

## **Financial Inclusion in British Columbia: Evaluating the Role of Fintech**

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### **Author Note**

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## **Abstract**

Financial technology (fintech) can help to mitigate the problem of financial exclusion in British Columbia. Individuals who participate in the traditional banking and financial system experience a variety of social and economic benefits. Yet several factors like personal hardship, financial illiteracy, high product costs, perceived eligibility, informational gaps, a lack of credit history and legal documents, bank resistance, and customer feelings of distrust and disrespect contribute to the exclusion of many from traditional financial products and services. People who are “unbanked” and “underbanked” often turn to high-cost (even predatory) substitutes like payday lenders, rent-to-own firms, cheque-cashing services, and pawn shops. This paper illustrates how some fintech innovations—highlighting numerous companies operating in British Columbia, Canada, and internationally—can benefit people who are unbanked and underbanked as an alternative to “fringe” banking. Fintech is not, however, a panacea for those excluded, marginalized, or underserved by traditional financial firms, and there are several implementation barriers and integration risks in this market development. This paper provides seven key policy recommendations to help maximize the inclusionary benefits of fintech in British Columbia while mitigating its potential risks.

## Introduction

Many Canadians are excluded from traditional financial services, either having no banking relationship at all (individuals commonly referred to as “unbanked”) or failing to fully access the financial products and services that are available to them (the so-called “underbanked”) (Buckland, 2008, p. 2). The social phenomenon of financial exclusion extends to British Columbia, with a significant impact on inner cities and indigenous populations (Acorn Canada, 2016a; Buckland & Fikkert, 2008, pp. 47–49). As a result, it’s been suggested that Canada has a “two-tiered banking system” with better (and lower-cost) products for those with higher incomes and more assets (Acorn Canada, 2016a).

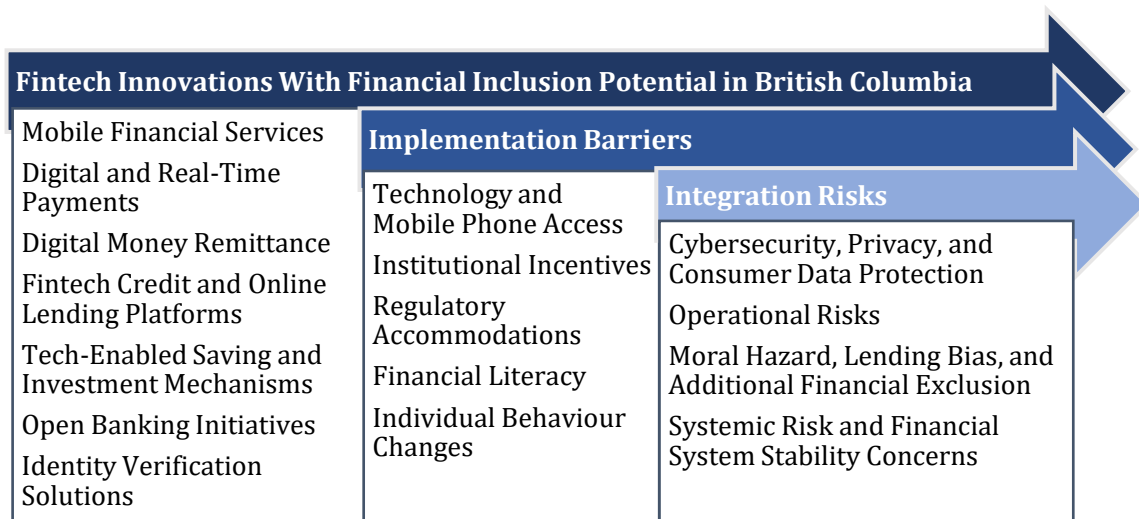
As this paper will show, the reasons for financial exclusion are diverse and complex. They can also be organized as financial, personal, and informational barriers. Some of the factors include financial illiteracy, high product costs, perceived ineligibility, a misunderstanding and informational gap regarding product availability and fee structures, a lack of credit history and legal documentation, resistance within banks to certain market segments, and customer feelings of distrust and disrespect when dealing with traditional financial institutions. Once financially excluded, these individuals and families often turn to high-cost (sometimes even predatory) services like fringe and alternative banking, payday loans, rent-to-own firms, cheque-cashing services, and pawn shops (Buckland, 2014).

Financial technology (“fintech”) is being assessed by policy-makers and academics throughout the world as a potential mitigant to the pathologies of financial exclusion (Didenko, 2018; Rodrigues Goncalves, 2013; Buckley et al., 2014; Winn & de Koker, 2013; Lawack, 2013; de Almeida, 2013). The purpose of this paper is to evaluate the role of fintech in British Columbia to help mitigate the persistence of financial exclusion in the province (with a focus on inner-city and low-income segments in Vancouver). Fintech has financial inclusion potential; however, full-scale financial inclusion is a complex undertaking, and no single technological innovation is a silver bullet, or panacea, to eliminate the financial challenges experienced by people living in poverty (Brainard, 2018).

As noted in Figure 1, several fintech innovations have financial inclusion potential in British Columbia. They also have implementation risks and barriers. Each noted fintech innovation, implementation barrier, and integration risk will be explored in detail in this paper as it applies to the problem of financial exclusion in British Columbia.

**Figure 1**

*Fintech Financial Inclusion Potential, Implementation Barriers, and Integration Risks in British Columbia*



This paper will provide an extensive overview of fintech companies that could serve financial inclusion goals in British Columbia. The appendix includes a table that summarizes such companies currently based in British Columbia, Canada, and internationally. It illustrates how these market solutions also serve a dual financial inclusion purpose and assist in mitigating the challenge of financial exclusion. Figure 2 gives a visual cross-section of the profiled fintech companies in this paper, organized by industry sector, including a brief description of their utility proposition for financial inclusion.

The paper will proceed by first investigating the “social phenomenon” of financial inclusion, including evidence of people who are unbanked and underbanked in the U.S., Canada, and British Columbia. It will then assess a variety of barriers to accessing traditional financial services and review the impact on individuals of financial exclusion, including social and economic well-being, employment prospects, and entrepreneurial opportunities. This will be followed by a critical assessment of the “fringe” (a term commonly used to describe non-depository financial institutions that cater to people with low incomes through a variety of services such as payday loans, high interest credit, money orders and cheque-cashing services) and “alternative” banking sectors—which often become the default service providers for people who are financially marginalized. This section will conclude by highlighting a financial inclusion “case study” of the efforts of Pigeon Park Savings in Vancouver.

The paper will then explore the financial inclusion potential of fintech firms in British Columbia. It will provide an empirical snapshot of the burgeoning fintech ecosystem in the province and profile a variety of innovations that have financial inclusion potential (with reference to numerous specific market offerings and case studies). It will then assess the “implementation barriers” and “integration risks” that emerge when using fintech to provide services for people who are unbanked and underbanked. Finally, it will suggest seven specific

**Figure 2**  
*Cross-Sectional Summary of Profiled Fintech Companies*

**Financial Inclusion in British Columbia: Evaluating the Role of Fintech**  
**Profiled Fintech Companies and How They Serve Financial Inclusion Goals**

<b>Fintech Industry</b>	<b>Digital, Mobile and Open Banking and Financial Services</b>	<b>Fintech Credit</b>	<b>Fintech Payments and Money Remittance</b>	<b>Cybersecurity and ID Verification</b>	<b>Wealth Management and Investing</b>
<b>Financial Inclusion Utility</b>	Lower fees; automated saving functions; fee transparency; simplicity; budgeting and financial management tools	Extends credit access and supply to market segments underserved by traditional banks at rates more competitive than "fringe banks."; smooth income disruption; facilitate entrepreneurialism	Allows for monetary transfers and money remittance (including international) at lower fees, and at faster processing times	Facilitates identity verification including biometric processing for individuals without conventional government ID; facilitates regulatory compliance including KYC & AML for financial firms	Access to financial planning and investment products and services previously inaccessible (due to minimum account size and income requirements); digital micro-shares; micro-saving & "rounding-up" platforms
<b>B.C. Firms</b>	Koho, Thinkfit, Mobilearth, Mobibank, Dojo Technologies, Mogo Financial	Amber Financial, Refresh Financial, Marble Financial, Progressa, Canada Drives, SYOMortgage, UrLoan, Fresh Start, Flexfi, Lendful, Merchant Advance Capital	PayWith, Rentmoola, AgilityForex, Chimp, Mi-Pay, VIO Commerce, Instant Financial, Ntrust (closed but profiled)	Trulioo, Trustatom ID, Plurilock, Finn AI	Modern Advisor, WealthBar, Stockpools, Vested,
<b>Canadian Firms</b>	ATB Brightside, Motusbank, Stack, EQ Bank	Manzil, Next Door Lending, Fund Through, Lending Loop, Lendified, Borrowell, Finance It, Ondeck, Easy Financial	Remitbee, QicSend, Interact, PayPal, Zed Networks	Four Directions Financial	Mylo, Coinsquare, Nestwealth, Justwealth, WealthSimple, WealthSimple Trade, Planswell, ATB Brightside
<b>Global Firms</b>	Raisin, Northone, Revolut	Lending Club, SoFI	Leaf, Sokowatch, payAgri, Abra, Banco Mare, Alipay, WeChat, Tenecent, FreshEBT, Transferwise, M-Pesa, Libra	ConfirmU, Humaniq, Taqanu, Kiva	Acorns, HodlBot, Robinhood

"policy recommendations" to maximize the financial inclusion benefits of fintech in British Columbia while safeguarding against emerging risks. These recommendations are summarized in Figure 3.

**Figure 3**  
*Policy Recommendations to Maximize the Financial Inclusion Benefits of Fintech in British Columbia*



## Financial Exclusion as a Social Phenomenon

### Evidence of Unbanked and Underbanked in Canada and British Columbia

The problem of financial exclusion is not unique to Canada or British Columbia. The World Bank estimates that over 75% of the “world’s poor” do not have access to a bank account (Geslevich Packin & Lev-Aretz, 2016, p. 1242; Demirgüç-Kunt & Klapper, 2012, pp. 3, 11–19; Gross et al., 2012, pp. 1, 4). When assessing the problem of financial exclusion it is worth clarifying terms. “Unbanked” generally refers to “individuals with no official relationship with a bank” whereas “underbanked” describes individuals who may have some relationship with a bank but still heavily “rely on fringe financial institutions like payday lenders, money orders, international money remittance services, rent to own, pawn shop loans, or prepaid cards, for their financial needs” (FDIC, 2018, p. 2; see also Geslevich Packin & Lev-Aretz, 2016, p. 1242).

Estimates of the size of the populations that are unbanked and underbanked in Canada vary. Yet by all estimates the problem is not marginal. A 2016 report by Acorn Canada (which describes itself as an “independent national organization of low and moderate income families” with six community chapters in B.C., including Surrey, New Westminster, Burnaby, Tri-Cities, Whalley, Guilford, and Newton) reported that 3% of Canadians (close to 1 million individuals) are unbanked. Acorn Canada (2016a) defined unbanked to mean that the individuals in question “have no relationship at all with a mainstream financial institution.” Acorn (2016a) also notes that 15% of Canadians (around 5 million) are underbanked, such that they may have a bank account but “their engagement with the mainstream financial sector remains limited.”

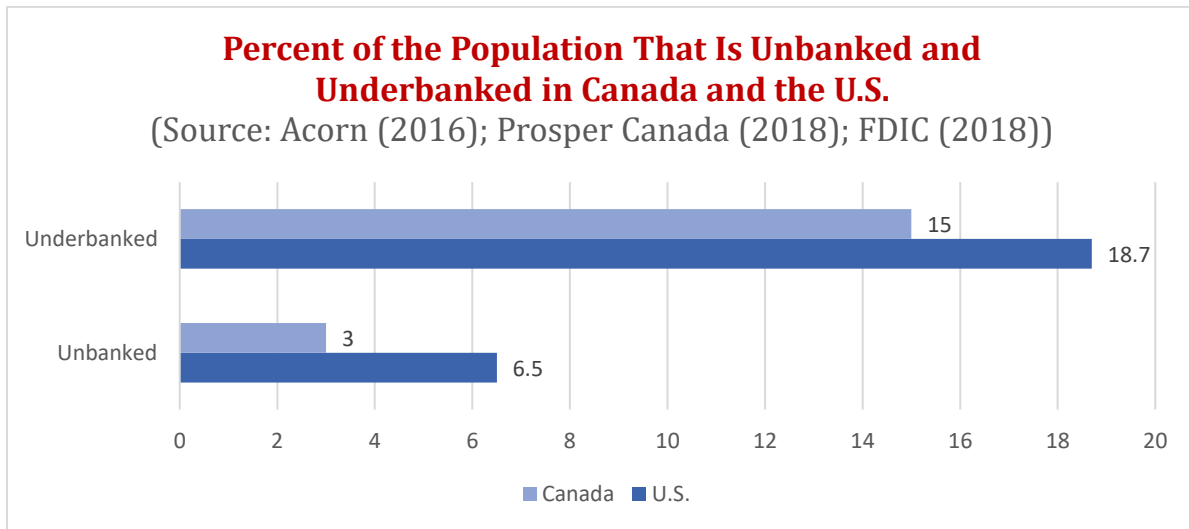
Similar estimates on the population that is unbanked and underbanked in Canada have been reported by Prosper Canada (2018), a Canadian charity “dedicated to expanding economic opportunity for Canadians living in poverty through program and policy innovation,” although Prosper also notes that definitive figures on the size and scope of the underbanked Canadian population are unknown. More recent estimates by Payment Source (2019), a payments industry “news and information resource for financial-service professionals” put the figure even higher, reporting 6% of Canadians having no bank account and 28% currently being underbanked.

The problem of people who are unbanked and underbanked is also significant in the United States, and a comparison of the two countries is provided in Figure 4. A 2016 Bank of Canada staff paper, using data from the U.S. Survey of Consumer Finances, estimated the population that is unbanked in the U.S. at 7.5% of households (Ampudia & Ehrmann, 2016, p. 2). Another study posited that between 10% and 15% of the American population does not use traditional banking services (Geslevich Packin & Lev-Aretz, 2016, p. 1242). More recent data from the U.S. Federal Deposit Insurance Corporation (FDIC) (2018, pp. 1–2) identifies categories of “unbanked,” “underbanked,” “fully banked,” and “unknown.” The FDIC reports that individuals who are “unbanked” have been on the decline since 2011 and that in 2017, 6.5% of all U.S. households (14.1 million adults and 6.4 million children) fit this category. The number of “underbanked” in 2017 estimated by the FDIC (2018, p. 2) was 18.7% (roughly 48.9 million adults and 15.4 million children). “Unknown” status was reported as 6.3% (FDIC, 2018, p. 2).

The categories of people whose banking status is unknown combined with “unbanked” make up a significant segment of American society (25%) that is not reporting mainstream financial service use (FDIC, 2018, p. 2).

**Figure 4**

*Percent of the Population That Is Unbanked and Underbanked in Canada and the U.S*



Source: Acorn, 2016b; FDIC, 2018, Prosper Canada (2018)

**Who Are The Unbanked and Underbanked in Canada?**

Despite Canada’s robust and stable banking sector, many individuals living in poverty or on low incomes have difficulty accessing banking products and services throughout the country (Pillai et al., 2018). Empirical studies published by the Bank of Canada (Ampudia & Ehrmann, 2016, pp. 3–4) identify personal and household hardships and other circumstances such as low income and limited education as a significant “determinant” of being unbanked. Personal hardship also contributes to individuals being excluded from the financial system, including through lost employment and shocks to family income and savings (Rhine & Greene, 2013), lack of proximity to financial institutions (Allen et al., 2012), and accessibility of fringe banks like payday lenders (Campbell et al., 2012). Additionally, many people living in poverty are simply “balancing a variety of debts from different lenders and juggling multiple payments with very few assets and resources” (Baradaran, 2013, p. 532).

Financial access has been cited by researchers as an endemic problem in “low-income communities of color,” particularly among those who have been incarcerated (Orians, 2016). There is evidence that women in Canada have more difficulty than men in obtaining loans for new businesses (Pillai et al., 2018). Women with low incomes living in inner-city Toronto, Vancouver, and Winnipeg who were surveyed in a 2008 Social Sciences and Humanities Research Council project on financial exclusion and poverty also faced “particular challenges” from men at both mainstream financial institutions and fringe banks, including restrictions on identification and feelings of being judged as less capable, less informed, and not as respected as men (Buckland & Fikkert, 2008, pp. 47–49).

Data from submissions of ABLE Financial Empowerment Network (2017) to the Department of Finance, pursuant to the federal government's Federal Financial Sector Review, further identified that the problem of people being unbanked and underbanked also has a disproportionate effect on Indigenous peoples in Canada. Indigenous populations who are unbanked range from 4.2% to 15%.

Factors identified in U.S. research on this subject are also relevant in a Canadian context. A 2016 Bank of Canada staff study identified that in the U.S., individuals with low income and "poorly educated" were a significant proportion of the unbanked population (Ampudia & Ehrmann, 2016, p. 2). U.S. policy thinktank Brookings Institution (2018, p. 2) has identified that the costs of slow payment systems are not only significantly shouldered by people with "lower income and assets" but that they are also "disproportionately borne by people of color, in rural communities, and others who have not had historical or current access to the financial system." Also, there are wide variations in the costs of living in cities throughout America, and in expensive cities like San Francisco, it can be particularly "expensive to be poor, especially when living outside the financial mainstream" where individuals spend a proportionally higher amount of their income on basic financial services (JP Morgan Chase, 2019). The last point has particular significance to the high costs of living in Vancouver and Victoria.

### **Defining Barriers to Accessing Traditional Financial Services**

This section will review common "barriers to access" (both real and perceived) that limit individuals from using traditional banking services. The barriers have been categorized as "financial," "personal," and "informational." In the U.S., the FDIC (2018, p. 4) conducts extensive biennial surveys on why certain segments of society are financially excluded. Figure 5 is reproduced directly from their study (FDIC, 2018, p. 4) and includes both the "main" reasons people self-disclosed that they didn't use a bank and additional "cited" factors in their responses.

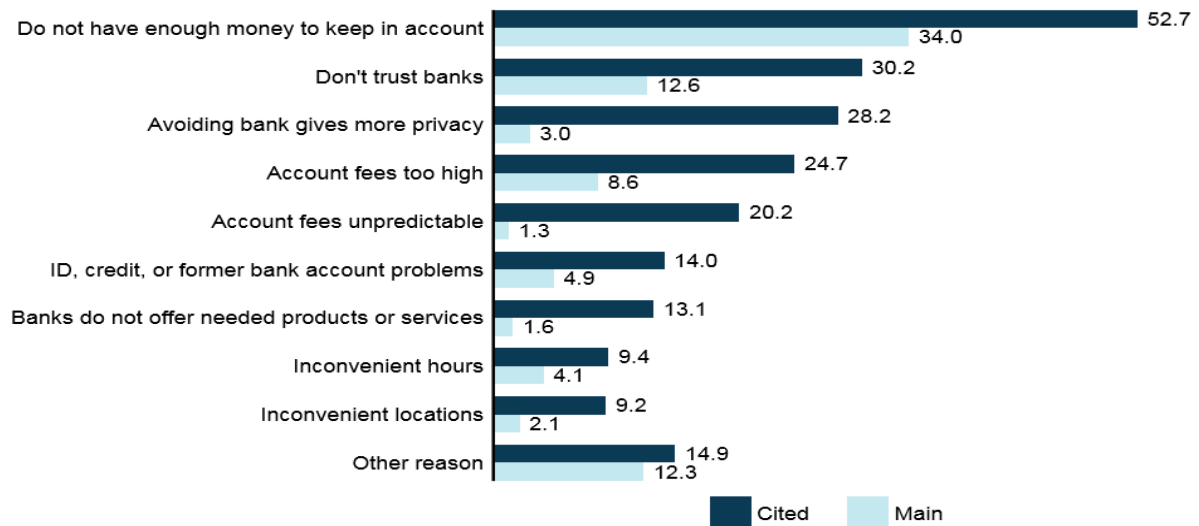
These barriers to accessing traditional financial services can have a particularly negative impact on newcomer populations in Canada. Despite having family members already settled in the country, these new residents (some of whom have been admitted to Canada on humanitarian grounds) often face immediate challenges such as establishing affordable housing and experiencing "financial hardship" (Prosper Canada Centre for Financial Literacy, 2015a, p. 1). Many newcomers come to Canada with significant education, skills, and training; however, they can find themselves excluded from traditional financial services because of factors like language barriers, lack of traditional credit history, distrust in banks from their previous foreign experiences, and unfamiliarity with the types of financial products and services that are available through Canadian banks (Prosper Canada Centre for Financial Literacy, 2015a, pp. 1–2).



## Figure 5

### Factors Influencing a Household's Choice to Remain Unbanked

Figure ES.4 Reasons for Not Having a Bank Account, Unbanked Households, 2017 (Percent)



Source: U.S. Federal Deposit Insurance Corporation (FDIC), “FDIC National Survey of Unbanked and Underbanked Households,” October 2018, p. 4.  
<https://www.fdic.gov/householdsurvey/2017/2017report.pdf>

### **Financial Barriers: Costs, Lack of Credit History, and Institutional Means to Save**

Many people who are unbanked and underbanked choose not to open a bank account, even when one is available to them (Brainard, 2018). Having a bank account may not make “economic sense” to many individuals or families with low income since the benefits don’t justify the costs (Barr, 2004, p. 124). The costs of mainstream banking include “direct” costs (like account fees) as well as “indirect” costs (like social and information costs) (Buckland, 2008, p. 7). For example, the costs of “obtaining” or “gathering” information needed to understand mainstream banking, when added to the costs associated with the “stigma” some may feel when entering traditional banks, and the actual direct costs of banking products and services, may be cumulatively assessed as prohibitively high for some, thus justifying their choice to use fringe banking (Buckland, 2008, pp. 5–8).

