payment systems and services while, simultaneously, the mobile capabilities of Canada's financial services sector are expanding due to spillovers from supplier industries and in this particular incidence, a regulatory environment that embraces ICT-enable innovation. Canada's high ranking is due primarily to the country's high level of consumer readiness and its wide availability of advanced near-field communication (NFC) enabled devices, world-class POS payment infrastructure, and a supportive and proactive regulatory system. With 27 per cent of consumers using mobile devices to shop online, Canada is well-positioned for mobile commerce success. However, Canada's mobile device penetration (100 per cent) comes in relatively low when compared to the mobile phone subscriptions per capita of such other developed nations as the US (134 per cent), United Kingdom (197 per cent) and Germany (192 per cent). MasterCard's analysts suggest that mobile device manufacturers should address Canada's low subscription rate in

partnership with the country's financial services community and Internet service providers (ISP).

In July 2015, Canada's six largest banks collaboratively published a white paper on national payments security.²⁸ Providing a thorough overview of the technology, systems, and industry players involved in the mobile payments ecosystem, the paper reveals that, "...fewer than 25 per cent of consumers have all the required elements to participate in mobile payments"²⁹ and "... less than 30 per cent of the POS devices in Canada support NFC contact-less payment."³⁰ Uptake and usage of mobile payments systems by Canadians is low due to the incompatibility of necessary technologies and information networks, and limited consumer buy-in resulting from uncertainty due to the complicated confluence of available mobile devices, financial services payment products, POS systems, and telecommunications networks. While Canadian banks have made great inroads into contactless payment technologies, they are not actively taking the lead in reconciling current deployment challenges or supporting the growth of the sector through collaboration, but may instead be creating market saturation by launching competing proprietary products which, in turn, may negatively affect consumer uptake and integration by payment systems companies. In considering options to accelerate the adoption of mobile wallets in Canada, the paper states:

Technology companies like Apple, Samsung and Google will likely change the way consumers, and payments stakeholders, think about mobile payments. These players will likely leverage new technologies, introduce new business models and deliver compelling customer experiences. These solutions will provide options to Canadian consumers. The adoption of these

²⁶ MasterCard Worldwide. *The Mobile Payments Readiness Index: A Global Market Assessment*. (White paper). 2012, p. 2. Available: <http://insights.mastercard.com>.

²⁷ MasterCard Worldwide. *The Mobile Payments Readiness Index: Canada*, 2012. Available: www.mobilereadiness.mastercard.com/canada

²⁸ BMO Bank of Montreal, CIBC, National Bank of Canada, RBC Royal Bank, Scotiabank, and TD Bank Group. *Payments Security*. July 13, 2015.

²⁹ *Ibid.*, p. 7

³⁰ *Ibid.*, p. 30

solutions will depend on the wallet value proposition, the penetration of mobile devices in market that support the wallet and the NFC acceptance footprint.³¹

Therefore, the white paper suggests that Canada's 'big six' banks anticipate that global tech companies will soon take the lead in offering up a panacea to challenges and risks associated with mobile payment product development and deployment.

As part of the current assessment of the state of the Fintech ecosystem in the GTA-KW corridor, we conducted an in-depth analysis of the individual components of the

³¹ Ibid, p. 30

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The Current State of the Fintech Ecosystem in the GTA

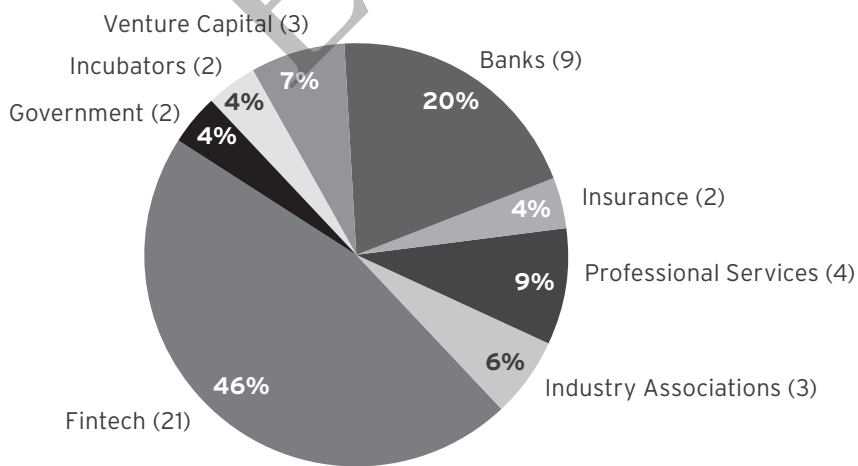
ecosystem and more importantly, the state of interaction among these components with key participants in the ecosystem. Between June and August 2015, we interviewed 54 executive-level individuals at 47 different firms, associations, or government offices. Interviewees for this study included banks, insurance companies, professional