Not all fees imposed on the poor are because they are “higher risk.” For example, cashing income assistance or other government distributions at a payday lender incurs fees despite being a risk-free proposition for the cheque-cashing service (Baradaran, 2013, p. 493). Even though fringe financial services may be “more expensive” than banks, survey data from low-income neighbourhoods in Toronto, Vancouver, and Winnipeg have identified that respondents often feel mainstream banks are “unfair” or “unreasonable” in the fees for their services (Buckland & Fikkert, 2008, p. 46). These subjective interpretations can have a pernicious financial effect for those who avoid mainstream banking since the transaction costs

associated with a single engagement at a fringe bank can rival the entire monthly fee of a low-fee mainstream account (Buckland, 2008, p. 4).

The high fees associated with fringe banking get multiplied when individuals require numerous services in a single month; for example, if they have several government payments (like GST, social assistance, etc.) that come to them in the form of a cheque. The Government of British Columbia (2019) has provided an easy-to-understand breakdown of the high costs of fringe banking under “family & social supports” and “borrowing money” on its website, yet the suggested alternatives involve using traditional banking services which, for many reasons (noted in this section), are not fully utilized by individuals with low incomes.

Another significant barrier to access for people living in poverty is that the “traditional underwriting process,” for both business and retail credit, generally uses personal credit history and often requires extensive documentation and collateral (Talbot, 2017). As a result, individuals with low income (many of whom have no personal credit history or collateral, and may have challenges navigating and understanding the legal documentation) have a very difficult time obtaining the credit necessary to start a business, reduce their working hours to improve their education and skills, or consolidate otherwise high-interest credit card balances (Brainard, 2018).

Credit scores play a “central role” in the financial lives of individuals in modern society (Pasquale, 2015; Poon, 2007, 2009). There is a “widespread cultural acceptance of credit scores as financial passports,” and these algorithmic assessment mechanisms are a gatekeeper to “employment, loans, insurance, and home and car purchases and leases” (Guzelian et al., 2015, pp. 1809, 1866). Credit-scoring assessments also don’t accommodate the “implications” of psychosocial disabilities (including mental disabilities or illness), which is “almost invariably episodic, with active and inactive phases.” Financial decisions made during an active phase can have dramatic negative long-term consequences and impair an individual’s ability to obtain credit or low-cost financial services or products in the future (Guzelian et al., 2015, pp. 1810–1811). Individuals with low income and psychosocial disabilities could have poor scores that are “unadjusted” for episodic behaviours (Guzelian et al., 2015, p. 1866).

People with low income who have bank accounts may also be underbanked as they don’t have “institutionalized means to save” (like a reduction from payroll) and they may also have very little access to credit products other than high-interest credit cards, payday lenders, and other alternative financial products (Barr, 2004, p. 124). The limitations on access to traditional banking can be from “conditions and rules” imposed by traditional banks like “minimum balances,” a factor that some “rounding-up” fintech innovations discussed below (like Moka (formerly Mylo) and ATB Brightside) look to directly confront and overcome (Acorn Canada, 2016a). Also, the calendar itself can burden people who live paycheque to paycheque with few financial reserves, and paydays that land on Friday, with bills due on Monday, can lead to anxious scenarios if funds don’t clear in time (Brookings Institution, 2018, p. 5). Compounding this problem is the simple observation that fringe banks and other payday lenders usually have more accommodating hours than traditional banks (Buckland, 2008, p. 10).

### ***Personal Barriers: Hardship, Lack of Identification, Banking Distrust, and Proximity***

The Bank of Canada (Ampudia & Ehrmann, 2016, pp. 3–4) has identified personal and household hardships as a significant “determinant” of being unbanked. While people living in poverty could benefit from banking products, the inverse proposition isn’t obvious, and providing financial products and services to this group may not be a profitable undertaking for a traditional bank. This profit perception is known by many who may avoid banks due to a perceived “snub” or lack of appreciation because of their socio-economic status (Baradaran, 2013, pp. 493, 495; Austin, 2004, p. 1227). Some researchers believe that a large financial institution is unlikely to even consider individuals with low income as a “strategic” market worth investing in (Buckland, 2008, p. 11).

To open a bank account, individuals need government-issued personal identification. The same “identification documentation” is not always required at payday lenders, pawn shops, or other fringe financial outlets (Baradaran, 2013, p. 495). Respondent surveys from low-income financial access studies in Vancouver confirm this point and note that “mainstream banks are much more inaccessible than fringe banks without sufficient identification” (Buckland & Fikkert, 2008, p. 15). The documentation hurdle is compounded for newcomers or others who may struggle with English or who may be illiterate (Baradaran, 2013, p. 495).

Another reason that people choose to remain unbanked includes a “distrust” of large banks (Christopher, 2015, pp. 224–225). Canadian research relating to inner-city Winnipeg banking for individuals with low income showed significant support for this phenomenon (Buckland & Martin, 2005). In other studies, surveyed respondents in low-income and inner-city neighbourhoods in Toronto, Vancouver, and Winnipeg have identified feeling “disrespected” at mainstream banks and stated that these services were “less approachable” (Buckland & Fikkert, 2008, p. 46). These feelings of disrespect can manifest in a lack of trust in traditional banks. Research also shows that feelings of distrust are magnified when an individual who is unbanked has previously experienced a banking crisis in another country (Osili & Paulson, 2009). Interestingly, these same respondents also feel disrespected at fringe financial outlets but these feelings occur “less often” when using alternative financial services (Buckland & Fikkert, 2008, p. 46). Distrust can also be exacerbated by procedures at mainstream banks that aren’t common at fringe banks, like automatic fees that are deducted from an account without notice to the client (Buckland, 2008, p. 10).

Canadian evidence shows that spatial and geographic factors contribute to individuals remaining unbanked (Simpson & Buckland, 2016; Brennan et al., 2011). Specifically, Simpson & Buckland (2016) have documented a trend of financial institutions moving away from urban areas (where large populations of individuals with low income live) and into the suburbs, while at the same time payday lenders and other fringe financial firms have expanded their inner-city operations. Alternative financial services are also seen by some as “more convenient” since they are often open at more flexible hours, including some 24 hours a day (Baradaran, 2014, pp. 168–169).

### ***Informational Barriers: Perceived Eligibility, Process and Fee Opacity, Financial Literacy***

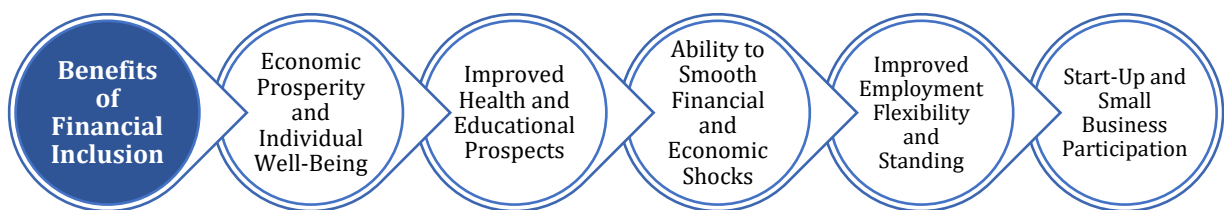
Some people who are unbanked or underbanked perceive that they are “ineligible” for financial products and services (Buckland & Fikkert, 2008, p. 45) or that the fees are too high or they don’t have enough money (Brainard, 2018). They may also perceive that certain products (like credit) are “too risky” (Acorn Canada, 2016a). As part of a study funded by the Social Sciences and Humanities Research Council on “financial service choice of residents in inner-city neighbourhoods in Toronto, Vancouver and Winnipeg,” Buckland & Fikkert (2008, p. 45) identified that no respondents with low income in Vancouver perceived themselves as “eligible or very eligible” for “mainstream financial services.” Many individuals are unbanked simply because they “do not have enough money” in their estimation to “warrant an account” (Christopher, 2015, p. 224). Many individuals with low income need “financial education” and improved financial literacy to distinguish between types of credit and financial products (Frederichs & Rohrke, 2002, p. 1; OECD, 2013). Nevertheless, it’s been noted by the *Economist* (2008, p. 73) that “many poor people do not have a bank account—and that few of them understand why this puts them at a disadvantage (let alone other essentials of personal finance.)”

Another barrier to access is that an individual with low income may not know what products or services are available to them because mainstream banks don’t publish this information widely (Buckland, 2008, p. 8). When compared to the information transparency of alternative financial services (the so-called fringe banks), mainstream banks are sometimes opaque in their product offerings and rarely provide transparency around the “total costs” of their products (Buckland, 2008, p. 8). Paradoxically, the easy-to-understand, even encouraged, loan extensions provided by fringe banks substantially increase the cost of financial services, and even “reinforce the low income and low assets that generated the connection between the client and the fringe bank to begin with” (Buckland, 2008, p. 4).

### Financial Inclusion Trends and Consequences

**Figure 6**

*Summary of the Social and Economic Benefits of Financial Inclusion*



### Financial Inclusion and Its Effect on Human and Economic Prosperity

Financial inclusion (which is a subset of a larger “financial empowerment” construct, which also includes consumer awareness, financial literacy and education, tax-filing abilities,

and access to benefits) can help to alleviate and reduce poverty (Robson, 2017, pp. 5–6). A recent review of literature on the relationship between financial empowerment and poverty alleviation by Professor Jennifer Robson (2017, pp. 17–23) reveals that access to traditional banking products and services helps individuals to “self-insure” against risk, stabilize their finances against external “shocks” through greater savings or borrowing mechanisms, and increase “disposable income” by avoiding high-cost fringe banking substitutes. These high-cost banking alternatives, like payday lenders, are effectively “transactional” therefore people who rely on these services have limited means of building wealth (Buckland, p. 2008,1). This scenario creates a “self-reinforcing” loop since a lack of savings is a major impediment to obtaining credit products (Buckland, 2008, p. 1).

Robson’s (2017, p. 21) research also highlights a “positive association” between asset accumulation and “positive, economic, social and psychological outcomes.” In previous studies, Robson (2012) highlighted how financial education and coaching can also have positive benefits on saving outcomes and stability for individuals with low income (although not net worth), while reducing stress, improving health, and increasing “self-efficacy.” The relationship between financial empowerment and improved mental health has been noted in other studies in both Canada and the U.S. (Goss Gilroy Inc., 2017; Franz, 2016; Ferrari et al., 2002).

Financial inclusion helps to alleviate poverty by creating a more secure means of saving other than cash stockpiles (Buckland, 2008). International research data have identified a critical linkage between having some form of “savings” or investment vehicle and enhanced economic prosperity (Pillai et al., 2018). Just because an individual with low income has little money to save, doesn’t mean that they won’t save, and in fact, research suggests that they will save if provided with “structured mechanisms” (like savings accounts) that facilitate saving (Barr, 2004, p. 124). A 2013 experience in Kenya showed that providing local vendors with savings accounts led to a significantly higher rate of savings and business re-investment than among vendors who didn’t have similar financial products (Dupas & Robinson, 2013).

Having access to credit provides individuals with the capacity to “absorb financial reversals” and “individual economic shocks” (Baradaran, 2013, p. 489; Barr, 2012). Additional studies show that access to credit can also lead to “increased income and savings” (World Bank Group, 2008; Solomon, 1992). Evidence from China has also demonstrated “there is a strong, positive correlation between an individual’s access to traditional banking services and an individual’s well-being” (Kendall, 2008, p. 377). Credit and financial inclusion help individuals with lower income who may need to “reallocate expenditure over time” and solve the misallocation between when money is “needed” versus when it is acquired (Rutherford, 2000, p. 2). This premise is supported by empirical evidence showing that people without bank accounts are more frequently late on utility and other bills and household payments (Barr, 2004, p. 139). Unbanked households also struggle to “smooth consumption” because of a lack of saving accounts, and have trouble accumulating wealth, often related to not owning a home (Ampudia & Ehrmann, 2016, p. 3).

Individuals who quickly convert their paycheques to cash are also more exposed to robbery or theft (Barr, 2004, p. 140). The challenges for people who are unbanked become

particularly acute as society moves toward a “cashless world” where fiat transfers are now primarily based on “plastic” money like debit and credit cards and electronic transactions (Peesker, 2019). Further, a relatively recent field experiment from Nepal showed that households headed by women with access to a free savings account spent more on nutritious food and education for their children than those without a savings account (Prina, 2015).

### **Financial Inclusion and Its Effect on Employment and Entrepreneurial Initiatives**

The ability to access credit can help lift people from poverty by providing better employment and economic opportunities in the future through student, business, and short-term loans and building credit history (Baradaran, 2013, pp. 489–490). Conversely, “high-cost financial services reduce effective take-home pay,” which lowers the incentives for people to leave social assistance for the workforce; also, individuals with low income may feel stuck in a never-ending cycle where they can’t get ahead but lack incentives (or ability) to work more or improve their employment standing (Barr, 2004, p. 127).

Access to financial services allows individuals with lower income to start, maintain, and expand small businesses (Baradaran, 2013, p. 489). Access to credit from “microloans” can stimulate “entrepreneurial activities” that could result in increased income and facilitate more efficient intermediation between savers and borrowers (Mader, 2018, p. 465). Entrepreneurship is a focal area that could be positively impacted by the fintech value propositions discussed in this study, since small and start-up businesses are a very significant underbanked segment in Canada, particularly regarding credit access. Credit products are often elusive for small businesses, and would-be proprietors of new businesses often fall into the lower-income segment and have little by way of collateral to post for bank loans.

### **Traditional Low-Income Banking Alternatives: Fringe Banking and Payday Loans**

Individuals with low income often turn to high-fee, high-interest fringe banking—including “pawnshops, rent-to-own operators, and payday lenders” when they can’t obtain conventional financial services (Buckland, 2014). Since the global financial crisis in 2008, research data show the fringe banking industry has seen significant growth and consumer demand. Acorn Canada (2016a) reported that from 2007 to 2015 the number of households that used a payday loan service from one of over 1,400 loan outlets throughout the country grew from 1.9% to 4.3% (in a \$2.5 billion industry). This area has also attracted increased regulatory scrutiny across Canada over the last decade, particularly by provincial governments looking to curb abusive practices and predatory behaviour (Ebner, 2017).

A “payday loan” is effectively a “small dollar short-term loan secured by a post-dated check” (Brookings Institution, 2018, p. 5). Cheque-cashing businesses also provide a means for employees who are unbanked to “convert their paychecks to cash” (Barr, 2004, p. 124). Evidence from the U.S. suggests that individuals with low income use payday lenders and “cheque-cashing firms” because the fee structures are easy to understand, predictable, immediately available, and “prominently displayed” like a retail or fast-food purchase (Servon, 2017).

These fringe banks have very high costs for people living in poverty (Caskey, 1994, p. 7). They prevent people with low income from building up “credit history” (Barr, 2004, p. 124). There have been proposals in the U.S. about banning these financial services altogether (Mann & Hawkins, 2007, pp. 858–860; Skiba, 2012, p. 1043; Hefner, 2007, pp. 285–287). Ontario recently became the first Canadian province to stop offering new operating licenses to payday loan facilities (Pelley, 2019). Nevertheless, the payday loan industry is a “market solution” that fills a gap where either the banks won’t enter, or consumer perception of banking costs drives market demand (Baradaran, 2013, p. 487).

One of the successful marketing strategies instituted by payday lending is that they operate under a “façade of informality”: they are often open at all hours, located close to low-income neighbourhoods, facilitate cash transactions, and often utilize the language of their customers (Baradaran, 2013, pp. 495–496). In contrast, traditional banks have strict and unaccommodating hours, formal requirements, and often more opaque fee structures (Baradaran, 2013, pp. 495–496).

Also, unlike the intimidating legal process that a mainstream bank will evoke to collect on a debt, a payday lender sometimes comes across as informal and flexible, or as one researcher noted: “[t]he primitive hands-on processing and tawdry exterior of the outlets both exude welcome to poor customers and mask [the firm’s] close ties to and substantial financings from large corporations and big banks” (Williams, 2001, p. 87). Payday loan companies, in line with the fintech revolution, have also moved their operations online, and it can be difficult at times to distinguish a fintech peer-to-peer lender from a traditional payday loan company operating exclusively online. For example, several traditional payday loan companies (with high-interest products) operate in B.C. exclusively online, including [myCanadaPayday.com](http://myCanadaPayday.com), [loanexpress.ca](http://loanexpress.ca), [310loan.com](http://310loan.com), [bc-loans.com](http://bc-loans.com), and [focusfinancialcorp.com](http://focusfinancialcorp.com).

Despite the many published reports about their high fees and predatory practices, the alternative banking and payday lending industry has taken many steps to clear its name and establish its value proposition. The industry in Canada is represented by the Canadian Consumer Finance Association (CCFA). On its website, the CCFA (n.d.) describes itself as having 961 member companies across the country that provide “small sum, short term credit, including payday loans, installment loans, term loans, lines of credit, and cheque cashing services” to almost 2 million Canadians annually. The role of the CCFA is to “work with the federal and provincial governments to achieve a regulatory framework that protects consumers while allowing for a viable industry to continue.”

The CCFA actively advocates that the industry fills a necessary “gap” in the systemic financial exclusion problem in Canada—a proposition also supported by 2016 studies by the Conference Board of Canada and the Atlantic Provinces Economic Council. Several recent government and private studies also support this proposition. A 2017 study by Shoppers Confidential in Alberta showed that 80% of payday-lending debtors were denied loans from credit unions in the province, and that most of the credit unions required traditional credit checks as part of the loan approval process. This study supports a 2016 report by the Financial

Consumer Agency of Canada on the payday loan industry as largely driven by demand from consumers who can't access traditional credit products from incumbent financial institutions.

A 2010 survey by researchers at the University of British Columbia on “fringe financial institutions, the unbanked and the precariously banked” in Prince George, B.C. provides a number of important data points when studying financial exclusion in the province. There has been “explosive growth” in fringe financial institutions such as pawn shops, payday lenders and “instant cash” venues like Money Mart. Indigenous individuals were the majority of respondents. The “overwhelming majority” of individuals once had accounts with traditional banks. The transition away from mainstream financial institutions was, among other factors, often due to “convenience” and a deterioration of the relationship when respondents fell upon financial hardship (Bowles et al., 2010, pp. 1–3).

### **B.C. Financial Inclusion Case Study: Pigeon Park Savings in Vancouver**

A positive development in British Columbia is the establishment of Pigeon Park Savings (PPS, n.d.) in downtown Vancouver. PPS originated through a partnership between Vancity, a progressive community credit union, and PHS Community Services Society (n.d.), which describes itself as a non-profit provider of “housing, service and advocacy” for some of the most vulnerable and underserved people in Vancouver’s Downtown Eastside and Victoria.

PPS provides “basic financial services” to people living on low incomes in Vancouver’s Downtown Eastside at a flat rate (\$5 a month), which includes banking services, ATM cards, and free bill payments, cheque cashing and withdrawals at select PPS ATM machines. PPS also makes it very easy for people with low income or receiving disability assistance to open an account, and they accept provincial cheque-cashing ID standards for individuals with photo identification.

PPS (n.d.) has stated that it is founded on a “low-threshold strategy” of eliminating the frictions associated with obtaining banking access. Central to its institutional ethos is a belief that access to financial services facilitates “social participation” with many positive by-products, and individuals with low income are commonly excluded from broader societal benefits due to a host of entry barriers at banks, such as initial and ongoing fees, a lack of conventional identification, and feeling generally unwelcome by traditional institutions—thus turning to fringe banking for basic services (PPS, n.d.). The Government of British Columbia (2017, p. 21) has profiled the role of PPS in enhancing trust with the community by offering budgeting, money management, and other educational resources.

### **How Could Fintech Increase Financial Inclusion in British Columbia?**

Financial technology (fintech) has both an expansive definition and wide potential for consumer-enhancing improvements in the scope and delivery of financial services (Competition Bureau, 2018). The Bank for International Settlements defines fintech as “technologically enabled financial innovation that could result in new business models, applications, processes, or products with an associated material effect on financial markets and institutions and the



provision of financial services” (Basel Committee, 2018, p. 8). It can also simply be “companies that use technology to make financial systems and the delivery of financial services more efficient” (Ancrì, 2016). Further, its application extends to both new market entrants in the financial services space and the use of technology by financial incumbents to enhance customer service or provide new financial product offerings (Clements, 2019; Badour et al., 2017).

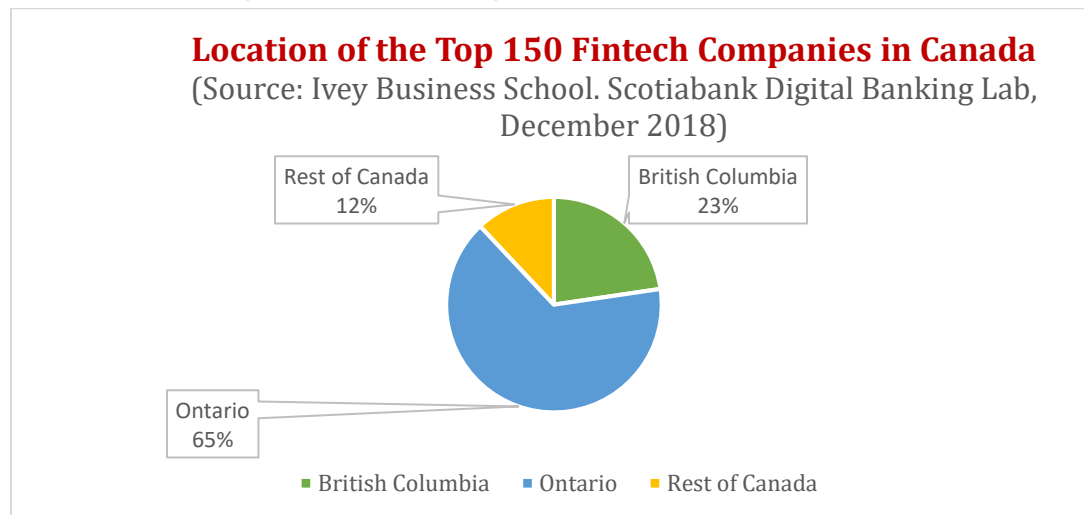
Perhaps the most compelling vision of financial technology—and in particular peer-to-peer and crowdfunded lending and credit portals—is that it drives a form of “economic justice” for “historically marginalized” segments of society that are underserved, or outright neglected, by traditional financial intermediation (Alexander, 2013, p. 382). Encouraging data from the World Bank Group’s Global Fintech database 2017 show that more than two-thirds of the world’s adult population has access to a bank account compared to half that number a decade ago (World Bank Group, 2017). However, much more can be done globally to help people living in poverty with financial access (Brainard, 2018).

This section will provide context to the role that fintech can play in alleviating financial exclusion by first describing the fintech ecosystem in B.C. and then identifying certain fintech products and industries that could benefit people living in poverty.

### **An Empirical Snapshot of the Burgeoning Fintech Ecosystem in British Columbia**

**Figure 7**

*Location of the Top 150 Fintech Companies in Canada*



Source: University of Western Ontario, Ivey Business School. Scotiabank Digital Banking Lab, 2018.

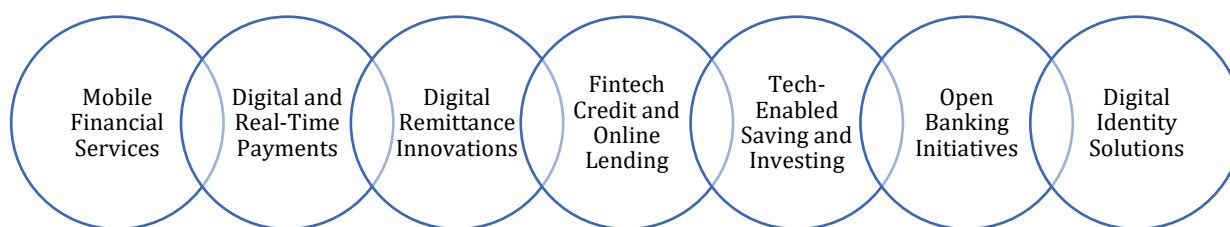
Fintech consumer adoption rates in Canada (50%) currently lag behind global averages (64%), and significantly trail world leaders like China, India, and Russia, according to recent data compiled by Ernst & Young (2019, p. 7). Despite Canada’s tepid uptake of fintech, which is due to a variety of factors including regulatory frictions, the dominance of big banks, and

consumer distrust in new technology process (Clements, 2019), British Columbia has one of Canada’s most thriving provincial fintech markets.

According to a study by the University of Western Ontario’s Ivey Business School as part of its Scotiabank Digital Banking Lab, as of the end of 2018, 34 of the top 150 fintech companies in Canada were based in British Columbia. B.C. had the second-largest number of the top fintech companies in Canada, trailing Ontario which had 98 of the top companies. In total, the Ivey study (University of Western Ontario, 2018a, 2018c) notes 141 fintech companies operating in British Columbia. The cumulative effect of B.C.’s burgeoning fintech industry has been positive for the provincial economy, as it has led to 2,200 jobs being created (University of Western Ontario, 2018a, 2018c).

### Figure 8

*Summary of Fintech Innovations with Financial Inclusion Potential in British Columbia*



The term “fintech” captures a wide variety of applications, including an incumbent bank’s use of technology to enhance current customer experiences or improve financial services infrastructure, operational or back-end processes, and new consumer-facing financial products and services with financial inclusion value (Clements, 2019, pp. 3–5). Not all fintech companies will have utility for individuals who are unbanked and underbanked in British Columbia. For example, certain companies provide infrastructure, insurance tech, banking tech, research and development, property technology, and accounting services with little benefit for individuals with low income and who are unbanked. Some fintechs also provide business-to-business services (like online accounts payable and billing solutions, receivables management, or point-of-sale technologies) or investment and wealth management services for individuals with high net worth.

The appendix lists a variety of fintech companies in British Columbia, Canada, and internationally that could serve financial inclusion goals for residents of the province. This list should not be considered an exhaustive cross-section of all fintech companies in these jurisdictions, as new companies are frequently launched in all three markets. Further, in addition to the B.C.-based fintech ecosystem, a variety of support initiatives have been established to foster more fintech development in the province, including a “fintech cluster” joint partnership between the B.C. Technology Industry Association (BCTIA) and PayPal as part of the BCTIA’s FinTech Series. Also, as recently announced by StartUp HERE Toronto (2019a), a strategic partnership has been formed between the BCTIA and Toronto’s MaRS Discovery District to “increase collaboration” between the B.C. and Ontario fintech markets.

## Financial Inclusion Through Digital Banking and Mobile Financial Services

Digital banking and mobile financial services can potentially alleviate several barriers to access for people who are financially excluded, including inconvenient bank locations and hours and a lack of accessible financial products and services (Alexandre & Eisenhart, 2013, p. 287). Also, by forgoing traditional “brick and mortar” operational structures, these digital (often called “neo” or “challenger”) banks can pass on cost savings in the form of reduced account and transaction fees. Mobile communications and banking are a natural fit, and if the former is used ubiquitously to “transmit voice and text messages” it seems obvious that they could also be used to “transmit and store value” (Alexandre & Eisenhart, 2013, p. 286). A natural integration point is when a mobile phone service is first contracted by a customer, and here a bank account (or other financial service) could be a supplementary add-on (Alexandre & Eisenhart, 2013, p. 286).

Research on financial inclusion initiatives has identified three material benefits for people who are unbanked and underbanked when using mobile and digital banking services (Alexandre & Eisenhart, 2013, p. 287). Mobile banking

1. helps reduce dependency on cash, which has been described as a “common enemy of both financial inclusion and financial integrity” (Alexandre & Eisenhart, 2013, pp. 288–291)
2. creates valuable data to foster deeper financial inclusion (Alexandre & Eisenhart, 2013, pp. 292–294)
3. is instrumental in “accelerating the development of accounts,” which are a “gateway to using a variety of financial services” (Alexandre & Eisenhart, 2013, pp. 294–296).

Accounts can also facilitate a “business relationship” between the previously financial excluded customer (Alexandre & Eisenhart, 2013, p. 298). A tangential benefit of mobile money is that it facilitates the public good of making fraudulent behaviour “traceable” as opposed to the anonymity of cash-based transactions (Alexandre & Eisenhart, 2013, p. 290).

A number of Canadian companies are active in the mobile banking space, although much of the implementation in digital and mobile banking tends to be focused abroad, rather than on the unbanked problem in Canada (Posadzki, 2017). One specific B.C. company worth mentioning because it is actively working to create greater financial inclusion is Mogo, which was named “one of Canada’s top 50 fintech companies for 2019” by the Digital Finance Institute. Mogo states on its website that it desires to disrupt the high-fee dominance of Canada’s big banks. In pursuit of that mission, it offers a variety of web-based products, including personal credit products and artificial intelligence applications, that help people manage their finances and control “overspending habits” with cashback incentives.

Another mobile banking fintech disruption with significant financial inclusion potential are the so-called “challenger” or “neo” banks, such as NorthOne in the United States and Revolut in the United Kingdom. These digital banks flow through to their clients the cost savings of not having brick and mortar overhead, thus creating more affordable and democratized financial products that can be accessed by all of society. Revolut (n.d.) has indicated that it intends to move to Canada and provide “global fee-free spending, free international money transfers and instant payment notifications.” Mobile financial services have also yielded significant results in

“broadening access to financial services” worldwide, with noticeable impacts on historically unbanked regions of Africa, including Tanzania (Bank of Tanzania, 2012; Alexandre & Eisenhart, 2013, p. 286).

### **Reducing Costs with Digital and “Real-Time” Payment Technology**

Digital and real-time payment technology has the potential to significantly reduce the costs of transferring money and transacting for goods and services. The former is particularly important for newcomers to the province who often resort to high-cost, and inconvenient, international money remittance services to send and receive money abroad. Technology can also “transform” how consumers pay for goods and services, in a way that yields financial inclusion benefits for those previously unbanked (Randall & Chien, 2018). In the process, payment technologies can help individuals who are underbanked and unbanked increase disposable income, thereby allowing them to participate in the many benefits of financial inclusion as cited above.

In the payments sector, China serves as a leading example of the power of fintech payment applications to mitigate financial exclusion problems and expand financial services access to people who are unbanked (World Bank Group, 2018). China has emerged as a world leader in at-large consumer fintech adoption (Ernst & Young, 2019). Two of the largest e-commerce and social networking companies in the country (Alibaba and Tencent) have integrated “payment functionalities” onto their platforms, resulting in a “dramatic evolution towards a cashless society” without the intermediation of banks (Randall & Chien, 2018). Another commonly used fintech payment application in China is WeChat (Janse & Cheng, 2019). An innovative example of a U.S. fintech payment application with financial inclusion utility is Fresh EBT, which allows users to receive, spend, and track food stamps benefits; incorporate coupons into their purchases; and get saving tips and job and income-earning opportunities (Field, 2017).

The use of non-cash digital payment mechanisms in Canada has “flourished” over the last two decades, taking the form of debit and credit cards, electronic payment structures (like PayPal), and Interac e-transfer services (Galociova & Li, 2019). However, these systems require traditional bank accounts to function. A variety of payment mechanisms, however, exist either on gaming platforms or directly through mobile phones and interface with “real-world” merchants. These technology platforms act as a fiat store of value portal and thus serve as a substitute for a conventional bank account (Minter, 2019). One of the most well-known examples of the latter is the Kenyan M-Pesa system (an innovation from Vodaphone), which allows consumers to “top up their mobile phones with prepaid credits” and use the phone credits to purchase goods and services or send credits to friends and family members via text (Minter, 2019). M-Pesa recently integrated with the Alibaba platform to expand its spending possibilities (Minter, 2019). In addition to M-Pesa, fintech payment applications are finding success easing financial exclusion trends in developing countries, with new platforms like Leaf and SokoWatch in Africa, payAgri in India, and Banco Maré in Brazil (Carraro, 2018). Additionally, Abra in the Philippines is using blockchain technology to reduce the cost of payments (Comminos, 2017).

Every payment token's utility, including mobile phone credits and gaming systems, rests on the presupposition that an individual user has either an Internet connection or (preferably) a mobile phone with a data plan. These are tenuous assumptions in developing countries (Jenkins, 2019). It is also not obvious, or empirically certain, that individuals who are financially excluded and unbanked in British Columbia have sufficient access to either of these technological solutions.

Perhaps the boldest fintech financial inclusion initiative to date was the originally announced conception of the Facebook-led Libra cryptocurrency. Libra was first announced in the summer of 2019 as a "simple global currency" designed to "empower billions of people" (Libra Association, 2019). Facing stern regulatory pressure, however, in late 2020 the Libra Association substantially amended its original conception and rebranded itself as the "Diem Association" (Diem Association, 2020). The originally planned Libra Association is worthy, however, of analysis given its stated primary mission of financial inclusion. The idea was initially formed through a consortium of influential independent founders, including payment giants Visa, Mastercard, and PayPal and technology giants eBay, Uber, and Spotify, as well as high-powered financiers like Andreessen Horowitz. The original vision of the Libra Association was to provide "financial inclusion for unbanked" who otherwise possess a mobile phone. This goal would be accomplished through Libra, a blockchain-based payment mechanism stabilized by a reserve basket of low-volatile government securities and fiat designed to give Libra "intrinsic value" and mitigate the concerns with other electronic non-fiat payment tokens (like Bitcoin) that are poor cash substitutes because of their volatility.

Libra would have been used as a payment mechanism within the Facebook ecosystem (including WhatsApp) as well as with vendors who chose to accept it. The original Libra Association (in which Facebook initially had a 1/28th stake—each founding member receiving an equal vote) had been tasked with developing the Libra "ecosystem" (including facilitating more businesses accepting it), administering the Libra reserve and money supply, and running the initially permissioned Libra blockchain. The original Libra white paper also estimated the association growing to over 100 members by the time the token was launched and eventually moving to a "permissionless" decentralized system. The permissionless network idea has since been jettisoned because of concerns that it will not be compliant with regulations (Diem, 2020). However, the original Libra proposal may have been the most "far-reaching" fintech financial inclusion proposition to date given the total number of Facebook and WhatsApp users, and the fact that users wouldn't even need an account to use it—just a mobile phone (Seward and De, 2019). The first conceptual custody wallet is also through a Facebook-owned entity originally called Calibra, and later rebranded as "Novi" (Bursztynsky, 2020).

For people who are financially excluded and have difficulty satisfying the regulatory requirements of banks (like know your client (KYC) rules), payment mechanisms like the original Libra or Bitcoin allow anyone with a cellphone and data access to save or "store value" (Coppola, 2019). They effectively become a lower-fee substitute for a pre-paid card, with less carrying risk than cash (Coppola, 2019) as long as KYC isn't strictly applied. The initial regulatory response to Libra suggested KYC obligations would apply in developed countries,

thereby undermining the financial inclusion value for people who couldn't obtain a bank account because of a lack of address or identification documents (Coppola, 2019). Also, Libra's use of a "closed ecosystem" was somewhat suspect, as Facebook doesn't have the marketplace like other technology companies, notably Amazon and Alibaba (Coppola, 2019).

The originally conceived Libra faced a tremendously difficult path to implementation, at least in developed economies. Within only a few months of launching its first white paper—where the theme of financial inclusion was ever present—Facebook executives faced extreme pressure from U.S. lawmakers concerned about its potential impact on monetary policy and distrustful of the company's history of handling privacy and customer data (Andriotis, Rudegear, & Hoffman, 2019). Feeling heightened regulatory scrutiny in Facebook's crossfire, major initial backers pulled out of the project in October 2019, including PayPal, eBay, Visa, and Mastercard (Partington, 2019). The rebranded Diem Association is an attempt to ease regulator's concerns, and it has support from major industry partners Andreessen Horowitz, Coinbase, Spotify, Lyft and Uber (Bursztynsky, 2020). Diem has a much more modest vision than Libra, but still has some financial inclusion benefits like easing the cost of international money transfers through a variety of single, and multi-currency "stablecoins" pegged to various fiat currencies and allowing unbanked individuals access to Diem financial services like money transfers through "unhosted wallets" (Diem Association, 2020). Another financial inclusion benefit for developing countries is that Diem will serve as a "low volatility alternative" currency (Diem Association, 2020).

Even with its revised and curtailed mandate, some fear that Diem still poses a threat to the incumbent banking system because of its potential "network effects" and instant take-up by billions of consumers worldwide (Tokarev, 2020). A "disruptive" financial innovation like Diem (and especially the original conception of Libra) generates valid concerns, but it would be unfortunate if regulators' fears forever stifle a technology that could have utility for people living in poverty, thus preserving the status quo, which has its own externalities like the proliferation of "too big to fail" banks (Waters, 2019). Yet, even if Diem ultimately fails, the wisdom of best-selling financial contrarian Nassim Nicholas Taleb (2018) could ring true. He stated (in relation to Bitcoin, but equally true for Libra / Diem): "It may fail but we now know how to do it," and a new tech giant (like Google, Apple, or Amazon) could be waiting in the wings to launch a Diem competitor in the future.

Another fintech payment innovation that could dramatically reduce the fees that many individuals with low income face when relying on cheque-cashing services, payday lenders, and bank overdraft fees is "real-time payments" (Klein, 2019; Buckley & Mas, 2016, pp. 71–72). Slow payments create "significant costs" for people with "lower income and assets" (Brookings Institution, 2018, p. 2) and have been attributed with causing the rise of "payday lenders" for people who, because of constantly low bank account balances, cannot afford an unexpected expense (Cowley, 2017). "Variance of earnings"—where individuals have sufficient income to cover their expenses but because of delays in the payment system are "unable to access those funds" (Brookings Institution, 2018, p. 3)—also currently creates a need for alternative banking.

"Real-time payments" (RTP) can make a dramatic difference for people who live paycheck to paycheck and could help to avoid "overdraft fees, bounced checks or collection

fees” (Brainard, 2018). The Brookings Institution (2018) has called RTP “the single most important policy lever that the Federal Reserve can directly utilize to reduce income inequality in America.” It also allows for a social welfare function without the need for “redistribution” from higher-income individuals (Brookings Institution, 2018, p. 2). It is in this vein that policy-makers should consider fintech as a complement to traditional banking, as it helps people who are unbanked and underbanked break free from the high-cost (often predatory) fringe financial industry.

The Government of Canada’s Department of Finance (2018b) has undertaken an extensive review of the Canadian Payments Act, including a modernization initiative for a new RTP system. The “core payment clearing and settlement systems” are owned and operated by Payments Canada (formerly the Canadian Payments Association), a non-profit “public purpose” organization with delegated authority from the Canadian government (and oversight by the Minister of Finance), whose members include the Bank of Canada and all chartered banks, among other eligible financial institutions (Payments Canada, 2019, p. 33).

The modernized RTP system will “offer consumers near-instant receipt of funds, more convenient payment methods, and the ability to receive payments without needing to provide sensitive account information” (Government of Canada, 2018b). Access to the modernized RTP system (which the Department of Finance calls “Real-Time Rail”) will be open to a wider variety of participants than the current payment system allows for, but will also be “risk-based” as there will be a bespoke membership framework outlining who, and under what regulatory parameters (including a new “retails payments oversight framework”), non-bank technology companies can access the modernized infrastructure (Government of Canada, 2018b). It’s a positive signal, however, for non-bank competitors and innovators in the payment space, many of whom can create inclusionary benefits for people who are unbanked (like lower-cost international money transfers). The timeline, however, on the implementation of the RTP modernization is uncertain and although initially planned in 2020 as a “phased release” (Payments Canada, 2019, 19), more recent estimates suggest the Real-Time Rail will go live in 2022 (Payments Canada, 2020).

### **Using Money Remittance Technology to Increase Financial Inclusion**

Engaging in financial transactions, like sending money abroad using a wire service at a bank, can be an opaque and confusing process for many people, and such services at fringe financial firms are often much more transparent (Buckland, 2008, pp. 2–8). International money transfers can have disproportionate effects on individuals with low income, and these services could be significantly improved through the integration of financial technology like blockchain. British Columbia has many newcomers who are either supporting, or receiving support from, family abroad (Todd, 2014), and sending (and receiving) money internationally can be very costly. Firms like Money Mart and Western Union charge steep fees (sometimes as high as 20%) for such services (Todd, 2014). Estimates from 2012 from the World Bank suggest that over \$24 billion leaves Canada to foreign destinations (Todd, 2014).

As mentioned in the previous section, this is one of the primary value propositions of Diem. Once launched, Diem could be used to aid people who are financially excluded since it can be transferred at nearly zero fees and subsequently used to purchase goods or services from vendors who accept it for payment (Diem Association, 2020.) The Original Libra Association white paper cited the fees associated with the incumbent banking system as causing financial exclusion and stated that its cryptocurrency would not only reduce remittance fees and the cost of money transfers but also allow for a banking substitute by eliminating traditional fees (which are substantive for individuals with low income). These fees include monthly account costs, ATM charges, and other fees associated with fringe finance (Libra Association, 2019).

Fintech companies in Canada are also seeing money remittance technology as a segment to gain market share over incumbents and banks while fostering greater financial inclusion for people who are unbanked (GlobalNewswire, 2016). Integrating into this industry is costly, especially the cost of complying with regulations, as evidenced by the closure in 2018 of Vancouver-based nTrust. This company had previously sought a variety of financial inclusion goals through fintech, including unique remittance cards, mobile wallet integration technology, and overseas bill payment mechanisms (GlobalNewswire, 2016).

In 2019, an Ontario-based company Zed Network Inc. received regulatory relief from the Canadian Securities Administrators (CSA, 2019b) to build out a “blockchain based foreign exchange remittance network system” from the CSA fintech “sandbox.” The sandbox is an initiative that “allows firms to register and/or obtain exemptive relief from certain securities law requirements, under a faster and more flexible process,” which includes the ability to “test” products to limited segments of the market under bespoke supervisory parameters (CSA, 2019a). This is an encouraging initiative for Canada and B.C., to help more fintech companies introduce lower cost financial products to the market.

### **Expanding Credit Through Peer-to-Peer and Online Lending**

Many Canadians turn to payday lending and other forms of high-cost credit because they can't obtain credit products from conventional providers like banks or credit unions (FCAC, 2016; Shoppers Confidential, 2017). Fintech credit can potentially position itself between traditional banks and the fringe financial industry (including payday lending) by providing access to credit to individuals who are underbanked and unbanked at lower fees than payday lenders.