services, industry associations, Fintech firms, government, incubators, and venture capital firms. Table 1 lists the distribution across the Fintech ecosystem, divided by type.

Current State of Affairs

In order to map the current state of the

TABLE 1 - DISTRIBUTION OF INTERVIEWS



Toronto Fintech ecosystem, interviewees were asked about their professional view of the individual components of the system (with respect to whom the different players are, the nature of their relationships, how they compare with other regions, and what makes them unique). The responses indicate that the GTA-KW digital corridor currently has all the necessary components required for an effective Fintech ecosystem including, but not limited to, financial technology firms, national and international banks, insurance, information technology firms (e.g., Cisco, Google), venture capital (limited, but present), industry associations, incubators, and more. That said, our interviewees confirmed that the industry has yet to coalesce—in other words, insofar as the ecosystem can be said to exist, it is still in the developmental phase. Interviewees were clear that the GTA-KW corridor meets many of the necessary conditions that a successful Fintech ecosystem demands: a stable financial system and labour market; a pool of highly skilled graduates (including those from both Toronto and Waterloo); a concentration of key actors (financial institutions, ICT firms, etc.); and high living standards. Moreover, Canada's financial system is highly regarded as stable and secure, having fared exceptionally well during the 2008 financial crisis. In this respect, our interviewees confirmed the overall ranking of the GTA-KW ecosystem that is documented in the international benchmarking studies discussed above.

The abundance of players and resources in the GTA-KW corridor is evident in the desire of many of the interviewees for better organized networking opportunities. Responses indicate that people are aware that the resources are present and are eager for the connections to be made. One interviewee commented, "There are few forums to connect. There are lots of products, campuses, financial institutions, and start-ups in the GTA, but it is hard to see a forum for all these people to come together."

Will Traditional Financial Institutions Weather the Storm?

There is a consensus among interviewees across the ecosystem that information and communications technologies, developed and implemented by both startups and the leading global technology companies pose a real challenge to leading financial institutions. Notably, it is not technology disruption per se that is the chief concern of the financial establishment, it is the dual threats of "unbundling and disintermediation" in the delivery of financial services. Of the two, unbundling is viewed as the biggest threat to the current business model. As explained by one interviewee, "This is the idea that nimble Fintech companies are extracting the profitable, customer-facing parts of the banking business. This relegates banks to the role of a utility, handling low-margin transactions."

Banks are not oblivious to these challenges. One interviewee, an executive from a leading Canadian bank commented, "Banks are in talks with Big Tech about how they might cooperate - nothing concrete, yet, though. However, we now view companies such as Rogers and Google, as our competitors, not just other financial companies." The interviewee added that dealing with the regulatory regime is a major cost; while it may represent a barrier to the development of the Fintech ecosystem, it also shields the banks from disruptions in the financial services industry. With regard to whether large financial institutions can rely primarily on in-house technology innovation, as they have traditionally done, or should seek to partner with smaller, more specialized firms, the non-bank interviewees expressed the view that, due to the disruptive nature of ICT, unlike the past, a change is coming and larger financial institutions are increasingly looking to partner and develop external solutions.

Nonetheless, while our interviewees acknowledged this shift, they cast doubts on the ability of the banks to effectively engage, collaborate, or otherwise partner with external firms, especially with Canadian

Fintech startups. For example, security concerns and “tech debt” limit the banks’ ability to actually reach out and collaborate.³² With regards to the former, this makes innovations in payments systems or related products and technologies difficult to sell. Banks are worried, first and foremost, about security. “[Security] makes banks naturally conservative and risk-adverse. Further, since the banks feel shielded by the regulatory space and the lower competition, vis-à-vis the States, there isn’t any real incentive for them to try something bold, innovative, and new,” commented an interviewee.