Fintech credit, also commonly known as “online or peer-to-peer (P2P) lending,” uses technology to connect “borrowers with potential lenders through an online portal” (Clements, 2019, p. 17). Fintech credit functionally operates outside of traditional banks, although in some operational structures called “notary models” banks intermediate, and originate, the loans (Bank for International Settlements, 2017, p. 12). Fintech credit can fulfill financial inclusion goals, as evidenced by recent studies on fintech credit products in China, to expand the availability of credit products through “internet banks, online microcredit companies (MCCs) and P2P platforms” (Randall & Chien, 2018). Also, there is empirical evidence suggesting that fintech



credit platforms offer consumers loans at lower interest rates because of technological advancements in evaluating and pricing credit risk (Jagtiani & Lemieux, 2018, 2019).

The many potential benefits of fintech credit include lower cost (and increased access) of credit for small businesses and individuals, faster loan approvals, and convenient application portals (DiLorenzo, 2018, p. 5). Fintech credit can also provide households with low income with potential “liquidity in the face of income or expenses shocks” (Danisewicz & Elard, 2019, p. 2). Further, well-documented sources of personal financial hardship for households with low incomes are medical costs and debt refinancing (Gross & Notowidigdo, 2011). Fintech credit provides an access point for these types of loans, which can be difficult for individuals with low incomes to procure using traditional credit channels (Danisewicz & Elard, 2019, p. 4). Without these credit channels, individuals are usually left resorting to alternative finance, including high-cost payday lenders (Davies, 2018).

Also, recent empirical studies from the Federal Reserve Bank of Philadelphia revealed that the largest fintech credit platform in the U.S. (LendingClub), which after this study announced its intention to terminate its peer-to-peer lending platform and operate as an online bank (Frankel, 2020), had “lending efficiency” for unsecured consumer loans that “resembled the risk and efficiency of the largest traditional bank lenders” (Hughes et al., 2019, p. 18). This confirms other studies suggesting that lending efficiency improvements in fintech credit are attributable to “a greater capacity to accurately evaluate credit risk using more advanced technology” (Hughes et al., 2019, p. 18; Jagtiani & Lemieux, 2019).

Fintech credit has shown itself to be a very valuable funding source in the U.S. (through popular platforms like SoFi) to individuals who were previously unbanked and underbanked (De Roure et al., 2016; Jagtiani & Lemieux, 2017; Schweitzer & Barkley, 2017). Private, peer-to-peer lending and fintech credit intermediation also show promise in facilitating “private international development finance,” a domain historically dominated by “charities, development agencies, and financial institutions” (Davis & Gelpert, 2010, p. 1211). Fintech credit platforms generally provide smaller, sometimes even “micro” loans, on shorter durations and with more flexible repayment terms than banks, which are better suited for the small and start-up business enterprises and characterize the types of entrepreneurial ventures sought out by individuals with lower incomes (Talbot, 2017).

Recent research has revealed that in regions where fintech lending has been restricted through regulatory or judicial constraints, there have been “adverse welfare effects in terms of raising the incidence of personal bankruptcy” (Danisewicz & Elard, 2019). This effect was particularly severe in households with low income (Danisewicz & Elard, 2019, p. 1). This study examined personal bankruptcies in Connecticut and New York in light of the 2016 U.S. 2<sup>nd</sup> Circuit decision in *Madden v. Midland*. That decision holds that a non-bank entity, when they take an assignment of debt from a national bank, is not entitled to protection under the National Bank Act from claims of state usury violations. The study noted growth in the fintech credit market and also suggested that fintech credit has some “positive welfare effects compared with other forms of costly credit, such as payday loans and credit card debt” (Danisewicz & Elard, 2019, p. 26).

Initial “market outcome” data sets, collected on operational fintech lending platforms, show evidence that “fintech lending increases access to credit for borrowers seeking smaller loans” (Tang, 2018; Jagtiani & Lemieux, 2016; DiLorenzo, 2018, p. 14). Other observable market outcomes from lending platforms in operation are that they can eliminate “geographic barriers and constraints to credit availability” and may increase credit access to individuals with lower credit scores (DiLorenzo, 2018, p. 16; Jagtiani & Lemieux, 2018, pp. 5–6).

There is a strong appetite for fintech credit in Canada, as evidenced by the success of the Ontario-based Lending Loop (Asano & King, 2018). Recent empirical research has identified a “funding gap” where incumbent large banks don’t operate (primarily for small- and medium-sized enterprises (SMEs) and start-ups), and fintech lenders in Canada stand poised to fill this gap (Hinton et al., 2017). As noted above, entrepreneurial opportunities for individuals with low income can have a positive impact on their welfare, but credit is generally needed to launch a business (Clements, 2019, p. 18).

Several fintech credit firms are currently operating in British Columbia. Amber Financial is a fintech company whose mission, as described on its website is to utilize big data analysis and Internet technology to “popularize the idea of financial inclusion” thereby lowering credit costs, and expanding credit products, to a wider segment of the Canadian population. Another fintech-credit platform in B.C. is Lendified, which describes itself as a loan facilitation platform to small businesses that are excluded from traditional bank credit (T-Net, 2019a). Another area where individuals are underbanked is in credit products that violate religious rules—a particularly challenging context for many observant Islamic Canadian entrepreneurs, business owners, and people who are unbanked in terms of their credit access. A new Ontario-based fintech platform called Manzil (n.d.) uses technology to allow for Halal-compliant investments and loans.

### **Tech-Enabled Savings, Investments, and Low-Income Wealth Management Advice**

There is a common misconception that individuals living on low incomes don’t save, and this idea is refuted by numerous empirical studies in Canada, South Africa, Bangladesh, and India. The real problem is that the mechanisms for saving are often limited to crude devices like money jars or the purchase of “re-saleable consumer durables” (Buckland, 2008, p. 11). Fostering savings helps to mitigate such barriers to banking access such as a perceived lack of need to have a bank account (due to a very low balance). It also establishes stores against external economic shocks, and most importantly helps people who are unbanked and underbanked to experience the many residual benefits of economic stability and financial inclusion.

Fintech has a tremendous opportunity to create a low-friction saving mechanism. This is perhaps its most compelling case. Many people who are unbanked and underbanked lack an institutional mechanism for saving and wealth creation (like an auto-withdraw for a pension or RRSP contribution, or mortgage payments). They also, obviously, lack the financial resources to access professional wealth management and financial planning services. Fintech firms have changed this proposition by launching creative auto-investing applications, which use low-cost

diversified investment products like exchange-traded funds (ETFs) that can be purchased seamlessly by anyone through a phone in micro-units. Most impactful in this sector is the establishment of “rounding” applications where such investments can be purchased during a consumer point-of-sale transaction with “spare change” (Moka, 2020).

The first fintech to disrupt the traditional investment community was the U.S.-based technology platform called Robinhood (n.d.), which describes itself as a “pioneer of commission-free investing.” Fintech can also provide access to wealth management services for individuals with low incomes—something that existing banks don’t generally provide because clients with low incomes have limited financial resources and a lack of net worth (Lightbourne, 2017, pp. 652–653).

Perhaps the most well-known example to date of a fintech savings and investment platform is the California-based start-up Acorns (n.d.), a smartphone-based application that, as described on its website, allows people to “invest their spare change” and further positions itself as a financial inclusion value proposition where “anyone can grow wealth.” Acorns also provides simple explanatory articles and videos to help people new to investing and savings. The way the technology works is simple yet ingenious and could have massive implications for people who are unbanked and underbanked and are almost universally excluded from investing because they don’t have the minimum amount of funds to open an investment account with a traditional bank. Acorns simply “rounds up” a consumer purchase (like groceries or toilet paper) to the nearest dollar and invests that extra amount (which can be as small as spare change) into an Acorns investment account that buys an ETF (Rooney, 2019). This start-up has attracted significant attention from major institutional investors in the U.S., including Bain Capital Ventures and BlackRock (Rooney, 2019).

Canada has an analogue to Acorns called Moka. This Montreal-based fintech was launched in 2017 as Mylo with a stated “social mission” of “helping Canadians achieve their financial goals.” Since its inception, the company’s smartphone application has been downloaded by more than half a million Canadians (Mylo, 2019). Like Acorns, the recently rebranded Moka also uses a rounding-up mechanism for consumer purchases and also directs saved amounts into low-cost, diversified ETFs. Moka gives its users the ability to consult a “dedicated portfolio manager” and, given its no-initial-minimum account standards, facilitates a financial inclusion access point to professional investment products and managers for individuals who otherwise would look to hoard cash for savings. ATB Financial recently announced a similar application called Brightside (Peyton, 2019).

Another emerging fintech savings and investment development is the “robo-advisor,” an algorithmic wealth management application that provides advice, enhances savings, and generates low-fee model portfolios based on the results of questionnaires and other provided customer data (D’Acunto et al., 2018; Edwards, 2018). This technology has an “automatic” functioning and also participatory thresholds that are low enough to include people with a small net worth and annual income (many of the people who are unbanked), thereby providing a mechanism to enhance savings across the income spectrum (Edwards, 2018). Prominent robo-advisory platforms in Canada include Ontario-based Wealthsimple and Justwealth, and B.C.-

based CI Direct Investing, which offer clients of all income and net worth levels access to professional investment products and financial planning advice.

The introduction and proliferation of crypto and digital assets as a low (or no) fee and account minimum alternative asset class can also serve a financial inclusion goal by providing an investment mechanism simply through a downloadable smartphone application. Numerous crypto-asset trading platforms accessible by individuals with low incomes living in British Columbia, such as NDAX, allow access to this alternative investment class for very little money. There is some evidence that people who are unbanked look to crypto-assets like Bitcoin as a savings alternative to a conventional bank account (O'Connell, 2016). New artificial technologies like those developed by HodlBot (n.d.) can also make "institutional portfolio management software available to everyone" and allow for the creation of "custom portfolios" and "automatic rebalancing."

### **Lowering Fees and Expanding Financial Access Through Open Banking**

Another fintech innovation that could facilitate greater financial inclusion in British Columbia, primarily for people who are underbanked, is "open banking." Open banking can potentially lead to increased savings (through lower-cost and more widely accessible financial products and services) and thus alleviate the financial inclusion barrier that people perceive they do not have enough money to consider a bank account. It can also overcome the barrier to access of bank proximity, inconvenient hours, unpredictable and high fees, and distrust of traditional banking, by providing a much greater slate of banking analogues. Further, the use and access to data by technology companies can create educational innovations to alleviate the barrier of financial illiteracy and informational opacity.

The Government of Canada's Department of Finance (2019) describes "open banking" as a "framework where consumers and businesses can authorize third party financial service providers to access their financial transaction data, using secure online channels." At its core, open banking is about a consumer's right to access and control of not only their finances but also their customer financial data currently held by financial institutions (like transaction, payment, and credit history). By "porting" this data and giving other parties, like fintech firms, access at the customer's direction, firms that use open banking can then use the data to offer financial products and services that compete with traditional banks (Government of Canada, 2019).

Banks already share customer data via downloadable spreadsheets or text files, or through "aggregation technology" (also called screen scraping) where external consumer applications extract data from a customer-banking platform (Department of Finance, 2019). Screen scraping and aggregation software are cumbersome and fraught with the potential for significant cybersecurity and fraud risk (U.S. Department of the Treasury, 2018, pp. 25–26). Open banking is a very different proposition, however, and involves the creation of a secure online channel called an "application programming interface" (API) that is external to all banks and accessible to fintech companies who meet certain approvals (Government of Canada, 2019). Fintech firms can then use this data to assess and price risk and offer comparable

financial products to the consumer (like a loan) without having to “screen scrape” to obtain it, a practice that may violate the terms of their online banking agreement (Government of Canada, 2019).

Open banking has been instituted in the United Kingdom with an “open API standard” for the U.K.’s nine largest banks and a non-profit entity that is responsible for implementation (Open Banking Implementation Entity), and by 28 European Union member states as part of the Second Payment Services Directive (PSD2), which was established in 2016 but came into effect in 2018. This directive does not, however, exist in the U.S. (Government of Canada, 2019). The EU’s open banking framework operates alongside the General Data Protection Regulation (GDPR), which provides consumers with data protection and “portability” rights (Government of Canada, 2019). An example of an open-banking platform in operation in Europe is Raisin (n.d.), a German-based platform that describes itself as “the first and only pan-European deposit marketplace” and facilitates banking customers’ access to 100 partner banks and the most competitive deposit rates in Europe.

Open banking holds the potential to introduce a greater variety of financial service participants into the Canadian banking ecosystem, with resulting consumer benefits like lower fees; better consumer financial planning, assessment, and management; and more products, particularly in the segments of non-bank lending (Carmichael, 2019). It also has the potential to increase financial literacy since fintech firms can use the data to provide educational products and services, lower the “switching costs” between financial institutions with easy “product comparisons,” allow for more personalized financial solutions, and “democratize” financial products that were previously only available to individuals with higher net worth based on a bank’s risk assessment criteria (Government of Canada, 2019).

The Department of Finance has cited three specific market segments that would benefit from open banking, each accomplishing a financial inclusion goal (with broad application to people who are unbanked and underbanked).

1. Seniors could access technology that would provide them with an “account assistant” to increase their use of online banking like “pre-populated forms” and aid in remote banking while ensuring they feel full “control over final decisions” (Government of Canada, 2019).
2. Individuals with limited credit histories could still provide new lenders (like fintech credit) information on “spending patterns,” which would help the lender assess “whether or not to grant credit” and thus allow loans to people who are underbanked and can’t access the same credit from a traditional bank (Government of Canada, 2019).
3. Perhaps most importantly for the purposes of this study, open banking would give people with “variable incomes, including the financially marginalized, access to low cost, automated financial advice and new applications that automatically inform consumers when to transfer money among different accounts to avoid overdraft fees” (Government of Canada, 2019).

In Canada, changes to regulatory structures governing bank-owned financial data are within the regulatory parameter of the federal government and its Office of the Superintendent of Financial Institutions (OSFI). In its 2018 budget, the Department of Finance stated its intent to

review the merits of open banking. An Advisory Committee on Open Banking supported by the Department of Finance was established in 2018 and a public consultation closed in February 2019. In its first phase review, the advisory committee suggested that open banking could help to mitigate the current liability and security risks in screen scraping and other financial data-sharing mechanisms, and further advocated that the government take steps to create a “concrete timeline” for its rollout. It also suggested replacing the term “open banking” with the more appropriate (and misunderstood) concept of “consumer directed finance” (Zochodne, 2020).

The Senate of Canada’s Standing Senate Committee on Banking, Trade and Commerce (2019) has recommended that the federal government take the lead on an open banking framework and that it appoint the Financial Consumer Agency of Canada (FCAC) as interim oversight body, undertake funded studies on the benefits of open banking, and create a regulatory sandbox (like in securities) to safely test open banking technology.

### **Using Technology to Solve the Unbanked Identity Verification Gap**

As noted above, a significant barrier to financial inclusion is that many individuals cannot obtain traditional banking products, or access credit facilities, because they don’t have the types of identification required to open accounts and obtain financial products. Digital identification services can serve financial inclusion goals and ease regulatory burdens for financial companies while also reducing the consumer costs of “switching” providers (Competition Bureau of Canada, 2018). Digital and biometric technology is being utilized in Africa by fintech companies like Humaniq and Taqanu to both “replace lengthy documentation and verification processes around identification in banking” and allow for identification solutions for the “displaced” (Comminos, 2017).

Biometrics uses “physical identity” factors such as “facial recognition, iris scanning, and fingerprinting” to prove identity (Stickland, 2017a, 2017b). A case study for the usefulness of biometrics is Pakistan, which has used the technology to “confirm and distribute donations” to over 2 million families who were impacted by catastrophic flooding. Biometrics is currently being integrated in India for the deployment of financial services (Stickland, 2017b). Biometrics have also been used in Canada to provide identification, and identification storage services, for people with low incomes through a partnership between Edmonton’s Boyle Street Community Services and Four Directions Financial (Prosper Canada, 2017).

Blockchain technology has also been cited as an innovation that can both ease the regulatory burden on financial institutions to comply with know your client (KYC) requirements and facilitate the creation of a “digital identity” for individuals who don’t have traditional forms of paper identification (Lootsma, 2017, pp. 17–19). Authentication for a digital identity could be done with a fingerprint (Lootsma, 2017, p. 18). It could also incorporate biometrics or other forms of facial or retina identification (Abumohor, 2019). A recent development using blockchain for financial inclusion in Sierra Leone (where over 80% of the population is unbanked) is instructive for Canadian regulators. In Sierra Leone, citizens can sign up for a bank account with the simple “press of their thumbs” (Munshi, 2019). The initiative, called the Kiva Protocol, was

launched as a joint venture between the Sierra Leone government and Kiva (a nonprofit microloan company founded in San Francisco) and is expected to lower operational and entry costs for other financial services ecosystem companies like mobile payments operators (Munshi, 2019).

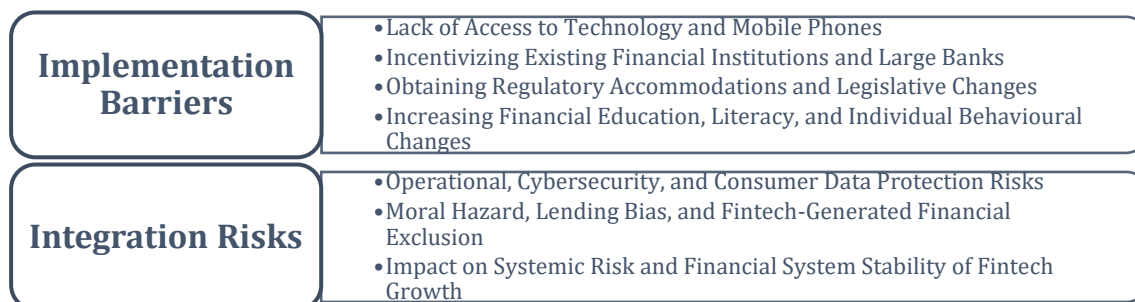
A B.C.-specific development to this end is Trulioo, a Vancouver-based global identity verification service that is working with banks worldwide to help “thin-file” customers (those without typical identification such as a driver’s licence, passport, credit history, or proof of address). This type of technological innovation can be used to verify identity without traditional documentation, based simply on mobile phone possession (Ufford, 2018).

### **Implementation Barriers, Integration Risks, and Policy Recommendations**

The use of fintech to assist in policy goals that support financial inclusion is not without risk and barriers to implementation. The following section explores specific examples of both as summarized in Figure 9.

**Figure 9**

*Summary of Fintech Implementation Barriers and Integration Risks*



### **Implementation Barriers**

#### ***Lack of Access to Technology and Implementation Costs***

The primary friction to consumer adoption of fintech is a lack of available technology, particularly a smartphone and cellular data connection (Clements, 2019, p. 4). There is empirical (and logical) support for the proposition that individuals living on low incomes are less likely to own technology, computers, and phones (Buckland, 2008, p. 10). Recent empirical research, however, shows more that the majority of North Americas have at least some access to a web-application-capable smartphone, including 77% of Americans (Pew Research Center, 2018) and almost 65% of Canadians (Statista, 2019). These numbers are likely to increase as the dominant age demographic shifts to “millennials” and the post-millennial generation (Nonninger, 2018).

Over the last decade, telecommunication-company-driven “digital financial service” enterprise development has had a significant positive impact in developing countries, with the Kenyan mobile banking M-Pesa being the primary case study (Arner et al., 2016, pp. 1274,

1298). However, the mobile phone is essentially the “entry point” for bringing financial products to individuals traditionally underserved by banks, and they represent a “social value” that is worth some level of government subsidization (Christopher, 2015, p. 252). According to recent World Bank data, about two-thirds of the world’s unbanked population has access to a mobile phone (World Bank Group, 2017).

The cost of citizen-wide technology and mobile data or Wi-Fi access would appear at first glance to be prohibitive. Further, the deployment of biometric solutions would involve distributing technology hardware, which would be very costly (Stickland, 2017). Therefore, the deployment of fintech for financial inclusion goals could be conducted in phases, and in conjunction with initiatives like “fintech learning and access hubs” discussed below in the policy recommendation section.

### ***Incentivizing Existing Financial Institutions and Large Banks***

Fintech encompasses both the entry into financial products and services by new consumer-facing firms and an existing bank’s use of technology to improve products, services, and operations (Clements, 2019). Therefore, the proposition that fintech can mitigate financial exclusion is not limited to new firms, and banks can take more active steps to integrate fintech products that will assist people who have been previously unbanked and underbanked. One of the most significant implementational frictions to using fintech as a driver of financial inclusion is “incentivizing” financial incumbents to use technology to provide greater financial services to people who have been traditionally excluded (Alexander, 2013, pp. 382–383). Existing financial institutions may be required to change their product menu, identification requirements, culture, and operations (like offering bank branches in low-income neighbourhoods) to facilitate financial inclusion (Alexander, 2013, pp. 382–383).

A legitimate concern is that financial incumbents have a strong incentive to maintain the current system, and certain technological enhancements (like real-time payments) have the potential to reduce certain revenue streams, such as bank overdraft fees and interest from credit card balances (Brookings Institution, 2018, p. 10). This situation could lead financial institutions to increase fees and costs for other products or services (Brookings Institution, 2018, p. 10). Despite advancements in algorithmic assessment tools and the use of “social credit” to score perceived trustworthiness, financial incumbents may still consider people living in poverty to be riskier borrowers and identify small loans as less profitable, and these beliefs will continue to serve as barriers to financial inclusion (Baradaran, 2013, p. 490).

Some commentators, most notably Barr (2004, p. 128), advocate for government to provide tax credits to financial institutions directly to encourage them to “offer electronically based transaction accounts designed for low- and moderate-income persons.” These incentives, however, would need to be directed to creating products that are “tailored to the needs of the poor” and not merely to “change demand of the poor for existing types of traditional accounts” that they may not otherwise want or qualify for (Barr, 2004, p. 127).