Some interviewees felt that private wealth management may be one area of the banking business that is best positioned to weather the disruptive storm caused by the rise of Fintech. An executive from one wealth management firm argued, “the problem for tech companies in wealth management is that companies like X have been doing this for 100 years and what clients look for is stability and quality people who understand the market and its psychology. Retail banks might get hurt, but not players at the top level of the wealth management space.” The argument is that it would be more difficult for Fintech firms to lure high net worth individuals away from their current wealth management firms, than it would be to lure away all other customers from retail banks.

What is Restricting the Development of the Fintech Ecosystem in the GTA?

While interviewees identified many positive aspects of the GTA’s developing Fintech ecosystem, several problems were identified. Interviewees were clear that forums for showcasing and/or searching for talent and good ideas are scarce, and that the opportunities to make contacts and share and exchange information are few and far between. Of the networking events taking place in the Fintech space, the two most commonly cited were MaRS and TFSA/

OCE-sponsored events. Other, ground-up networking events were also identified, including a Fintech “meetup group.” One interviewee, in discussing the informal meetup group, noted that the group had been started because there was no regularly convening forum for the discussion of pressing issues and the sharing of information.

With regards to the formal, institutionalized spaces for networking, the MaRS Fintech hub and the Waterloo-based Communitech Hub are two of the more popular and well known although there are others, including Oneeleven who are making contributions in this space. Despite the potential recognized by interviewees for both MaRS and Communitech, it was acknowledged that although both hubs have been in existence for several years, they have only begun to engage with the Fintech ecosystem in the past year or so. Hence, it is too early to evaluate whether either one will be able to effectively address the major shortcoming in the GTA’s Fintech ecosystem.

In addition to the lack of networks or networking opportunities for Fintech startups, another major problem identified by interviewees was the lack of adequate funding. Several interviewees made it clear that in order to effectively scale up, Fintech firms in Toronto (and the rest of Canada) must leave the country (either implying or explicitly stating that they must go to the U.S.). This attitude is reflected in the comment by one executive at a successful Canadian Fintech firm that, “Until we were advised by the C-100 during the event ‘48 Hours in the Valley,’ we didn’t realize that funding available in Canada was either inadequate or non-existent. We were advised to go to the U.S. for funding.”³³ Since obtaining a Series A investment loan, this Fintech firm has expanded its business in the U.S. and has begun to scale up significantly. Moreover, other interviewees indicated that getting Canadian early stage funding ended being an obstacle when looking for later stage funding, since they

³² Tech debt is understood here as the costs of upgrading older and once cheaper back-office systems.

³³ The C-100 is a non-profit association that connects Canadian technology entrepreneurs with successful Canadian entrepreneurs in Silicon Valley.

were viewed less favourably in the U.S. One interviewee observed, “The way that Canadian VC deals divide the company’s shares doesn’t allow for additional deals.”

Notably, for many of our interviewees, the biggest problem facing the ecosystem is the banks’ unwillingness to commit, that is, their reluctance to cooperate and collaborate with startup firms working in the Fintech space. While some interviewees see banks as providing some capital and connections, most interviewees perceive a cultural and institutional divide between startups and the banks.

Culturally, there is an interpersonal disconnect between relatively young entrepreneurs seeking connections and capital and relatively older employees with little incentive to rock the boat. Many of the interviewees spoke of the difficulties in even communicating with the banks. Even when they manage to make a connection, too often it is with someone who has little authority when it comes to investing or partnering with a startup. One CEO of an incubator remarked:

“Communication at the ground level between firms, incubators, and others is open. Interaction between banks and firms, incubators and other non-financial institutions is poor. Who are you supposed to talk to at the bank? Who has authority to make something happen? Who cares to talk to you? There is a clear divide within the ecosystem: incubators and tech firms connect, but banks are sort of out of the equation.”

Institutionally, banks are perceived as operating on much longer product cycles than are startups. This makes collaboration hard or impossible for many cash-strapped startups. Capital is hard to come by for startups. Indeed, “capital demands” was one of the major hurdles to greater innovation cited by interviewees.

Although a few respondents who spoke of the difficulties in getting adequate funding pinned it on the scarcity of venture capital, several more made the connection between a lack of venture capital and Canada’s

regulatory framework. In fact, the most often cited hurdle to Fintech innovation was “regulations and the regulatory framework.” Interviewees identified several issues regarding Canada’s regulations and regulatory framework. The specific issues raised vary slightly, but they all convey the impression that the industry and the regulators charged with overseeing the industry are working at odds with each other when it comes to innovation and ecosystem development. One interviewee from an industry association commented, “Regulators are very narrowly focused on protecting consumers,” adding, “This occurs to such a high extent that new innovative technological services are stymied here in Canada.” For this interviewee, “Canada needs to have its regulatory bodies strike a balance between consumer protection on the one hand, and innovation on the other,” otherwise growth and development will continue to be unnecessarily limited.

Others, agreeing with the sentiment above, were more specific and direct. “There is no need to have 13 different capital market regulators across Canada,” said one interviewee, from an industry association. At least one interviewee from a bank agreed that the lack of a unified national securities regulator, in contrast to the U.S., is a major impediment to ecosystem development, especially in the area of VC growth. “We have a very weak VC industry here, because we do not have a national securities regulator.” Venture capitalists are required to get regulatory approval in each province, thus adding to the transaction costs of doing business in Canada.

Additionally, unlike in the U.S. where there is an assumption of permission, in Canada some interviewees find regulations, or the regulators, inhibiting by creating of an environment of uncertainty with regard to the adoption of new technologies. For one interviewee, the uncertainty makes Canada’s regulatory framework “the most restrictive in North America.” In the United States, as one Fintech executive put it, “there is a presumption of permission,” meaning that companies can operate on the assumption that unless the new

technology is found to be inadequate it would be allowed. However, in Canada, “there is a presumption of prohibition,” that is that even if the new technology proves useful, the chances are that it would not be allowed. Accordingly, investment in new yet-to-be-sanctioned-technologies in Canada is perceived to have higher risk of regulatory veto. In times of disruption, this uncertainty puts a break on experimentation and has stifling effects on innovation, and hence, limits the ecosystem’s growth.

That said, our interviewees suggested that due to the perceived high quality and security of Canada’s regulatory framework, the system is better suited for the Fintech industry if a way is found to enable experimentation with new financial solutions. For example, the regulatory system, according to one interviewee, is highly developed with some of the most progressive legislation for today’s financial transactions. However, the legislation is geared toward the banking system. For startups without a committed partner in one of the national banks, it makes the development of new products almost impractical.

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Fintech Firm Capabilities in the GTA-KW Corridor

The Fintech firms interviewed for this report can be grouped into a number of the distinctive segments identified in the recent infographic created by OMERS Ventures. This section of the report groups the firms interviewed into a number of those sectors and analyzes the distinctive Fintech capabilities that are most strongly represented in the GTA-KW ecosystem. While we describe the respective capabilities of individual firms in different market segments, identification of the firms is omitted for confidentiality reasons.

Equity Crowd Funding

Equity crowd funding is the online offering of private company securities to a group of people for investment. In Canada, but not in Ontario, equity crowd funding is currently legal, under existing prospectus exemptions such as the accredited investor exemption, and the offering memorandum exemption. Equity crowd funding serves as a mechanism that allows large groups of investors to fund startups and small businesses in return for equity. Similar to traditional equity investing, investors give capital to a business and in return receive ownership in the hopes that the value of that business will increase. The greatest potential for equity crowd funding seems to be in the startup space where firms seek smaller investments in order to establish themselves.

Equity crowd funding poses a threat for large traditional financial institutions because of the degree to which it facilitates disintermediation. By investing directly in the securities market rather than through the investment division of a bank, the banks stand to lose out in a number of ways. First is the obvious loss of transaction fees when buying or selling a security. There is also a loss of the degree of influence that banks exercise over both small businesses and investors. Traditionally, investment bankers hold the keys to capital in this industry: If someone wants to sell a piece of their company they are subject to the price that bankers set for it. Conversely, if someone wants to earn a return on their capital by investing it, they are dependent on the investment bankers who identify where the lucrative opportunities are, and control the amount of new securities available for them to buy.

There is a number of emerging Toronto Fintech firms that are making their presence felt in this space. One firm supports the crowd funding and capital markets industry by supplying an eco-system infrastructure platform (ESIP) which is used before, during and after crowd funding transactions by ensuring due diligence by users, providing a data repository and facilitating management and shareholder communications. Another firm runs an equity crowd funding portal that focuses on institutional crowd funding, which

involves larger transactions with accredited investors such as institutions and high-net worth individuals. Typical transaction amounts can range from \$500,000 to more than \$5 million.