### ***Obtaining Regulatory Accommodations and Legislative Changes***

Fintech initiatives need an accommodating regulatory framework to succeed, and the risk of over-regulating is ever-present (Van Loo, 2018). One of the challenges for regulators, when responding to disruptive innovations like fintech, is the so-called “innovation trilemma” of determining precise rules, fostering welfare-enhancing competition and innovation, and ensuring market safety and integrity (Brummer & Yadav, 2019, pp. 306–307). According to recent studies, regulators historically are usually limited to only achieving, at best, two of these objectives at a time (Brummer & Yadav, 2019, pp. 249–264). Fintech, through new market entrants into the financial services space, further complicates this “policy trilemma” because its disaggregated actors require coordination between domestic and international supervisory agencies (Brummer & Yadav, 2019, pp. 242–243).

The challenges presented by financial technology may require a paradigmatic shift or even a new “regulatory approach” that also utilizes technology with tiered approaches based on risk (including “restricted licences” and “special charters”) and a variety of technology and product-testing environments (Zetsche et al., 2017, p. 103). Canada has a stable financial system, and regulatory frameworks largely preserve this status quo (Clements, 2019). However, protecting the stability of Canada’s incumbent banking institutions has the negative by-product of stifling fintech development that could enhance consumer welfare, particularly for those underserved by traditional firms (Zochodne, 2018).

A significant friction for financial inclusion of people living in poverty are the very strict *know your client* (KYC) rules imposed on banks pursuant to anti-money laundering legislation (Government of Canada, 2018a). Banks are required to obtain various pieces of identification during the account opening process that may not be available to clients who are unbanked (Buckland, 2008). One approach, in harmony with the spirit of the financial inclusion movement, is to use a “risk-based approach” wherein “accounts and customers who pose low risk may be less closely scrutinized” (Christopher, 2015, p. 251). Regulators will need to consider whether adjusting, or in some cases even relaxing, conventional account opening requirements (like KYC) for small-denomination accounts, as well as facilitating an expedited funds-release process for deposits from “trusted sources” could facilitate financial inclusion without significantly increasing systemic risk (Christopher, 2015, p. 252.) Low-balance accounts could be opened with minimal KYC for individuals with low income, low balance, and who are previously unbanked. It may also be necessary to consider identification verification adjustments, including the ability to use identity detection technology on the phone (Christopher, 2015, p. 251).

Enhanced regulatory scrutiny over new forms of credit intermediation, like peer-to-peer lending, could have the unintended effect of “stifling” the very innovation that could help to alleviate some of the problems of financial exclusion (Talbot, 2017). Another source of regulatory friction in Canada that serves as a barrier to fintech development is the propensity for “entity-based” regulation rather than regulation based on the “function” that a particular entity performs (Competition Bureau of Canada, 2018). However, there are areas where this approach is changing; for example, the rules set out by FINTRAC—the Financial Transactions and

Reports Analysis Centre, which oversees the detection, prevention, and deterrence of money laundering in Canada—for money-services businesses (Canada Gazette, 2018) are being adopted to apply in a functional approach (Competition Bureau of Canada, 2018).

Another area of regulatory accommodation, cited by the Competition Bureau of Canada in a 2017 study (p. 31) on barriers to growth for new fintech firms (particularly payment companies) in Canada, is the limitation on new firms obtaining “access to core infrastructure and services” without requiring the services of an incumbent bank. Existing banks have competitive incentives to deny partnership and restrict access to these services, particularly when combined with a bank’s “de-risking” activities (Clements, 2019, p. 20). The Competition Bureau (2018) has noted improvements since its 2017 report, although much more can be done to increase the level of competition in fintech.

Finally, the maximum potential consumer benefit for fintech may require “open access” to consumer data, making it shareable across platforms (Competition Bureau, 2018). The problem is that most financial data, even that of individuals who are underbanked or have lower income and have had access to traditional financial services in some way in the past, is owned by the bank itself (Clements, 2019, p. 22). As noted above, the Government of Canada’s Department of Finance (2019) recently launched a public consultation into the merits of consumer data portability through an “open banking” framework (a development already enacted in some parts of Europe), which would give customers greater access to, and portability of, their personal financial data to share with fintech firms (Carmichael, 2019).

### ***Increasing Financial Education, Literacy and Inducing Behavioral Changes***

Enhanced fintech financial services and access to credit bring greater risk, heightened responsibility, and the need for more financial education (Mader, 2018, p. 465). For example, in 2016 a computer-systems upgrade at Pigeon Park Savings bank in downtown Vancouver provided clients living on low incomes with previously inaccessible overdraft lines, which prompted a surge in ATM withdrawals (Eagland, 2016). It was reported by the *Vancouver Sun* (Eagland, 2016) that several banking clients who’d never had overdraft before “didn’t believe they’d have to pay it back,” and others considered it a “cash advance” on the next month’s social assistance cheque. There were also heightened fears by the bank that the withdrawn funds would be used by some clients to purchase drugs. Financial education initiatives (ideally “coupled” with mechanisms that facilitate savings) are continually beneficial for persons living on low incomes, to change their financial future and habits (Barr, 2004, p. 130).

The challenge is that these initiatives often need support from government or non-profit organizations, as the high cost of providing such education to individuals living on low incomes is viewed as having a low “return on investment.” A private market solution to education is therefore less likely (Barr, 2004, p. 237). A positive market development for financial literacy was the TD Financial Literacy Grant of \$11.1 million in 2015 to support the Prosper Canada Centre for Financial Literacy. This grant supported 139 projects across 128 community organizations in Canada, including the creation of educational curriculum, training, banking client resources, and research, and reached 75,460 people (Prosper Canada Centre for

Financial Literacy, 2015b). A 2015 report (Prosper Canada Centre for Financial Literacy, 2015b, pp. 14–15) on the grant by the Prosper Canada Centre for Financial Literacy showed that individuals with low income benefit from financial education, including consumer education, income and tax planning, credit, money management, savings, and investment. The report also highlighted the positive efforts that Pigeon Park Savings has undertaken to this end (Prosper Canada Centre for Financial Literacy, 2015b, p. 13).

The Prosper Canada Centre for Financial Literacy report (2015b, pp. 2, 13) noted, however, that educational initiatives are not a “panacea” but rather one mechanism of empowerment. Financial education should be coupled with behavioural “nudges” to influence increased savings and deter imprudent spending habits, otherwise people will revert to their default behaviours, like relying on the cash economy and payday lenders (Dupas & Robinson, 2013). For example, in 2014 a financial inclusion program in India led to the opening of 240 million new accounts; however, in a short period of time over a quarter of the accounts were empty and dormant as people reverted to the more familiar cash economy (*Economist*, 2018).

Technological innovations can aid in enforcing long-term behavioural change. Artificial intelligence-generated “behavioural nudges” can also be integrated into fintech products to help consumers with low income “grow their savings” (Brainard, 2017). Another suggestion is to design “transaction”-based accounts (including bill payment and deposit functionality through a mobile device) rather than savings accounts and to ensure that the fees are upfront, easy to understand, and transparent (Christopher, 2015, p. 248). Providing mobile account opening could also be “a major step forward in increasing financial inclusion among the unbanked” (Christopher, 2015, p. 250).

## **Integration Risks**

### ***Operational, Cybersecurity, and Consumer Data Protection Risks***

Banking on mobile devices introduces a variety of privacy and security risks (Lumsden, 2012). A very real impediment to fintech (particularly mobile banking) is consumer fears of hacking, data loss, and cybertheft that can “prevent consumers from adopting mobile banking” (Christopher, 2015, p. 242). Mobile money applications could also facilitate money laundering and terrorist financing activity (Winn, 2013). Cybersecurity, hacking, and fraud risks are paramount concerns when using technology to conduct financial transactions (Hinton et al., 2017, p. 4). Also, unlike large banks, small firms may not have the internal resources to build cybersecurity safeguards to establish secure operating environments (Clements, 2019, p. 8; LaPlante & Watson, 2018, p. 5). Mobile banking has a large risk of consumer data breaches, and recently lawsuits have been filed in Kenya by M-Pesa customers who allege that a data breach exposed their sports-betting history (Reilly, 2019).

Fraud data from the U.K., a global leader in fintech and real-time payments, has shown a decrease in fraud rates after the adoption of faster payments systems (Brookings Institution, 2018, p. 9). Fintech credit platforms utilize proprietary algorithms to assess the creditworthiness of potential borrowers, and these computer-generated credit mechanisms have been criticized

as opaque, arbitrary, and uncertain since they integrate non-conventional metrics, such as the idea of “social credit” (Packin & Lev-Aretz, 2016). Social credit metrics use social media, social networking presence, and “online footprint” and participation to create an individual behavioural assessment and use this assessment to predict one’s likely financial behaviour and trustworthiness (Packin & Lev-Aretz, 2016, pp. 339–340).

This development has many “policy challenges” including the extent to which privacy should be tradeable for a better interest rate; the extent to which “third-party information” like affiliations, friends, and family should be assessable in credit matters; and the extent these types of “social credit” systems risk a trend toward “social segregation” where people strategically group to avoid financial risk perception (Packin & Lev-Aretz, 2016, pp. 348–349). It also creates the possibility of errors, “gamesmanship,” and “doxing” (Packin & Lev-Aretz, 2016, p. 340). The other problem with using “social credit” as a financial metric is that it prevents a “right to be unnetworked” and creates financial cost (higher borrowing rates) and financial risk (potential loan disapproval) for those who prefer not to publish their private information, or friends and affiliations, on the Internet and social media platforms (Packin & Lev-Aretz, 2016, p. 350).

### ***Moral Hazard, Lending Bias, and Fintech-Generated Financial Exclusion***

Despite the potential extension of credit to previously underserved market segments (like individuals with lower income), the use of fintech can introduce instabilities like lending “moral hazard” since lending algorithms may “underprice risk or approve or facilitate loans to overly risky borrowers, collecting the origination fee while shifting the default risk entirely onto investors” (Competition Bureau of Canada, 2017, p. 2). The use of algorithms to assess credit, in conjunction with other fintech applications, has evoked fears that it could facilitate fair-lending violations and induce a “disparate impact” on “marginalized classes and minorities” (Bailey, 2018, p. 61; Ancri, 2016, p. 21; MacCarthy, 2018). This bias could be introduced by using data to “make inference based on group profiles” or using algorithmic “redlining” but burying these discriminatory factors deep in these computations and making them difficult to detect (DiLorenzo, 2018, pp. 11–12).

There are also fears that fintech lending portals could stimulate “predatory lending and targeting of vulnerable borrower segments,” using high interest rates, encouraging loan renewals with “double-charged” fees, “unaffordable repayment terms,” and “hidden or deceptive prepayment charges” (DiLorenzo, 2018, pp. 10–11). The risks of predatory behaviour are particularly acute when considering the lack of financial acumen that individuals with low income often have. Another concern in relying on alternative credit-scoring algorithms is that these models can be “nonintuitive, their parameters meaningless, their potential biases difficult to detect and even harder to mitigate, and their predictions and decisions difficult to explain” (Fahner, 2018).

It is also not certain that fintech will foster financial inclusion at all. Peer-to-peer lending platforms have the potential to exclude certain borrowers, especially people living in poverty (Macchiavello, 2015, p. 538). And the peer-to-peer lending structure may create “suboptimal

incentives” among competing fintech lenders, which could generate discriminatory credit-approval decisions, unintentional financial exclusion, and biases, particularly against younger borrowers (Komarova Loureiro & Gonzalez, 2015).

### ***Impact on Systemic Risk and Financial System Stability with Fintech Growth***

One of the by-products of widespread fintech adoption is an increase in systemic risk because of the “disintermediation” of long-standing financial institutions, “decentralized” markets, and “small disaggregated actors” (Magnuson, 2018, p. 1226). A multitude of small product and service providers can be “more vulnerable to adverse economic shocks” than large banks, and more difficult to effectively monitor and supervise (Magnuson, 2018, pp. 1171, 1203). These smaller firms are also susceptible to “collective action” and more likely to evade supervision through regulatory arbitrage and jurisdiction shopping (Magnuson, 2018, pp. 1209, 1222–1223).

Professor Saule Omarova (2019) suggests that fintech has significant systemic risk implications that transcend traditional finance, including the ability for technology-driven financial deployment to “synthesize” financial assets and “scale-up” speed while undermining effective supervisory efforts. The perception that fintech poses “greater risk” to the financial system can “reinforce views that financial inclusion and financial integrity are in opposition with each other” (Alexandre & Eisenhart, 2013, p. 287). Also, non-bank, consumer-facing fintech propositions, as new entrances to the financial services space, result in institutional disintermediation and more disaggregated actors, which presents supervisory challenges for regulators (Alexandre & Eisenhart, 2013, p. 287).

Fintech credit risk models have not been subject to extensive testing and there could be inaccuracies in new data sources and flaws in the design of risk-assessment algorithms that might create new risks in this sector (DiLorenzo, 2018, p. 5). There is also uncertainty about whether expanding credit to individuals with low income will increase the number of personal bankruptcies due to increased consumer debt (Dick & Lehnert, 2010; Livshits et al., 2007, 2010, 2016). Another concern is that the proliferation of credit through fintech loans could “worsen the risk-composition of borrowers” through credit extension to households with lower incomes (Jagtiani & Lemieux, 2017). The net result is more risky loans in the marketplace with higher rates of consumer default (LaPlante & Watson, 2018, p. 6).

Additionally, concerns have also been cited that mobile money could be “damaging to financial integrity” (and thereby increase systemic risk) because it “increases the velocity of transactions” (Alexandre & Eisenhart, 2013, p. 287.) Payment substitutes like Libra have a network effect on each other (supporting their “overall acceptance”), and yet they also serve as a direct assault on the banking industry and the ability of governments to control their monetary policy (Suberg, 2019). It would seem unlikely that Bitcoin or Libra could eliminate fiat since this is how governments “accept taxes” and pay benefits (Coppola, 2019). Finally, there is the looming threat of big tech (like Amazon, Apple, Google, and Facebook) entering into the fintech space as a new form of “too big to fail” and displacing banks all together (Sen, 2019).

## **Policy Recommendations to Maximize the Financial Inclusion Benefits of Fintech in B.C.**

### ***Consult with Industry to Identify the Most Effective Means of Increasing Technology Access***

To reap fintech's maximum financial inclusion potential, it is necessary to extend access to technology solutions to all of society. This is a potentially costly and controversial undertaking, with no certainty that any technology rebates or access incentives will have a causative impact on reducing financial exclusion. As such, policy-makers should consult directly with fintech service providers who have financial inclusion operating goals (see list compiled in the appendix) to investigate how technology access can be extended to people who are unbanked and in need of such hardware.

In addition to technology access, rebates for cellular data usage could also be considered (or the widespread establishment of public Wi-Fi services). Without access to technology, people who are unbanked could find themselves excluded as some retail outlets move to become "cashless," choosing to accept only digital payments. This move has generated backlash from people who are unbanked and others who rely on cash (Olson & Sweet, 2019).

Many individuals who are unbanked and underbanked already have access to technology, either personally or through public resources like libraries and social services. For them, integrating fintech workshops or printed or online educational materials into traditional social services or community support networks for individuals with low incomes would help to educate them about the low-cost fintech services that are available outside of both mainstream and alternative banking. These workshops could be integrated into fintech "learning and access" hubs as noted below.

### ***Encourage Greater Take-Up of Regulatory Sandbox Initiatives***

One of the most encouraging developments in the fintech regulatory space is the emergence of regulatory "sandboxes" (Clements, 2019, p. 8). In a regulatory sandbox, a technology firm can test their product or service in a safe space where they are given access to a limited segment of the consumer market under bespoke supervisory parameters and exemptive relief from the typical rules and laws that would apply in the sector (Clements, 2019, p. 9). The United Kingdom's Financial Conduct Authority was the first financial market regulator to introduce this concept (Bromberg et al., 2017; Barefoot, 2016, p. 1).

The Canadian Securities Administrators (CSA) adopted a national fintech regulatory sandbox under securities jurisdiction in 2017, and since its inception it has provided regulatory relief to several new consumer-facing firms (Clements, 2019, p. 9; CSA, 2019a). Ontario has been forward thinking in creating a provincial sandbox to support the CSA initiative (Giovannetti, 2017), and the province of British Columbia could be active in supporting greater participation in the CSA venture and developing complementary provincial initiatives. One area of particular interest for the sandbox to explore as a financial inclusion initiative is fintech credit portals,

which are currently regulated under a securities framework and limit the number of authorized lenders (Clements, 2019).

Many of the regulated activities of fintech companies, especially those that are providing banking analogues for individuals who are underbanked and unbanked, transcend the securities jurisdiction. Therefore, to maximize the impact of regulatory sandboxes, it's necessary to incorporate regulatory relief, under bespoke supervisory parameters, for other financial market and banking agencies, including payments. One of the advantages of the U.K.'s Financial Conduct Authority regulatory sandbox structure is that it extends beyond securities jurisdiction and includes firms that offer fintech banking services (Financial Conduct Authority, n.d.).

Other international jurisdictions, like Australia and the Netherlands, have mandated sandboxes with a broad scope across the financial industry (Buckley et al., 2019, p. 10). Cross-agency fintech regulatory sandboxes are also being explored in several states in the U.S., including Arizona, Wyoming, and Utah (Broome, 2019, p. 182; Buckley et al., 2019, p. 11). Canadian financial market and banking regulators should work together to provide coordinated regulatory relief (using sandbox principles) for fintech companies and reduce regulatory costs as a barrier to entry for new firms.

### ***Develop “Learning and Access Zones” to Educate and Increase Fintech Availability***

The establishment of fintech “learning and access zones,” either independently or in conjunction with existing social services already available to individuals living on low incomes in British Columbia will provide education and transparency on the availability of non-traditional financial alternatives through fintech, and how these products and services work. To help mitigate the lack of technology availability (which is noted as a primary fintech barrier to consumer adoption), these services could be coupled with providing technology onsite. Such a resource would also help to develop “trust” in new technology and non-traditional financial products, which has been cited as another friction to consumer adoption of fintech (Clements, 2019, p. 5; Hinton et al., 2017, p. 2).

The establishment of trust is critical to help overcome the fear, reticence, and uncertainty that many people who are unbanked and underbanked may have when using new technologies for financial transactions (including banking and savings). Evidence of technologically onset fear and distrust can be found in statistics recently reported on the use of cash by people who are unbanked (Galociova & Li, 2019). In studies conducted on behalf of Payments Canada, cash use among people who are unbanked is significantly higher than those who are banked; “90% of unbanked Canadians are heavy cash users” (Galociova & Li, 2019).

In remarks to the Standing Senate Committee on Banking, Trade and Commerce (BANC), Professor Jerry Buckland (2018) identified a number of potential reforms that could help individuals who are excluded from mainstream financial services. These included regulatory reforms around “staff training” to promote “safe financial products” and working with consumer protection to review disclosure rules around “product rules and fees” (Buckland, 2018). The value proposition of fintech for financial inclusion goals presupposes that access to

technology is available (the first point noted above) and that people who were previously financially excluded know how to use the technology.

Neither of these propositions is certain, and without both the emergence of fintech could foster even greater financial exclusion. Some people will feel “further left out and left behind” the technological driven complexities of modern finance (Acorn Canada, 2016b). In submissions to the Department of Finance, pursuant to the federal government’s Financial Sector Review, Acorn Canada (2016b) specifically identified this fintech exclusionary risk. In conjunction with access to technology, fintech learning “hubs” can maximize the potential positive impact of new technology, bridge the information gap, and ebb opacity. It is also important that any educational content is shared by neutral facilitators to avoid conflicts of interest and creating distrust among individuals with low income against fintech products and services (Acorn Canada, 2016b).

Trust is a critical element in getting people who are unbanked and underbanked to consider using fintech as an alternative to fringe banking and “learning hubs” can help to overcome initial unfamiliarity, reticence, or even fear when using fintech. It also serves to educate society on what applications and services are actually available to them (and how to use them). These “learning hubs” can be integrated with fintech learning applications such as Planswell (2019), a Toronto-based “free financial planner” that provides investment, budgeting, financial planning, and credit counselling online.

### ***Provide Provincial Support for Fintech Venture Funding, Research, and Development***

Policy-makers in B.C. should continue to investigate ways to provide venture, research, and development funding for fintech start-ups. These could include partnerships with industry and academic institutions. A positive initiative is the 2015 launch by the British Columbia government of a \$100-million venture capital “fund of funds” to invest in technology companies “as part of the foundation of a comprehensive technology strategy aimed at stimulating growth in this fast-moving sector, creating jobs and strengthening a diverse economy.”

In a recent example of a fintech partnership, the Autorité des marchés financiers (AMF), Quebec’s financial market and financial products and services regulator, together with Finance Montréal, which represents members of the province’s financial services industry, endowed a research chair at the Université du Québec à Montréal in October 2019 to study the impact of financial innovation. This chair was designed to coincide with the launch of the Montréal Fintech station innovation hub. Academic research germinating from the close proximity between academics, regulators, and industry can help mitigate premature regulatory frictions to new innovation market integration.

### ***Promote and Develop Provincial Fintech “Innovation Hubs” or Accelerators***

Another positive mechanism to support fintech growth and development in the province of British Columbia is the use of accelerator “hubs” or “fintech zones.” These can include private iterations such as Quebec’s Holt Fintech Accelerator or non-profit structures such as Toronto’s Innovate Financial Health (Start-Up HERE Toronto, 2019b). Fintech zones or accelerator hubs connect the entrepreneurial sector with investors and pools of capital, and academics and



regulators who can better understand and support fintech through research initiatives. These initiatives can magnify the efforts of all stakeholders in the fintech development ecosystem and provide synergies and network connections as a bridge between investors, disruptors, regulators, and academics. With robust communication channels, they can also help to increase consumer trust and uptake of fintech products and services.