In many ways, utilizing an equity crowd funding portal is the evolution of raising capital for companies - small ones in particular - because it democratizes the process and is more efficient in terms of cost. However, because there is currently no specific equity crowd funding framework that includes registration requirements and prospectus exemptions for a portal uniquely tailored to this type of process for raising capital, firms operating in this space vary in the scope of their operations. In Ontario in particular, as one interviewee noted, they are stymied by regulations to such a degree that they are unable to achieve sustainable cash flows from their operations, and as a result are planning to move either to a different province in Canada or to the U.S.

Institutional Platforms

This segment does not involve a specific business line, but rather it helps financial institutions deliver their products and services more efficiently. Fintech firms operating in this space largely work alongside financial institutions to implement technology solutions, manage regulations across various countries/districts, and provide secure ways for clients of the financial institutions to access financial information and other services offered by the FIs.

Firms operating in this space typically have experience partnering and working with large traditional financial institutions. Because of this, these companies pose possibly the lowest strategic threat to large, traditional FIs. Furthermore, in most cases, they serve as a strategic asset to be leveraged by large traditional FIs because of their ability to innovate and transform internal processes which, in turn, can lead to more competitive products and services as well as increasing the flexibility, dynamism and forward-looking aspects of smaller Fintech firms directly into the organization structure of the FIs.

One Toronto Fintech firm provides a financial intelligence platform that aggregates structured data on financial reports and optimizes it for data discovery. It creates value for its clients by saving them time and effort by eliminating the need to sift through information. Another firm offers a service to financial institutions to allow them to store receipts digitally so that their customers can access them on a secure, digital, cloud-based platform. Not only does this cut costs by eliminating the need for printing paper copies and sending them by mail but it also gives the client firm the peace of mind that all their documents are secure and cannot be accessed by someone who is unauthorized. Another firm operator in this space is a global systems integrator and business consulting firm that is focused on the communications industry. It helps companies innovate and transform by leveraging its unique insights, differentiated customers reduce operating costs, generate new revenue streams and gain competitive advantage. The last firm provides specialized software to the financial industry for managing loan portfolios by introducing technological functionality that allows their software to comply with the regulatory requirements across the 50 States of the U.S. and the 13 Provinces/Territories in Canada.

Generally speaking, Fintech firms competing in this space suffer from having a very low degree of market penetration. While these firms offer excellent products and services, they are unable to leverage their offerings to reach a greater quantity and higher caliber of clients. While this may be due in part to poor marketing and networking practices, a comment that resonated in all our interviews was the difficulty of working with Canadian banks, as some interviewees put it: "the only way to get a contract with a Canadian bank is to have one first with a U.S. bank." This means that one of GTA's greatest potential assets is currently being underutilized with respect to supporting the growth of the Fintech ecosystem. Even more troubling is the view that since these Canadian firms are not yet well known worldwide, the fact that their supposedly "local" top financial firms are not their clients hurts their ability to generate the trust and reputation needed to secure global top tier financial firms as clients.

Invoice, Billing and Accounting

These services are often offered over the cloud, serving the same function as the typical accounting software one would install on their computer, except that the software runs on the host's servers and the client can access it using their web browser over the internet. This securely stores data and processes it on the host's servers allowing business owners to access business financials from anywhere using any device securely. These products and services also make it easier for small businesses to manage their accounting process including invoicing, billing and receiving payments.

It is not yet clear that firms operating in this space pose a significant threat to large traditional financial institutions. The firms offering these products and services do not yet add to the process of disintermediation for FIs, nor do they cut into any fees that the FIs profit from in any meaningful sense. In short, invoice, billing and accounting firms do not compete with FIs for revenues from common customers or clients. Perhaps the area these firms pose the largest threat for are traditional accounting firms or other IT firms that have been marketing these kinds of products to customers in a more traditional delivery manner.

One example interviewed is a Toronto firm that provides cloud-based accounting capabilities for smaller firms, which include online invoicing, accounting and billing software solutions. The firm's accounting approach simplifies the process of invoicing and double-entry bookkeeping for businesses owners. It tries to eliminate technical jargon often found in accounting software packages by using words and phrases that non-accountants can easily understand placing its emphasis on an easy-to-use interface. Although the firm has enjoyed some success in penetrating new markets, it faces challenges that are typical of a new firm trying to scale-up rapidly. In our interviews there was an agreement that the toughest challenge faced by GTA firms operating in this space is tapping into international markets.

Loans and Credit

Loan and credit is the one market segment of Fintech, which is already globally mature with track record of eleven years (the peer-to-peer lending UK firm Zopa is generally credited with establishing this segment in 2004). With Canadians piling up credit at a record rate, new technology based lenders have emerged to capitalize on this burgeoning industry; nonetheless, due to regulatory hurdles Canada will have its first peer to peer lender going live only later this fall. Thus, in one of the most profitable and widely-used Fintech niches, Canada is trailing the U.K. and the U.S. by almost eleven years.

Typically, if a borrower wanted a loan, they would go into a bank or a credit union, undergo an arduous application process and then wait a substantial amount of time before finding out if their loan is approved or rejected. However, Fintech firms operating in this space have transformed this process the way Uber and Travelocity have transformed their respective industries. Many firms operate low costs websites that aggregate loan, mortgage or even GIC providers so that customers can compare rates amongst competing creditors on one page. Utilizing their own algorithms, these platforms are able to assign risk ratings for each applicant. Through answering a questionnaire, an interest rate is determined which factors in credit scores, credit history, employment income and the applicant's current available credit.

This area poses one of the greatest strategic risks to large traditional FIs because of the competitive way in which the startups offer their services. As a customer wanting to access products and/or services within this business line, there is almost nothing a large traditional FI can do to match the quality of these services. Because these Fintech firms interact with the borrowers and lenders directly through an online platform large, traditional FIs face potential disintermediation - they are virtually separated from the customer they seek to provide credit to. Perhaps even more threatening for large, traditional FIs is the

amount of competition this has injected into the process of seeking out a loan. By aggregating all the loan providers on one webpage, banks are less able to realize traditional profit levels off each customer. They must compete with the rates offered for each risk class by the startups or else risk losing that business to a competitor.

One Toronto firm serves small businesses by offering them lines of credit through an online platform that can cover the period between invoicing clients and getting paid. The lenders work with businesses that sell to established credit worthy companies. It helps them increase their growth potential by effectively reducing their customers' payment term to 24 hours. An online application takes only minutes, approval comes in three to five days and funds can be accessed within 24 hours after that. Another firm operates an online platform that allows the user to compare rates for three financial services: mortgages, credit cards, and GIC's. By inputting the parameters of the service they need, each customer can see the most competitive rates from each respective service provider. Another firm does not actually lend to merchants, particularly small businesses; rather, it helps structure payment plans for their customers. Using a web loan application, mobile loan application, or direct-to-customer loan application, the Fintech startup provides customers immediate buying power, and with better interest rates. Using its technology, the firm collects the payments from the customer for the merchant.

The products and services offered by these firms are exceptional in their ability to out-compete products and services delivered by large traditional FIs. Fintech companies operating in this space have a fairly strong distribution network, leveraging social media such as Facebook, YouTube etc. In short they are capable of reaching a very high percentage of customers under 50 years of age. Furthermore, their distribution networks still have room to grow and improve. Apart from the regulatory hurdles that prevent them from using some of the already well established business models used elsewhere, the greatest challenge these firms face is

access to capital; operating in Canada means that it is very difficult to gain access to the capital they need to grow.

Digital Currency

Traditionally, if customers want to buy foreign stocks, they must convert their Canadian dollars, paying a fee each time they exchange currencies before they can buy the stocks. Crypto currency inherently disrupts this process by allowing customers to buy assets priced in various national currencies without paying any exchange fees. Instead, one can buy assets priced in any currency with a digital token.

This area poses a significant threat to large traditional FIs because utilization of these crypto currencies allows users to bypass the exchange fees when buying/trading assets. Because large, traditional FIs are the beneficiaries of collecting these fees, their foreign exchange business lines seek to lose out - especially if these technologies begin to gain wider use.

There are some GTA firms operating in this space. For example, one Toronto-based firm offers a secure, scalable and networked digital token based on an electronic payment platform solution for global commerce. Another firm provides a decentralized platform and a block chain-based crypto currency.