Innovation hubs should be viewed as separate from regulatory sandboxes—a distinction stressed by the European Commission in its FinTech action plan (Van de Wiele, 2018, p. 17). Innovation hubs are an “institutional arrangement where regulated or unregulated entities engage with the competent authority to discuss FinTech-related issues and seek clarification on the conformity of business models with regulatory frameworks” (Van de Wiele, 2018, p. 17). Regulatory sandboxes, in contrast, are formal mechanisms (with defined rules and procedures) that provide regulatory relief from normal regulation, allowing for a limited “safe space” to “test” products and services under bespoke supervisory parameters (Van de Wiele, 2018, p. 17).

Another way to clarify the difference between the two structures is that an innovation hub is a “portal” (either physical or digital) where industry can access regulators, interact with staff, obtain informal mentoring and guidance, and possibly some regulatory relief. A sandbox is more formal, involving a specific regulatory application (or “tightly constrained” safe space) and a measured process for exemptive relief (Buckley et al., 2019, pp. 5–6). Innovation hubs can be integrated with private accelerators, like those mentioned in the preceding paragraph, to provide proximity to the investment community and facilitate business and operational mentoring. They can also incorporate a formal sandbox as one element of a broader informal “hub” (Buckley et al., 2019, p. 1).

Recently generated empirical data support the proposition that these innovation hubs may actually be more effective, with less red tape, application time, and costs than regulatory sandboxes in realizing potential consumer utility from fintech companies (Buckley et al., 2019). Innovation hubs that are overseen by the regulator can also provide informal advice as well as more formal waivers or “no action letters” to allow new fintech firms some experimentation in their operating mechanisms while keeping start-up compliance costs low (Buckley et al., 2019, p. 26).

### ***Continue to Study the Systemic Causes of Financial Exclusion and Its Disparate Impacts***

Recent submissions to the federal government by ABLE Financial Empowerment Network (2017), a “national coalition of practitioners, financial institutions, researchers, academics, policymakers and funders who are dedicated to reducing poverty through financial empowerment initiatives,” pursuant to the Department of Finance’s review of the Federal Financial Sector Framework identify that researchers know very little about the scope and cause of Canadian “household financial vulnerability and health” and why individuals are excluded from financial products and services.

ABLE (2017, pp. 8–9) further cites post-2008 financial crisis initiatives in the U.S. to study financial inclusion as a model for Canadian policy-makers. These include the Federal Reserve Bank’s Center for Household Financial Stability research initiatives, the U.S. Financial

Diaries project, the Aspen Institute's EPIC program, the Pew Charitable Trusts' financial security and mobility initiative, and the Federal Reserve Bank of St. Louis's Center for Household Financial Stability. These and other similar programs should be actively studied by policy-makers in both Canada and B.C. to understand financial exclusion influences and model best practices.

### ***Collaborate with the Federal Government to Maximize Fintech Consumer Benefits in Canada***

Unfortunately, some of the most impactful accommodations for fintech that will foster the greatest number of financial inclusion benefits to people who are unbanked and living on low income are beyond the legal authority of the B.C. government to enact alone. They will require collaboration with both the federal government and the other provinces. Specifically, Canada would benefit from a unified fintech policy, as instituted in other leading fintech jurisdictions (like the U.K.) as a "one stop shop" for new fintech firms to gain access to regulatory requirements and other information such as funding possibilities (Competition Bureau of Canada, 2018).

Developments by the European Commission (EC) over the past two years can serve as a model for Canadian regulators, and the province of British Columbia should work with the federal government toward regulatory changes outside of its constitutional jurisdiction that could facilitate financial inclusion benefits. The EC has taken steps in three key areas:

- helping "innovative business models to reach EU scale"
- taking actions to "support the uptake of technological innovation in the financial sectors"
- taking actions to "enhance security and resilience in the financial sector" (Van de Wiele, 2018, p. 16)

Collectively, these actions have reduced regulatory transaction costs and fragmentation for fintech firms by establishing "converging licencing requirements" across the EU (Van de Wiele, 2018, pp. 16–17). Regulatory fragmentation for new fintech firms in Canada is, however, a significant entry barrier for non-bank consumer-facing firms (Clements, 2019).

Critical policy questions which transcend provincial legal parameters and with implications for people who are unbanked and underbanked linger. These include open access for consumers to their financial data held at banks, data portability, the use of standardized APIs (and details around how APIs are built and accessed by new fintech firms), and the ability of consumers to direct fintechs to initiate payments on their behalf. These considerations—which are front and centre in the current open banking policy debate—have potential consumer and financial inclusion benefits, since they could stimulate competition, lower fees, speed up payments, widen credit access, and decrease "switching" costs (Boms, 2019). However, open banking and broader access to payment infrastructure also bring potential risks, including operational, fraud, privacy, consumer protection, data security, market conduct, and systemic risk (Department of Finance, 2018, 2019).

Given the need to balance risk and potential financial inclusion benefits from open banking generated by the portability of consumer financial data (third-party accessibility) as well the autonomy of consumers to initiate payments through a wider variety of fintech non-banks on

modernized instant RTP infrastructure, the B.C. government should continue to engage in meaningful consultations on these subjects with the federal Department of Finance. Further, careful consideration should be given to who can access APIs and the RTR, the accreditation pre-conditions, and the ongoing regulatory parameters applicable to new non-bank participants. Nevertheless, our current delays on open banking and payment modernization place Canada at a competitive disadvantage to the world (given the number of countries moving forward on both measures). These delays may also cause our country to miss out on many financial inclusion benefits of the new technology (Carmichael, 2019).

## Conclusion

A non-trivial segment of society in British Columbia is excluded from the banking system. These individuals who are unbanked and underbanked face a variety of barriers when attempting to access traditional financial products and services. Some barriers are financial, such as high costs, no credit history, and no institutionalized means of savings. Other barriers are personal, including a lack of government-issued identification and proximity to bank locations, as well as a distrust or feelings of disrespect from previous banking interactions. Compounding this problem are educational and informational barriers such as financial illiteracy, perceived ineligibility, and process and fee opacity.

The problem of financial exclusion does not affect all population segments equally. It has been shown to have a disparate impact on residents with low incomes in urban areas as well as Indigenous populations in British Columbia (Acorn Canada, 2016b; Buckland & Fikkert, 2008, pp. 47–49; ABLE, 2017). Evidence also points to its destructive effect on immigrants (Prosper Canada, 2015a, p. 1), communities of colour (Orians, 2016), women living in inner-city neighbourhoods (Pillai et al., 2018; Buckland & Fikkert, 2008, pp. 47–49), and people with limited education (Ampudia & Ehrmann, 2016, p. 2). Unfortunately, individuals who have difficulty accessing traditional financial products and services offered by banks often turn to high-cost (sometimes predatory) services like fringe and alternative banking, payday loans, rent-to-own firms, cheque-cashing services, and pawn shops (Buckland, 2014).

It is critical to extend the benefits of financial inclusion to the widest possible scope of society. Financial inclusion provides a host of benefits, including alleviating poverty, generating economic prosperity, creating personal wealth, and enabling home ownership (Buckland, 2008, p. 1; Ampudia & Ehrmann, 2016, p. 3), encouraging improved nutrition (Prina, 2015), enhancing personal well-being (Kendall, 2008, p. 377), expanding employment and educational prospects (Baradaran, 2013, pp. 489–490; Barr, 2004, 2017), enhancing personal safety (Barr, 2004, p. 140), encouraging greater capacity to navigate economic shocks (Baradaran, 2013, p. 489), and allowing the pursuit of entrepreneurial opportunities (Baradaran, 2013, p. 489).

Fintech can help to mitigate some of the pathologies of financial exclusion (Didenko, 2018; Rodrigues Goncalves, 2013; Buckley et al., 2014; Winn & de Koker, 2013; Lawack 2013; de Almeida, 2013). This paper has evaluated the role of fintech in British Columbia in curbing the persistence of financial exclusion in the province. Recent survey data published by the

Canadian Bankers Association (2019) show that 76% of Canadians are using digital channels to conduct banking transactions, with 91% of those surveyed reporting an increase in convenience due to new technologies, and 85% of respondents trusting these “modern banking technologies.”

Several forms of financial technology (fintech), as outlined in this report, can help to mitigate the problem of financial exclusion in British Columbia. These innovations do so by helping to alleviate several identified “barriers to access” faced by people who are unbanked and underbanked. Mobile and digital banking can alleviate the problem of inconvenient bank branch locations and hours, reduce account fees, and expand the slate of available financial products and services to people who are unbanked and underbanked. Digital payment modernizations and innovations like blockchain technology can reduce payment transaction fees, particularly for international money remittances, and potentially reduce demand for cheque-cashing services and payday lenders.

Fintech is also facilitating a “micro-saving” mechanism, including “rounding-up” platforms for micro-share ETFs that create an automated saving and investing access point for very small dollar amounts. Increased savings help alleviate both personal and financial barriers to accessing financial products and services, but most importantly help people who are previously unbanked and underbanked experience the many benefits (economic, personal, and social) of financial inclusion. The open banking revolution has the potential to radically transform the banking sector, expand available products while reducing costs with a form of “consumer directed finance” in which data can be securely shared with fintech companies for a more competitive market (Zochodne, 2020). Finally, innovations in digital identity solutions can help alleviate the account-opening frictions of people who may lack sufficient identity documentation.

Fintech isn’t a panacea, however, and there are implementation barriers and integration risks when seeking to maximize fintech’s potential as a market solution for people who are financially excluded from mainstream products and services. First are a lack of access to technology, a challenge in incentivizing financial institutions to engage the segment of the market that is unbanked, a challenge in inducing behavioural changes and obtaining necessary regulatory accommodations to support new technology in financial services and products, and a need to increase the level of financial literacy and awareness of fintech analogues to traditional products. There are also integration risks, including operational, cybersecurity, and consumer data protection risks, moral hazard and lending bias, and a potential increase in systemic risk as banks become “disintermediated” from the financial ecosystem and replaced by consumer-facing technology companies.

Fintech’s potential value proposition for people who are financially excluded in mainstream banking justifies B.C. taking supportive steps to maximize its benefits while mitigating the emerging risks. These steps include consulting with industry to identify the most effective means of increasing access to technology for segments of the population with low incomes; encouraging the use of regulatory “sandboxes”; and developing “learning and access hubs” as a mechanism for educating people who are unbanked and underbanked. Also, it’s worth continuing to support fintech venture funding, research, and development while promoting

“innovation hubs” where the academic, regulatory, entrepreneurial, and investment communities can collaborate and experience synergies. Collaborating with the federal government to make needed changes to regulatory structures within its jurisdiction will support maximum fintech benefits across society. Finally, continuing to study the systemic causes of financial exclusion, and how technology can be used as a market-based mitigant to this social problem, is a valuable undertaking.

## References

- ABLE Financial Empowerment Network. (2017). *This is nation building in the 21st century: Building financial inclusion and health*. Submission to Federal Financial Sector Review Part 2. <http://prospercanada.org/getattachment/06d84143-cb26-4ac4-b06e-68ab444cff36/This-is-nation-building-in-the-21st-century-Buildi.aspx>
- Abumorhor, A. (2019, October 13). How can fintechs onboard new customers while preventing fraud. *Crowdfund Insider*. <https://www.crowdfundinsider.com/2019/10/152828-how-can-fintechs-onboard-new-customers-while-preventing-fraud/>
- Acorn Canada. (n.d.) About Acorn. <https://acorncanada.org/node/522>
- Acorn Canada. (2016a). *It's expensive to be poor: How Canadian banks are failing low income communities*. [https://acorncanada.org/sites/default/files//ACORN%20Canada%20Fair%20Banking%20Campaign%20Backgrounder.compressed\\_0.pdf](https://acorncanada.org/sites/default/files//ACORN%20Canada%20Fair%20Banking%20Campaign%20Backgrounder.compressed_0.pdf)
- Acorn Canada. (2016b). Submission to Financial Sector Review. <https://www.fin.gc.ca/consultresp/pdf-ssqe-sefc/ssqe-sefc-01.pdf>
- Acorns. (n.d.). Invest for your future. <https://www.acorns.com/invest/>
- Alexander, L. T. (2013). Cyberfinancing for economic justice. *William and Mary Business Law Review*, 4, 309–383.
- Alexandre, C., & Eisenhart, L. C. (2013). Mobile money as an engine of financial inclusion and lynchpin of financial integrity. *Washington Journal of Law, Technology and Arts*, 8, 286–301.
- Allen, F., Demirgüç-Kunt, A., Klapper, L., & Martinez Peria, M. S. (2012). *The foundations of financial inclusion: Understanding ownership and use of formal accounts*. World Bank Policy Research Working Paper No. 6290.
- Alois, J. D. (2019, September 8). Fintech is driving financial inclusion. *Crowdfund Insider*. <https://www.crowdfundinsider.com/2019/09/151331-fintech-is-driving-financial-inclusion/>
- Amber. (n.d.). About us. <https://amberfinancial.com/en/about>
- Ampudia, M., & Ehrmann, M. (2016). *Financial inclusion—What's it worth?* Bank of Canada Staff Working Paper 2016-30. <https://www.bankofcanada.ca/wp-content/uploads/2016/07/swp2016-30.pdf>
- Ancri, C. (2016). *Fintech innovation: An overview*. Paper presented to the World Bank by the Federal Reserve Board of Governors, October 19, 2016. <pubdocs.worldbank.org/en/767751477065124612/11-Fintech.pdf>
- Andriotis, A., Rudegeair, P., & Hoffman, L. (2019, October 16). Inside Facebook's botched attempt to start a new cryptocurrency. *The Wall Street Journal*. <https://www.wsj.com/articles/facebook-wanted-to-create-a-new-currency-it-wasnt-ready-for-the-backlash-11571242795>
- Arner, D. W., Barberis, J., & Buckley, R. P. (2016). The evolution of fintech: A new post-crisis paradigm? *Georgetown Journal of International Law*, 47, 1271, 1274, 1298.

- Asano, C., & King, M. (2018, May 30). Peer-to-peer lending will help small businesses stay afloat. *The Globe and Mail*.  
<https://www.theglobeandmail.com/business/commentary/article-peer-to-peer-lending-will-help-small-businesses-stay-afloat/>
- Atlantic Provinces Economic Council (APEC). (2016). *An assessment of payday lending: Markets and regulatory responses*. Research report. <https://canadiancfa.com/wp-content/uploads/2016/11/apec-report-final-oct-2016.pdf>
- Austin, R. (2004). Of predatory lending and the democratization of credit: Preserving the social safety net of informality in small-loan transactions. *American University Law Review*, 53, 1217, 1227.
- Autorité des marchés financiers (AMF). (2019). Creation of the AMF-Finance Montreal Research Chair, October 22, 2019. <https://lautorite.qc.ca/en/general-public/media-centre/news/fiche-dactualites/creation-of-the-amf-finance-montreal-research-chair/>
- Badour, A., Lynde, D. J., & Firestone, J. (2017). Partnerships between banks and fintech companies: A continuing trend for 2017. McCarthy Tetrault.  
<https://www.mccarthy.ca/en/insightsblogsnipits/partnerships-between-banks-and-fintech-companies-continuing-trend-2017>
- Bailey, C. G. (2018). Fintech's double edges. *Chicago-Kent Law Review*, 93, 61–95.
- Bank for International Settlements. (2017). *Fintech credit: Market structures, business models and financial stability implications*. Report prepared by a Working Group established by the Committee on the Global Financial System (CGFS) and the Financial Stability Board (FSB). May 22, 2017. <https://www.fsb.org/wp-content/uploads/CGFS-FSB-Report-on-FinTech-Credit.pdf>
- Bank of Tanzania. (2012). *Monetary policy statement: The mid-year review*.  
<https://www.bot.go.tz/Publications/Regular/Monetary%20Policy%20Statement/en/2020021122485704469.pdf>
- Baradaran, M. (2013). How the poor got cut out of banking. *Emory Law Journal*, 62, 483–548.
- Baradaran, M. (2014). It's time for postal banking. *Harvard Law Review*, 127, 165, 168–169.
- Barefoot, J. A. S. (2016). Regulatory innovation. *Fintech Law Report*, 19(3), 1–9.
- Barr, M. S. (2002). Access to financial services in the 21st century: Five opportunities for the Bush Administration and the 107th Congress. *Notre Dame Journal of Law, Ethics and Public Policy*, 16, 447–473.
- Barr, M. S. (2004). Banking the poor. *Yale Journal on Regulation*, 21, 123–237.
- Barr, M. S. (2012). *No slack: The financial lives of low-income Americans*. Brookings Institution.
- Basel Committee on Banking Supervision. (2018). *Sound practices: Implications of fintech developments for banks and bank supervisors*. <https://www.bis.org/bcbs/publ/d431.pdf>
- Boms, S. (2018, November 20). The consumer case for open banking. *The Globe and Mail*.  
<https://www.theglobeandmail.com/business/commentary/article-the-consumer-case-for-open-banking/>
- Bowles, P., Dempsey, K., & Shaw, T. (2010). *Fringe financial institutions, the unbanked, and the precariously banked: Survey results from Prince George, B.C.* Reports prepared for the

- Aboriginal Business Development Centre.  
[https://abdc.bc.ca/uploads/Fringe\\_Financial\\_Institutions\\_Report.pdf](https://abdc.bc.ca/uploads/Fringe_Financial_Institutions_Report.pdf)
- Brainard, L. (2017). Where do consumers fit in the fintech stack? Speech at the FinTech Risks and Opportunities conference, Ann Arbor, Michigan, November 16, 2017.
- Brainard, L. (2018). Fintech and the search for full stack financial inclusion. 2018 Speeches of the Federal Reserve Board Members, October 17, 2018. BK Compl. Gd. 5255401 (C.C.H.), 2018 WL 5255401.
- Brennan, M., McGregor, B., & Buckland, J. (2011). The changing structure of inner-city retail banking: Examining bank branch and payday loan outlet locations in Winnipeg, 1980–2009. *Canadian Journal of Urban Research*, 20, 1–32.
- Brightside. (n.d.). <https://www.hibrighside.ca/>
- British Columbia Technology Industry Association (BCTIA). (2019a). BC Tech launches fintech series. <https://wearebctech.com/bc-tech-launches-fintech-series/>
- British Columbia Technology Industry Association (BCTIA). (2019b). Vancouver’s emerging fintech scene poised to push back against Canada’s financial centre. <https://wearebctech.com/vancouver-s-emerging-fintech-scene-poised-to-push-back-against-canada-s-financial-centre/>
- Bromberg, L., Godwin, A., & Ramsay, I. (2017). Fintech sandboxes: Achieving a balance between regulation and innovation. *Journal of Banking and Financial Law Practice*, 28, 314–336.
- Brookings Institution. 2018. Letter to Ann Misback, Secretary, Board of Governors of the Federal Reserve System re: potential federal reserve actions to support settlement of faster payments.” Docket OP-1625.  
[https://www.federalreserve.gov/SECRS/2019/March/20190315/OP-1625/OP-1625\\_121418\\_133277\\_428769914666\\_1.pdf](https://www.federalreserve.gov/SECRS/2019/March/20190315/OP-1625/OP-1625_121418_133277_428769914666_1.pdf)
- Broome, L. L. (2019). Banking on blockchain. *North Carolina Journal of Law and Technology*, 21, 169–195.
- Brummer, C., & Yadav, Y. (2019). Fintech and the innovation trilemma. *Georgetown Law Journal*, 107, 237–307.
- Buckland, J. (2008). *Strengthening banking in inner-cities: Practices and policies to promote financial inclusion for low-income Canadians*. Report for the Canadian Centre For Policy Alternatives.  
[https://www.policyalternatives.ca/sites/default/files/uploads/publications/Manitoba\\_Pubs/2008/Strengthening\\_Banking\\_in\\_Inner\\_Cities.pdf](https://www.policyalternatives.ca/sites/default/files/uploads/publications/Manitoba_Pubs/2008/Strengthening_Banking_in_Inner_Cities.pdf)
- Buckland, J. (2014, December 1). Fringe bank sector growing with support from low income people. *CBC News*. <https://www.cbc.ca/news/canada/manitoba/fringe-bank-sector-growing-with-support-from-low-income-people-1.2856794>
- Buckland, J. (2018). Opening remarks from Jerry Buckland, PhD, to the Standing Committee on Banking, Trade and Commerce (BANC), February 1, 2018.  
[https://sencanada.ca/content/sen/committee/421/BANC/Briefs/BANC\\_S-237\\_JerryBuckland\\_e.pdf](https://sencanada.ca/content/sen/committee/421/BANC/Briefs/BANC_S-237_JerryBuckland_e.pdf)