The distribution network of these firms is still relatively small, which means that they are still unable to reach many of the vast number of potential customers. The products offered by these firms are stable and scalable but have yet to perfect the technology to offer a product/service that customers perceive as one hundred percent safe and usable in a ubiquitous manner. In short, GTA firms in this space suffer from the lack of distribution networks, reputation and trust. In addition, the firms operating in this niche were especially clear in emphasizing their difficulty in accessing growth capital.

5.0

Conclusion and the Way Forward

As the research presented in this report makes clear, the GTA-KW corridor has all the ingredients needed to make it one of the world's leading Fintech ecosystems. However, it lacks connections and organizations that would take all these diverse actors and resources and meld them into a coherent ecosystem. As long as we fail to do so, we should not expect Toronto's position as global financial hub to improve.

Accordingly, this section summarizes the hurdles to ecosystem growth identified through both our benchmarking review and the in-depth interviews. For each hurdle it suggests a few promising venues for constructive public-private policy interventions with the hope that TFSA, OCE and other organizations will spearhead these activities in the near future.

There are two sets of issues that limit the growth of the Fintech ecosystem in Toronto: the first is what we call the physical and fiscal bottlenecks. These, while not easy to solve, are rather straightforward, and existing organizations (public and private) can tackle them using already established policy tools. The other, and in our view the more significant, set of issues, is the lack of a true ecosystem.

STIMULATING ECOSYSTEM MELDING

Regulatory Environment

Canada has one of the world's most respected financial regulatory frameworks, and this framework is one of the bases for the continuous stability of its financial system. Nonetheless, this regulatory system and specific regulatory bodies now act (and are perceived to act) with inherent tendencies that limit or restrict new innovations emerging from new companies, thus preserving the status-quo for the already established Canadian financial institutions. This leads, first, to many Fintech firms either relocating their operations to the U.S., or not developing products in these niches, thereby allowing foreign companies to gain global prominence and control greater market share. The most significant such market niche is peer to peer lending. Another negative externality is that the existence of the perceived regulatory buffer, has lulled many Canadian banks into a false sense security, and thus delayed their earnest engagement with the local Fintech ecosystem. Lastly, regulatory uncertainty means that Canadian Fintech companies are more conservative in their scale-up efforts, and hence, do not rapidly and aggressively grow their operations as early in their development cycle as their U.S. and U.K. competitors.

At the same time, the presence of an excellent regulatory system and the high degree of respect for the regulators is

widely seen, even within the small Fintech startups that were interviewed, as a great potential asset. Accordingly, finding ways in which the Canadian regulators, perhaps by taking a page from their U.K. counterparts, can develop procedures to stay abreast of new technology developments and their predicted impact on the market, while allowing for very rapid small-scale experimentation (leading to scale-up in cases of success), is an action venue of great potential. Such initiatives, would not only make Canada a more attractive global hub for Fintech development attracting high quality entrepreneurs and investors, but would also create institutionalized pathways for information diffusion, collaboration, and the development of a vibrant ecosystem.

Financial Institutions

All of our interviewees from the Fintech industry highlighted their inability to have any meaningful access to established financial institutions as one of the greatest barriers to growth. Indeed, the most widely heard comment from our interviewees was that: “if you want to sell to a Canadian bank, you have to first sell to a U.S bank.” This state of affairs means that the globally leading concentration of financial firms found in Toronto, is not only failing to fulfill its potential as a core strength of the local Fintech industry, but instead acts as a barrier to the development of that ecosystem. Toronto-based Fintech companies are placed in the position of needing to travel to New York to find their first customers. This also puts an upper limit on the rapid scale-up opportunities of firms that opt to stay Canadian.

While there have been some very encouraging signs that the leading financial firms are changing their positions and are beginning to look for Fintech solutions and collaborations with a newfound sense of urgency, in most cases this is happening at the periphery of the banks’ primary management structures (for example in their respective innovation centres or the Communitech corporate innovation lab) and is led by people who do not possess the executive power to make the needed procurement decisions.

We view this issue as a pressing and inherent problem, partly because there are true differences of alignment between the established, large financial firms and the small, more nimble startups. For these reasons, while we would hope to see greater involvement from the banks at an individual level, we think that promoting new venues for large-scale collaboration is a more promising approach to overcome this obstacle, as we elaborate below.

Infusing Collaboration: Pain-points, Platforms and Mentoring

In order for the Fintech ecosystem to truly flourish, and for established financial institutions to make effective use of it in growing their business (instead of seeing it as a threat), many structural and systemic problems need to be addressed, such as security or the mobile payment infrastructure. These systemic problems have three shared features that make them especially suitable as venues on which to promote greater collaboration and ecosystem development. First, they are real pain-points to all the established players. Second, these problems cannot be solved by any one company alone, but require real collaboration to find effective solutions. Last, but not least, once solved at the basic level, they can serve as an open platform for rapid application development, which is both acceptable and welcomed by the large financial institutions, as well as serving as a unique resource for GTA vis-à-vis competing Fintech hubs.

Further, Canadian financial institutions already have a very successful history in creating such collaborative initiatives, mostly notable around the Interac[®], system, but also through other joint ventures such as Moneris. For these reasons, we view the commencement of such collaboration around acute pain-points, as a very promising starting point for public-private policy intervention. Moreover, if these solutions can be devised as an open access platform (in the same way Facebook or Salesforce serves as a platform) for rapid application development

in these domains (from security to mobile payments to big data management), the GTA's Fintech startups and big financial institutions can begin to institutionalize productive settings for meaningful cooperation. Similar to the proposed changes in the regulatory system, the establishment of such joint platforms would serve as a significant and unique competitive asset for the GTA's Fintech ecosystem, allowing local firms to quickly gain prominence and attract high quality foreign startups and investment.

Networking and Knowledge Sharing

A common complaint voiced by almost all of our interviewees, whether from financial institutions or from the Fintech community, has been the lack of high quality networking and knowledge sharing opportunities in the GTA-KW corridor. Especially acute was the lack of venues in which Fintech entrepreneurs and executives can share their stories and tacit knowledge, where informal and effective labor markets can form, and any venues in which Fintech companies and the big banks can meaningfully communicate on a regular basis. The last is especially important since many Fintech companies openly admitted that they lack the knowledge of how to develop and sell a product to the big banks that will answer their specific requirements, while some of the big banks admitted that they do not know how to interact fruitfully with smaller Fintech startups.

This domain, therefore, calls for meaningful and sustained intervention by organizations such as the TFSA, OCE and others to deepen and institutionalize the networking and knowledge sharing opportunities in the GTA. A particular interesting venue for future action might be a mentorship program in which mid-level (that is high and veteran enough, but not so high as they cannot spare the needed time) executives from the leading financial institutions serve as mentors for local Fintech startups. The development of mentoring relationships of this nature are widely viewed as one of the most effective

mechanisms for building and sustaining successful entrepreneurial ecosystems and, as a consequence, have become an integral part of the toolbox of successful entrepreneurial support organizations across North America.

Fiscal and Physical Concerns

Finance

While the availability of seed and pre-seed financing for Fintech companies in the region has improved, there are substantial concerns about the availability of later stage finance as well as with the quality of local venture financing. In our view, the best public intervention in this area should not necessarily be focused on the Venture Capital industry, but instead focused on more direct funding of Fintech companies. This kind of public intervention is best undertaken by both the federal and provincial governments. However, they must also take into account past, not necessarily successful, attempts in this area, and spend the time needed to develop a more comprehensive policy intervention to deal with this issue.

Space

While there is some high-quality incubation space in the GTA, much of it is priced out of the reach of most Fintech startups. Further, there is not enough high quality space which is both cheap and co-located near the financial industry, and hence, conducive to collaboration in the same way that such space is available in New York, London, and San Francisco. This is an area in which leading organizations, such as the TFSA, might fruitfully represent the industry in building an alliance with both the city and the provincial government to rectify this situation. Such efforts should, by definition, be low cost and large scale, and can offer an almost immediate payoff.

To conclude, the Fintech ecosystem in the GTA has great unfulfilled potential, a potential which, if unleashed, can serve as a dynamic source of new growth and future jobs for the GTA, southwestern Ontario, and

Canada as a whole. Further, our mapping exercise has clearly shown that the GTA possess all the necessary ingredients, of the highest quality, for a leading ecosystem to form. At present all these resources and actors are siloed, and as a result there is no true Fintech ecosystem in the Toronto region. This shortcoming calls for active and sustained leadership to unite the diverse elements of that ecosystem and secure a brighter future for the financial industry in the GTA.

EMARGO



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