- Buckland, J., & Fikkert, A. (2008). *Choosing financial services where the options are limited: A report on a survey of financial service choice of residents in inner-city neighborhoods in Toronto, Vancouver and Winnipeg*. Field study as part of Financial Exclusion and Poverty in Canada: Individual Coping, Community Action, and Policy Reform Study, Social Sciences and Humanities Research Council of Canada. [http://financial-exclusion.uwinnipeg.ca/sites/financial-exclusion.uwinnipeg.ca/files/docs/Choosing\\_Financial\\_Services\\_Where\\_the\\_Options\\_are\\_Limited.pdf](http://financial-exclusion.uwinnipeg.ca/sites/financial-exclusion.uwinnipeg.ca/files/docs/Choosing_Financial_Services_Where_the_Options_are_Limited.pdf)
- Buckland, J., & Martin, T. (2005). Two-tier banking: The rise of fringe banks in Winnipeg's inner-city. *Canadian Journal of Urban Research*, 14(1), 158–181.
- Buckley, R. P., Arner, D. W., & Panton, M. (2014). Financial innovation in East Asia. *Seattle University Law Review*, 37, 307–351.
- Buckley, R. P., Arner, D. W., Veidt, R., & Zetsche, D. (2019). *Building fintech ecosystems: Regulatory sandboxes, innovation hubs and beyond*. University of New South Wales Law Research Paper No. 19-72.
- Buckley, R. P., & Mas, I. (2016). The coming of age of digital payments as a field of expertise. *University of Illinois Journal of Law, Technology and Policy*, 1, 71, 72.
- Bursztynsky, Jessica. (2020, December 1). Facebook-backed Libra Association has been renamed Diem. *CNBC*, <https://www.cnbc.com/2020/12/01/facebook-backed-libra-digital-currency-has-been-renamed-diem.html>.
- Campbell, D., Martinez-Jerez, F. A., & Tufano, P. (2012). Bouncing out of the banking system: An empirical analysis of involuntary bank account closures. *Journal of Banking and Finance*, 36, 1224–1235.
- Canada Gazette. (2018). Regulations amending certain regulations made under the Proceeds of Crime (Money Laundering) and Terrorist Financing Act, 2018. Part I, Volume 152, Number 23. <http://www.gazette.gc.ca/rp-pr/p1/2018/2018-06-09/html/reg1-eng.html>
- Canadian Bankers Association. (2019, March 13). Focus: How Canadians bank. <https://cba.ca/technology-and-banking>
- Canadian Consumer Finance Association (CCFA). (n.d.). About CCFA. <https://canadiancfa.com/about-ccfa/>
- Canadian Securities Administrators (CSA). (2019a). CSA regulatory sandbox. [https://www.securities-administrators.ca/industry\\_resources.aspx?id=1588](https://www.securities-administrators.ca/industry_resources.aspx?id=1588)
- Canadian Securities Administrators. (2019b). *Decision in the matter of process for relief for exemptive relief applications in multiple jurisdictions and in the matter of ZED Network Inc.* 42 OSCB 4763. [https://www.securities-administrators.ca/uploadedFiles/Industry\\_Resources/DE\\_ZEDNetworkInc.pdf](https://www.securities-administrators.ca/uploadedFiles/Industry_Resources/DE_ZEDNetworkInc.pdf)
- Canadian Securities Administrators (CSA). (2019c, March 14). Canadian securities regulators consult on regulatory framework for crypto-asset trading platforms. <https://www.securities-administrators.ca/aboutcsa.aspx?id=1776>

- Carmichael, K. (2019, February 1). "Resistance is futile" in slow march to open banking in Canada. *Financial Post*. <https://business.financialpost.com/technology/resistance-is-futile-in-slow-march-to-open-banking-in-canada>
- Carraro, M. (2018, July 31). Meet the five startups shaping the future of inclusive fintech in emerging markets. *Medium*. <https://medium.com/f4life/meet-the-five-startups-shaping-the-future-of-inclusive-fintech-in-emerging-markets-67ee585ad43c>
- Caskey, J. P. (1994). *Fringe banking: check-cashing outlets, pawnshops, and the poor*. Russell Sage Foundation.
- Christopher, C. M. (2015). Mobile banking: The answer for the unbanked in America? *Catholic University Law Review*, 65, 221–252.
- Clements, R. (2019). Regulating fintech in Canada and the United States: Comparison, challenges and opportunities. *University of Calgary, School of Public Policy, SPP Research Papers*, 12(23). <https://www.policyschool.ca/wp-content/uploads/2019/08/Fintech-Clements-final.pdf>
- Comminos, A. (2017, April 1). 8 startups driving global financial inclusion. *Founders Pledge*. <https://founderspledge.com/stories/8-startups-driving-global-financial-inclusion>
- Competition Bureau of Canada. (2017). *Technology-led innovation in the Canadian financial services sector: A market study*. [https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapi/FinTech-MarketStudy-December2017-Eng.pdf/\\$FILE/FinTech-MarketStudy-December2017-Eng.pdf](https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapi/FinTech-MarketStudy-December2017-Eng.pdf/$FILE/FinTech-MarketStudy-December2017-Eng.pdf)
- Competition Bureau of Canada. (2018). Canada's progress in fintech. <https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04392.html>
- Conference Board of Canada. (2016). *Filling the gap: Canada's payday lenders*. [https://canadiancfa.com/wp-content/uploads/2016/11/cboc-filling-the-gap\\_final-nov-2016.pdf](https://canadiancfa.com/wp-content/uploads/2016/11/cboc-filling-the-gap_final-nov-2016.pdf)
- ConfirmU. (2019). About. <http://www.confirmu.com/about/>
- Coppola, F. (2019, June 30). The real threat from Facebook's libra coin. *Forbes*. <https://www.forbes.com/sites/francescoppola/2019/06/30/the-real-threat-from-facebooks-libra-coin/#3c6bb8271dc5>
- Cowley, S. (2017, October 5). Payday lending faces tough new restrictions by consumer agency. *The New York Times*. <https://www.nytimes.com/2017/10/05/business/payday-loans-cfpb.html>
- D'Acunto, F., Prabhala, N., & Rossi, A. (2018). *The promises and pitfalls of robo-advising*. CESifo Working Paper Series No. 6907. <https://ssrn.com/abstract=3165339>
- Danisewicz, P., & Elard, I. (2019). The real effects of financial technology: Marketplace lending and personal bankruptcy. Unpublished manuscript. <https://ssrn.com/abstract=3208908>
- Davies, R. (2018, May 23). The role of technology in financial wellbeing and inclusion. *HRD Connect*. <https://www.hrdconnect.com/2018/05/23/role-technology-financial-wellbeing-and-inclusion/>

- Davis, K. E., & Gelpern, A. (2010). Peer-to-peer financing for development: Regulating the intermediaries. *New York University Journal of International Law and Politics*, 42, 1209–1268.
- de Almeida, G. M. (2013). M-Payments in Brazil: Notes on how a country's background may determine timing and design of a regulatory model. *Washington Journal of Law, Technology and Arts*, 8, 347–373.
- del Castillo, M. (2016, September 1). Plug and play's biggest blockchain batch plans big bank collaborations. *CoinDesk*. <https://www.coindesk.com/plug-and-play-blockchain-fintech-batch-four>
- De Roure, C., Pelizzon, L., & Tasca, P. (2016). *How does P2P lending fit into the consumer credit market?* Bundesbank Discussion Paper No. 30/2016.
- Demirgüç-Kunt, A., & Klapper, L. (2012). *Measuring financial inclusion: The Global Findex database*. World Bank Development Research Group, Working Paper No. 6025, 3, 11–19. <https://openknowledge.worldbank.org/bitstream/handle/10986/6042/WPS6025.pdf>
- Dick, A. A., & Lehnert, A. (2010). Personal bankruptcy and credit market competition. *Journal of Finance* 65, 655–686.
- Didenko, A. (2018). Regulating fintech: Lessons from Africa. *San Diego International Law Journal* 19, 311–369.
- Diem Association (2020). Official White Paper, <https://www.diem.com/en-us/white-paper/>.
- DiLorenzo, V. (2018). Fintech lending: A study of expectations versus market outcomes. *Forthcoming in Review of Banking and Financial Law*. <https://ssrn.com/abstract=3247112>
- Dupas, P., & Robinson, J. (2013). Why don't the poor save more? Evidence from health savings experiments. *American Economic Review*, 103(4), 1138–1171.
- England, N. (2016, November 12). Overdose fears in Downtown Eastside after computer upgrade gives credit union members access to overdrafts. *Vancouver Sun*. <https://vancouver.sun.com/news/local-news/overdose-fears-in-downtown-eastside-after-computer-upgrade-gives-credit-union-members-access-to-overdrafts>
- Easyfinancial. (n.d.). <https://www.easyfinancial.com/>
- Ebner, D. (2017, December 18). Payday lenders squeezed by new regulations. *The Globe and Mail*. <https://www.theglobeandmail.com/report-on-business/small-business/payday-lenders-squeezed-by-new-regulations/article37361268/>
- The Economist*. (2008, April 5). Getting it right on the money. <https://www.economist.com/briefing/2008/04/03/getting-it-right-on-the-money>
- The Economist*. (2018, May 3). Financial inclusion is making great strides. <https://www.economist.com/special-report/2018/05/03/financial-inclusion-is-making-great-strides>
- Edwards, B. P. (2018). The rise of automated investment advice: Can robo advisers rescue the retail market? *Chicago-Kent Law Review*, 93, 97–111.

- Ernst & Young. (2019). *Global fintech adoption index 2019*.  
[https://assets.ey.com/content/dam/ey-sites/ey-com/en\\_gl/topics/banking-and-capital-markets/ey-global-fintech-adoption-index.pdf](https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/banking-and-capital-markets/ey-global-fintech-adoption-index.pdf)
- European Union. (2015). Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No. 1093/2010, and repealing Directive 2007/64/EC.
- Fahner, G. (2018). Developing transparent credit risk scorecards more effectively: An explainable artificial intelligence approach. *Data Analytics* (December 2018).  
[https://www.researchgate.net/publication/329961762\\_Developing\\_Transparent\\_Credit\\_Risk\\_Scorecards\\_More\\_Effectively\\_An\\_Explainable\\_Artificial\\_Intelligence\\_Approach](https://www.researchgate.net/publication/329961762_Developing_Transparent_Credit_Risk_Scorecards_More_Effectively_An_Explainable_Artificial_Intelligence_Approach)
- Ferrari, J. R., Gracia, A., & Morales, A. (2002). Providing financial empowerment to mothers on welfare. *Journal of Prevention and Intervention in the Community*, 23(1–2), 95–117.
- Field, A. (2017, December 24). This app helps food stamps last longer and recipients avoid going hungry. *Forbes*. <https://www.forbes.com/sites/annefield/2017/12/24/this-app-helps-food-stamps-last-longer-and-recipients-avoid-going-hungry/#5589a454182c>
- Financial Conduct Authority (FCA). (n.d.). What we do. <https://www.fca.org.uk/about/the-fca>
- Financial Consumer Agency of Canada (FCAC). (2016, October 25). *Payday loans: Market trends*. [https://canadiancfa.com/wp-content/uploads/2016/10/fcac-payday-loans\\_oct25.pdf](https://canadiancfa.com/wp-content/uploads/2016/10/fcac-payday-loans_oct25.pdf)
- Frankle, M. (2020, October 8). LendingClub Is Ending Its P2P Lending Platform – Now What? *The Ascent*, <https://www.fool.com/the-ascent/personal-loans/articles/lendingclub-ending-its-p2p-lending-platform-now-what/>
- Franz, C. (2016). Financial empowerment and health related quality of life in family scholar house participants. *Journal of Financial Therapy*, 7(1), 4.
- Frederichs, M., & Rohrke, S. (2002). *Guide to financial literacy resources 1*. Federal Reserve Bank of San Francisco.
- FreshEBT. (n.d.). <https://www.freshebt.com/>
- Galociova, V., & Li, Z. (2019, August 12). Is Canada moving towards a cashless society? Payments Canada, *Payments Perspectives*. <https://www.payments.ca/industry-info/our-research/payments-perspectives/canada-moving-towards-cashless-society>
- Geslevich Packin, N., & Lev-Artez, Y. (2016). Big data and social netbanks: Are you ready to replace your bank? *Houston Law Review*, 53, 1211–1287.
- Giovannetti, J. (2017, November 13). Ontario to ease regulations on financial startups. *The Globe and Mail*. <https://www.theglobeandmail.com/news/national/ontario-to-ease-regulations-on-financial-startups/article36873205/>
- GlobeNewswire. (2016, January 26). Canadian fintech company propels financial inclusion at home and abroad. <https://www.globenewswire.com/news-release/2016/01/26/1069365/0/en/Canadian-FinTech-Company-Propels-Financial-Inclusion-at-Home-and-Abroad.html>

- Goss Gilroy Inc. (2017). *Evaluation of the Financial Empowerment and Problem Solving (FEPS) Program*. Evaluation report.
- Government of British Columbia. (2015). BC tech fund: \$100 million venture capital fund of funds. <https://www2.gov.bc.ca/gov/content/employment-business/investment-capital/venture-capital-programs/bctech-fund>
- Government of British Columbia. (2017). *Social innovation in British Columbia*. Ministry of Social Development and Social Innovation. [https://www2.gov.bc.ca/assets/gov/employment-business-and-economic-development/economic-development/find-support-organizations/social-innovation/sibc\\_communities.pdf](https://www2.gov.bc.ca/assets/gov/employment-business-and-economic-development/economic-development/find-support-organizations/social-innovation/sibc_communities.pdf)
- Government of British Columbia. (2019). Cheque cashing services. <https://www2.gov.bc.ca/gov/content/family-social-supports/borrowing-money/cheque-cashing-services>
- Government of Canada, Department of Finance. (2018a, February 7). *Reviewing Canada's anti-money laundering and anti-terrorist financing regime*. <https://www.canada.ca/content/dam/fin/migration/activty/consult/amlatfr-rpcfa-eng.pdf>
- Government of Canada, Department of Finance. (2018b, May 25). *Consultation on the review of the Canadian Payments Act*. <https://www.canada.ca/content/dam/fin/migration/activty/consult/rcpa-elcp-report-rapport-eng.pdf>
- Government of Canada, Department of Finance. (2018c, September 26). Minister Morneau launches advisory committee on open banking. News release. <https://www.canada.ca/en/department-finance/news/2018/09/minister-morneau-launches-advisory-committee-on-open-banking.html>
- Government of Canada, Department of Finance. (2019, January). A review into the merits of open banking. <https://www.canada.ca/en/department-finance/programs/consultations/2019/open-banking.html>
- Gross, M. B., Hogarth, J. M., & Schmeiser, M. D. (2012). Use of financial services by the unbanked and underbanked and the potential for mobile financial services adoption. *Federal Reserve Bulletin* (September 2012), 1–4. [http://www.federalreserve.gov/pubs/bulletin/2012/pdf/mobile\\_financial\\_services\\_201209.pdf](http://www.federalreserve.gov/pubs/bulletin/2012/pdf/mobile_financial_services_201209.pdf)
- Gross, T., & Notowidigdo, M. J. (2011). Health insurance and the consumer bankruptcy decision: Evidence from expansions of Medicaid. *Journal of Public Economics*, 95(7–8), 767–778.
- Guzelian, C. P., Stein, M. A., & Akistal, H. S. (2015). Credit scores, lending, and psychosocial disability. *Boston University Law Review*, 95, 1807–1868.
- Hefner, S. A. (2007). Payday lending in North Carolina: Now you see it, now you don't. *North Carolina Banking Institute*, 11(1), 263, 285–287.
- Helms, B. (2006). *Access for all: Building inclusive financial systems*. World Bank. <https://openknowledge.worldbank.org/bitstream/handle/10986/6973/350310REV0Access0for0All01OFFICIAL0USE1.pdf>

- Hinton, J. W., Lombardi, D., & Wajda, J. (2017). *Issues in bringing Canadian fintech to the international stage*. Centre for International Governance Innovation Policy Brief No. 111. <https://www.cigionline.org/publications/issues-bringing-canadian-fintech-international-stage>
- HodlBot. (n.d.). <https://www.hodlbot.io/>
- Holt Fintech AI Accelerator. (n.d.). <https://www.holtaccelerator.ai/>
- Hughes, J. P., Jagtiani, J., & Moon, C-G. (2019). *Consumer lending efficiency: Commercial banks versus a fintech lender*. Federal Reserve Bank of Philadelphia Working Paper 19-22. <https://www.philadelphiafed.org/consumer-finance/consumer-credit/consumer-lending-efficiency-commercial-banks-versus-a-fintech-lender>
- Jagtiani, J. A., & Lemieux, C. (2016). Small business lending after the financial crisis: A new competitive landscape for community banks. *Economic Perspectives*, 40(3), 1–30. <https://www.chicagofed.org/publications/economic-perspectives/2016/3-jagtiani-lemieux>
- Jagtiani, J., & Lemieux, C. (2017). *Fintech lending: Financial inclusion, risk pricing, and alternative information*. Federal Reserve Board of Philadelphia Working Paper 17-17.
- Jagtiani, J., & Lemieux, C. (2018). Do fintech lenders penetrate areas that are underserved by traditional banks? *Journal of Economics and Business*, 100, 43–54.
- Jagtiani, J., & Lemieux, C. (2019). *The roles of alternative data and machine learning in fintech lending: Evidence from the Lendingclub consumer platform*. Federal Reserve Bank of Philadelphia Working Paper 18-15R.
- Janse, K. A., & Cheng, G. (2019, October 10). Can fintech make the world more inclusive? *Knowledge@Wharton*. <https://www.knowledge.wharton.upenn.edu/article/can-fintech-make-the-world-more-inclusive/>
- Jenkins, P. (2019, June 26). Why cryptocurrencies cannot fix financial exclusion. *Financial Times*. <https://www.ft.com/content/34ba5a70-9732-11e9-8cfb-30c211dcd229>
- JP Morgan Chase & Co. (2019). The cost of being underbanked in America's most expensive city. <https://www.jpmorganchase.com/corporate/news/stories/cost-of-being-underbanked.htm>
- Kendall, J. W. (2008). Microfinance in rural China: Government initiatives to encourage participation by foreign and domestic financial institutions. *North Carolina Banking Institute*, 12, 375, 377.
- Klein, A. (2019). The fastest way to address income inequality? Implement a real time payment system. Brookings Institution. <https://www.brookings.edu/research/the-fastest-way-to-address-income-inequality-implement-a-real-time-payment-system>
- Komarova Loureiro, Y., & Gonzalez, L. (2015). Competition against common sense: Insights on peer-to-peer lending as a tool to allay financial exclusion. *International Journal of Bank Marketing*, 33, 592.
- Lagarde, C. (2018). A regulatory approach to fintech. *International Monetary Fund Finance and Development*, 55(2). <https://www.imf.org/external/pubs/ft/fandd/2018/06/how-policy-makers-should-regulate-cryptoassets-and-fintech/straight.htm>

- LaPlante, A., & Watson, C. (2018). *The great fintech debate: Risks and rewards of financial innovation*. Global Risk Institute Financial Innovation Series Report. Updated May 8, 2018. <https://globalriskinstitute.org/publications/risks-and-rewards-of-financial-innovation/>
- Lawack, V. A. (2013). Mobile money in developing countries: Financial inclusion and financial integrity. *Washington Journal of Law, Technology and Arts*, 8, 317–345.
- Lendified. (n.d.). <https://www.lendified.com/>
- Lending Loop. (n.d.). <https://www.lendingloop.ca/>
- Libra Association. (2019). Official Libra White Paper. <https://libra.org/en-US/white-paper/>
- Lightbourne, J. (2017). Algorithms and fiduciaries: Existing and proposed regulatory approaches to artificially intelligent financial planners. *Duke Law Journal*, 67, 651–679.
- Livshits, I., Macgee, J.C., & Tertilt, M. (2007). Consumer bankruptcy: A fresh start. *American Economic Review*, 97, 402–418.
- Livshits, I., Macgee, J.C., & Tertilt, M. (2010). Accounting for the rise in consumer bankruptcies. *American Economic Journal: Macroeconomics*, 2, 165–193.
- Livshits, I., Macgee, J.C., & Tertilt, M. (2016). The democratization of credit and the rise in consumer bankruptcies. *Review of Economic Studies*, 83, 1673–1710.
- Lootsma, Y. (2017). Blockchain as the newest regtech application: The opportunity to reduce the burden of KYC for financial institutions. *Banking and Financial Services Policy Report*, 36(8), 16–21.
- Lumsden, E. (2012). Securing mobile technology and financial transactions in the United States. *Berkeley Business Law Journal*, 9, 139–185.
- MacCarthy, M. (2018). Standards of fairness of disparate impact assessment of big data algorithms. *Cumberland Law Review*, 48, 67–147.
- Macchiavello, E. (2015). Peer-to-peer lending and the “democratization” of credit markets: Another financial innovation puzzling regulators. *Columbia Journal of European Law*, 21, 521–586.
- Madden v. Midland Funding. (2016). LLC, 786 F.3d 246, 250-253 (2d Cir. 2015), cert. denied, 136 S. Ct. 2505.
- Mader, P. (2018). Contesting financial inclusion. *Development and Change*, 49, 461–483.
- Magnuson, W. (2018). Regulating fintech. *Vanderbilt Law Review*, 71, 1167–1226.
- Mann, R. J., & Hawkins, J. (2007). Just until payday. *UCLA Law Review*, 54, 855, 858–860.
- Manzil. (n.d.). <https://manzil.ca/>
- Medici. (2016, January 29). Vancouver fintech ecosystem is one of the leading ones in North America. <https://gomedici.com/vancouver-fintech-ecosystem-is-one-of-the-leading-ones-in-north-america>
- Medici (2017, January 27). Toronto’s fintech ecosystem: 74 firms reshaping Canada’s finserv space. <https://gomedici.com/torontos-fintech-ecosystem-74-companies>
- Minter, A. (2019, June 26). The unbanked don’t need Facebook’s money. *Bloomberg*. <https://www.bloomberg.com/opinion/articles/2019-06-26/unbanked-consumers-may-not-need-facebook-s-libra-currency>

- Mogo. (n.d.). About Mogo. <https://www.mogo.ca/about-mogo>
- Mogo. (n.d.). <https://www.mogo.ca/mogo-card>
- Moka. (n.d.). <https://moka.ai/en/about>
- Munshi, N. (2019, August 21). Sierra Leone's thumbprint breakthrough to sign up unbanked. *Financial Times*. <https://www.ft.com/content/40980b7c-c350-11e9-a8e9-296ca66511c9>
- Naing, E. (2016, June 14). Fintech can boost financial inclusion. *Congressional Quarterly*.
- Nonninger, L. (2018, May 23). Fintech competition is pushing banks to change strategies. *Business Insider*. <https://www.businessinsider.com/fintech-forcing-major-banking-strategy-shifts-2018-5>
- NorthOne. (n.d.). <https://northone.com/>
- O'Connell, J. (2016, May 30). Bitcoin ATMs are popular with the unbanked, but the regulatory future is unclear. *Vice*. [https://www.vice.com/en\\_us/article/ezppkp/bitcoin-atms-unbanked-regulation](https://www.vice.com/en_us/article/ezppkp/bitcoin-atms-unbanked-regulation)
- Odinet, C. K. (2018). Consumer bitcredit and fintech lending. *Alabama Law Review*, 69, 781–858.
- Office of the Superintendent of Financial Institutions. (n.d.). About us. <http://www.osfi-bsif.gc.ca/eng/osfi-bsif/Pages/default.aspx>
- Olson, A., & Sweet, K. (2019, April 12). As cashless stores grow, so does the backlash. *Canadian Business*. <https://www.canadianbusiness.com/business-news/as-cashless-stores-grow-so-does-the-backlash/>
- Omarova, S. T. (2019). New tech v. new deal: Fintech as a systemic phenomenon. *Yale Journal on Regulation*, 26, 735–795.
- Ondeck. (n.d.). <https://www.ondeck.ca/>
- Organisation for Economic Co-operation and Development (OECD). (2013). *Financial literacy and inclusion*. Results of OECD/INFE Survey Across Countries and by Gender.
- Orians, K. E. (2016). I'll say I'm home, I won't say I'm free: Persistent barriers to housing, employment, and financial security for formerly incarcerated people in low income communities of color. *National Black Law Journal*, 25, 23–57.
- Osili, U. O., & Paulson, A. (2009). *Banking crisis and investor confidence: An empirical investigation*. Federal Reserve Bank of Chicago Policy Discussion Paper 2009-9. <https://www.chicagofed.org/publications/policy-discussion-papers/2009/pdp-9>
- Packin, N. G., & Lev-Aretz, Y. (2016). On social credit and the right to be unnetworked. *Columbia Business Law Review*, 2016(2), 340–425.
- Partington, R. (2019, October 18). How the wheels came off Facebook's Libra Project. *The Guardian*. <https://www.theguardian.com/technology/2019/oct/18/how-the-wheels-came-off-facebook-libra-project>
- Pasquale, F. (2015). *The black box society: The secret algorithms than control money and information*. Harvard University Press.
- Payment Source. (2019). Accelerating ecommerce adoption in Canada. <https://www.paymentsource.ca/blog/accelerating-ecommerce-adoption-in-canada>



- Payments Canada. (2019). *Corporate plan, 2019 to 2023*.  
[https://www.payments.ca/sites/default/files/pc\\_19\\_corporateplan\\_en.pdf](https://www.payments.ca/sites/default/files/pc_19_corporateplan_en.pdf)
- Payments Canada. (2020, November 12). Payments Canada selects Mastercard's Vocalink as the clearing and settlement solution provider for Canada's new real-time payments system, the Real-Time Rail, <https://www.payments.ca/about-us/news/payments-canada-selects-mastercard%E2%80%99s-vocalink-clearing-and-settlement-solution>
- Peesker, S. (2019, March 24). In a cashless world, society's most vulnerable are being left behind. *The Globe and Mail*. <https://www.theglobeandmail.com/investing/personal-finance/household-finances/article-in-a-cashless-world-societys-most-vulnerable-are-being-left-behind/>
- Pelley, L. (2019, October 3). Toronto no longer offering new licences to "predatory" payday loan outlets. *CBC News*. <https://www.cbc.ca/news/canada/toronto/toronto-no-longer-offering-new-licences-to-predatory-payday-loan-outlets-1.5307419>
- Pew Research Center. (2018). Internet and technology mobile fact sheet. Updated February 5, 2018. <http://www.pewinternet.org/fact-sheet/mobile/>
- Peyton, A. (2019, January 25). ATB Financial looks on Brightside with new challenger bank. *Fintech Futures*. <https://www.fintechfutures.com/2019/01/atb-financial-looks-on-brightside-with-new-challenger-bank>
- PHS Community Services Society. (n.d.). <https://www.phs.ca/>
- Pigeon Park Savings (PPS). (n.d.). <https://www.phs.ca/our-services/pigeon-park-savings/>
- Pillai, S., Soman, D., & Macklem, T. (2015, April 7). Accessible banking services are key to reducing poverty. *The Globe and Mail*. <https://www.theglobeandmail.com/report-on-business/rob-commentary/accessible-banking-services-are-key-to-reducing-poverty/article23828256/>
- Planswell. (n.d.). <https://planswell.com/what-we-do/>
- Poon, M. (2007). Scorecards as market devices for consumer credit. *Social Review* 55, 284.
- Poon, M. (2009). From new deal institutions to capital markets: Commercial consumer risk scores and the making of subprime mortgage finance. *Accounting Organizations and Society*, 34, 654.
- Posadzki, A. (2017, November 23). Canadian firms using mobile tech to help world's unbanked. *The Globe and Mail*. <https://www.theglobeandmail.com/report-on-business/canadian-firms-using-mobile-tech-to-help-worlds-unbanked/article33007616/>
- Prina, S. (2015). Banking the poor via savings accounts: Evidence from a field experiment. *Journal of Development Economics*, 115, 16–31.  
<https://www.sciencedirect.com/science/article/pii/S0304387815000061>
- Prosper Canada. (n.d.). Overview. <http://prospercanada.org/About-Us/Overview.aspx>
- Prosper Canada. (2017, April 26). Barrier free banking in Canada.  
<http://prospercanada.org/News-Media/News/Edmonton-FECs-partnering-to-provide-pathway-out-of.aspx?feed=Prosper-Canada-News-Feed>

- Prosper Canada. (2018). *Research insights: Financial service solutions project*. Report produced for DUCA Credit Union. <https://ducaimpactlab.com/assets/pdf/FSS-Research-insights-2018-11-01.pdf>
- Prosper Canada Centre for Financial Literacy. (2015a). Financial literacy and newcomers to Canada. Updated December 2016. <http://prospercanada.org/getattachment/3ff26769-c2d4-4d9e-82e9-f56467e4eb31/Financial-Literacy-and-Newcomers-to-Canada.aspx>
- Prosper Canada Centre for Financial Literacy. (2015b, November). *Building financial education: Impacts and insights from the TD Financial Literacy Grant Fund*. <http://prospercanada.org/getattachment/cf06ec7b-654e-44fb-abf8-f47388d83719/Building-Financial-Education-Impact-Insights-from.aspx>
- Raisin. (n.d.). <https://www.raisin.com/>
- Randall, D., & Chien, J. (2018, April). Fintech as a pathway to financial inclusion? The case of China. *FinDev Gateway*. <https://www.findevgateway.org/blog/2018/apr/fintech-pathway-financial-inclusion-case-china>
- Reilly, C. (2019, July 24). Mobile technology better for underbanked than cryptocurrency. *Congressional Quarterly Roll Call*. <https://www.govtech.com/computing/Mobile-Technology-Better-for-Underbanked-than-Cryptocurrency.html>
- Revolut. (n.d.). <https://www.revolut.com/en-CA>
- Rhine, S. L. W., & Green, W.H. (2013). Factors that contribute to becoming unbanked. *Journal of Consumer Affairs*, 47(1), 27–45.
- Robinhood. (n.d.). <https://robinhood.com/>
- Robson, J. (2012). *The case for financial literacy*. Paper prepared for the Canadian Centre for Financial Literacy.
- Robson, J. (2017). *Financial empowerment and alleviating poverty in Canada: A concept paper*. Discussion paper prepared for Prosper Canada. <https://learninghub.prospercanada.org/wp-content/uploads/2018/06/J-Robson-FE-Pov-Red-TofC-FINAL-Jul-2017.pdf>
- Rodrigues Goncalves, D. E. (2013). Financial inclusion in Peru: Lessons from Kenya's regulatory approach on e-money. *University of Miami International and Comparative Law Review*, 21, 31–51.
- Roodman, D. (2012, February 1). Think again: Microfinance. *Foreign Policy*. [www.foreignpolicy.com/articles/2012/02/01/think\\_again\\_microfinance](http://www.foreignpolicy.com/articles/2012/02/01/think_again_microfinance)
- Rooney, K. (2019, January 28). Fintech start-up Acorns valued at \$860 million after latest funding round. *CNBC*. <https://www.cnn.com/2019/01/28/fintech-start-up-acorns-valued-at-860-million-after-latest-funding-round.html>
- Rutherford, S. (2000). Raising the curtain on the “microfinancial services era.” Consultative Group to Assist the Poor (CGAP) Focus 15.
- Schweitzer, M. E., & Barkley, B. (2017). *Is “fintech” good for small business borrowers? Impacts on firm growth and customer satisfaction*. Federal Reserve Board of Cleveland, Working Paper No. 17-01.

- Sen, A. (2019). Technical tussle: Are fintech companies set to be eclipsed by the arrival of bigtech? *Banking and Financial Services Policy Report*, 38(5), 1.
- Senate of Canada. 2019. *Open banking: What it means for you*. Standing Senate Committee on Banking, Trade and Commerce, Report of the Standing Senate Committee on Banking, Trade and Commerce.  
[https://sencanada.ca/content/sen/committee/421/BANC/reports/BANC\\_SS-11\\_Report\\_Final\\_E.pdf](https://sencanada.ca/content/sen/committee/421/BANC/reports/BANC_SS-11_Report_Final_E.pdf)
- Servon, L. (2017, January 10). What is driving the “unbanking of America”? National Public Radio (NPR), *Fresh Air*. <https://www.npr.org/2017/01/10/509126878/what-is-driving-the-unbanking-of-america>
- Seward, Z., & De, N. (2019, June 18). Facebook unveils libra cryptocurrency, targeting 1.7 billion unbanked. *CoinDesk*. Updated January 21, 2020.  
<https://www.coindesk.com/facebook-launches-subsiary-to-support-new-libra-crypto>
- Shoppers Confidential. (2017). *Alberta: Small sum loan study, December 2016–May 2017*.  
<https://canadiancfa.com/wp-content/uploads/2017/05/alberta-small-sum-loan-study-final.pdf>
- Simpson, W., & Buckland, J. (2016). Dynamics of location of financial institutions: Who is serving the inner city? *Economic Development Quarterly*, 30(4), 358–370.
- Skiba, P. M. (2012). Regulation of payday loans: Misguided? *Washington and Lee Law Review*, 69, 1023, 1043.
- SoFi. (n.d.). How it works. <https://www.sofi.com/how-it-works/>
- Solomon, L. D. (1992). Microenterprise: Human reconstruction in America’s inner cities. *Harvard Journal of Law and Public Policy*, 15, 191, 199.
- StartUp HERE Toronto. (2019a, October 5). MaRS announces fintech partnership with BCTIA to bridge gap between Vancouver and Toronto.  
<https://startupheretoronto.com/sectors/technology/mars-announces-fintech-partnership-with-bctia-to-bridge-gap-between-vancouver-and-toronto/>
- StartUp HERE Toronto. (2019b, October 6). Innovate financial health launching fintech accelerator with Capital One. <https://startupheretoronto.com/partners/betakit/innovate-financial-health-launching-fintech-accelerator-with-capital-one/>
- Statista. (2019). Number of smartphone users in Canada from 2018 to 2024.  
<https://www.statista.com/statistics/467190/forecast-of-smartphoneusers-in-canada>
- Stickland, J. (2017a, September 6). Using fingerprints to bank the unbanked. *Finextra*.  
<https://www.finextra.com/blogposting/14469/using-fingerprints-to-bank-the-unbanked>
- Stickland, J. (2017b, December 8). Biometrics for the unbanked. *Finextra*.  
<https://www.finextra.com/blogposting/14825/biometrics-for-the-unbanked>
- Suberg, W. (2019, July 2). Facebook’s Libra will benefit Bitcoin but “destroy” banks, says industry. *Cointelegraph*. <https://cointelegraph.com/news/facebooks-libra-will-benefit-bitcoin-but-destroy-banks-says-industry>
- Talbott, S. (2017). Regulators should proceed with caution when approaching online small business lending. *Fintech Law Report*, 20(1), 1–6.

- Taleb, N. N. (2018, January 22). It may fail but we now know how to do it. *Medium*.  
<https://medium.com/opacity/bitcoin-1537e616a074>
- Tang, H. (2018.) *Peer-to-peer lenders versus banks: Substitutes or complements?* ACPR Chair Workshop 2018. <http://www.cafr-sif.com/2018/2018selected/85.%20Peer-to-Peer%20Lenders%20versus%20Banks%20Substitutes%20or%20Complements.pdf>
- Tokarev, Dmitry (2020, December 5). Facebook's Diem stablecoin is an existential threat to traditional banking. *Cointelegraph*, <https://cointelegraph.com/news/facebook-s-diem-stablecoin-is-an-existential-threat-to-traditional-banking>.
- T-Net. (2018, July 20). Vancouver-based nCrypt (formerly nTrust) closing its doors August 31st. [https://www.bctechnology.com/news/2018/7/20/Vancouver-based-nCrypt-\(formerly-nTrust\)-Closing-its-Doors-Aug-31st.cfm](https://www.bctechnology.com/news/2018/7/20/Vancouver-based-nCrypt-(formerly-nTrust)-Closing-its-Doors-Aug-31st.cfm)
- T-Net. (2019a, April 22). Toronto and Vancouver-based fintech company Lendified secures \$15 million in funding to support its growth. <https://www.bctechnology.com/news/2019/4/22/Toronto-and-Vancouver-based-Fintech-Company-Lendified-Secures-15-Million-in-Funding-to-Support-its-Growth.cfm>
- T-Net. (2019b, July 26). Mogo named one of Canada's top 50 fintech companies by the digital finance institute. <https://www.bctechnology.com/news/2019/7/26/Mogo-Named-One-of-Canadas-Top-50-Fintech-Companies-by-the-Digital-Finance-Institute.cfm>
- Todd, D. (2014, July 31). Remittances: \$24 billion a year sent home from Canada. *Vancouver Sun*.  
[http://www.vancouver.sun.com/business/Remittances+billion+year+sent+home+from+Canada/10080290/story.html?\\_lsa=18ab-9010](http://www.vancouver.sun.com/business/Remittances+billion+year+sent+home+from+Canada/10080290/story.html?_lsa=18ab-9010)
- TransferWise. (n.d.). <https://transferwise.com/ca/send-money/send-money-to-canada>
- Trulioo. (n.d.). <https://www.trulioo.com/>
- Ufford, S. (2018, May 8). The great unbanked—do my files look thin in this?  
<https://www.trulioo.com/blog/unbanked/>
- U.S. Department of the Treasury. (2018). *A financial system that creates economic opportunities: Nonbank financials, fintech, and innovation*. Report to President Donald J. Trump Executive Order 13772 on Core Principles for Regulating the United States Financial System. <https://home.treasury.gov/sites/default/files/2018-08/A-Financial-System-that-Creates-Economic-Opportunities---Nonbank-Financials-Fintech-and-Innovation.pdf>
- U.S. Federal Deposit Insurance Corporation (FDIC). (2018). *2017 FDIC national survey of unbanked and underbanked households*.  
<https://www.fdic.gov/householdsurvey/2017/2017report.pdf>
- University of Western Ontario, Ivey Business School. (2018a). Canada fintech 150. Scotiabank Digital Banking Lab, December 31, 2018). <https://www.ivey.uwo.ca/scotiabank-digital-banking-lab/canada-fintech/>
- University of Western Ontario, Ivey Business School. (2018b). The Canadian fintech ecosystem map. Scotiabank Digital Banking Lab, December 31, 2018.  
<https://ecosystem.formfintech.com/>

- University of Western Ontario, Ivey Business School. (2018c). *Top 150 Canadian fintech companies*. Scotiabank Digital Banking Lab.  
<https://www.ivey.uwo.ca/cmsmedia/3785587/ivey-fintech-infographic.pdf>
- Vancity. (n.d.). Basic banking.  
<https://www.vancity.com/AboutVancity/VisionAndValues/ValuesBasedBanking/FinancialLiteracyAndBasicBanking/BasicBanking/>
- Vancity. (n.d.) Vancity at a glance.  
<https://www.vancity.com/AboutVancity/VisionAndValues/Glance/>
- Van de Wiele, W. (2018). European fintech: New rules on the way. *Banking and Financial Services Policy Report*, 37, 16–29.
- Van Loo, R. (2018). Making innovation more competitive: The case of fintech. *UCLA Law Review*, 65, 232–279.
- Yunus, M. (1997). Microcredit summit opening plenary. Opening speech at the Grameen Bank’s Microcredit Summit, Washington, D.C., February 2, 1997.  
<http://www.grameen.com/microcredit-summit/microcredit-summit-1997/opening-plenary/>
- Waters, R. (2019, October 17). Why Facebook’s Libra might be a good thing. *Financial Times*.  
<https://www.ft.com/content/54cae344-f0eb-11e9-ad1e-4367d8281195>
- Williams, B. (2001). What’s debt got to do with it? In J. Goode & J. Maskovsky (Eds.), *The new poverty studies: The ethnography of power, politics, and impoverished people in the United States* (pp. 79, 87). NYU Press.
- Winn, J. K. (2013). Governance of global mobile money networks: The role of technical standards. *Washington Journal of Law, Technology and Arts*, 8(3), 197–244.
- Winn, J. K., & de Koker, L. (2013). Introduction to mobile money in developing countries: Financial inclusion and financial integrity conference special issue. *Washington Journal of Law, Technology and Arts*, 8(3), 155–163.
- World Bank Group. (2008). *Finance for all?: Policies and pitfalls in expanding access*.  
<https://openknowledge.worldbank.org/bitstream/handle/10986/6905/417920PAPER0Fi18082137291301PUBLIC1.pdf>
- World Bank Group. (2017). The Global Findex database 2017.  
<https://globalfindex.worldbank.org/>
- World Bank Group. (2018). *Toward universal financial inclusion in China: Models, challenges, and global lessons*.  
<https://openknowledge.worldbank.org/bitstream/handle/10986/29336/FinancialInclusionChinaP158554.pdf>
- Zetsche, D. A., Buckley, R. P., Barberis, J. N., & Arner, D. W. (2017). Regulating a revolution: From regulatory sandboxes to smart regulation. *Fordham Journal of Corporate and Financial Law*, 23, 31–103.
- Zochodne, G. (2018, July 23). How Canada’s banking protections stifle innovation at home, but give big six free rein to expand abroad. *Financial Post*.  
<https://business.financialpost.com/news/fp-street/how-canadas-banking-protections-stifle-innovation-at-home-but-give-big-six-free-rein-to-expand-abroad>

Zochodne, G. (2020, January 31). Replace the term “open banking” with “consumer directed finance,” committee recommends. *Financial Post*.

<https://business.financialpost.com/news/fp-street/committee-suggests-replacing-the-term-open-banking-with-consumer-directed-finance>

## Appendix: Survey of Fintech Companies with Financial Inclusion Potential

British Columbia–Based Companies Indicated in **Green**

Canadian (Non–British Columbia) Companies Indicated in **Red**

International Companies Indicated in **Blue**

Fintech Company (Website)	Offered Core Services & Financial Inclusion Potential
<b>Mobile Banking, Savings, and Personal Financial Services</b>	
<b>Koho</b> <a href="http://www.koho.ca">www.koho.ca</a>	<p>Koho provides no-fee mobile banking services, pre-paid banking cards with cashback rewards (“Partner Powerups”) embedded into banking products. It also allows for an “automated savings mechanism” with technology by a “rounding up” function on spending that directs the rounded-up amount to a savings account. The mission of Koho is to “empower people through their finances.” Koho also provides a pre-paid Visa card issued by Peoples Trust Company.</p>
<b>Thinkific</b> <a href="http://www.thinkific.com">www.thinkific.com</a>	<p>Thinkific software allows for the creation of online courses. This platform can serve financial inclusion goals by facilitating financial literacy and educational content for personal financial services to individuals living on low income.</p>
<b>Mobilearth / Mobibank</b> <a href="http://www.mobilearth.com/mobibank">www.mobilearth.com/mobibank</a>	<p>Mobilearth is a mobile application developer that has created a “mobibank” application. Even though the application is for business solutions, it can serve financial inclusion ends by helping to reduce financial products and service costs.</p>
<b>Mogo Financial</b> <a href="http://www.mogo.ca">www.mogo.ca</a>	<p>Mogo offers a variety of lending and credit products, including monthly credit scoring, identity fraud protection, a specialized “MogoCard” that helps consumers control spending, online loans, mortgages, and an easy-to-use online portal. They also have products designed to create better financial habits, including a “Mogospend” credit card with “real-time” spending notifications and artificial intelligence–driven recommendations to help consumers with budgeting and making better financial decisions. They can also offer financial literacy applications, wealth management learning applications, and access to crypto-assets.</p>
<b>ATB Brightside</b> <a href="http://www.hibrighside.ca">www.hibrighside.ca</a>	<p>ATB Brightside is a fully mobile digital banking platform that operates under the Alberta Treasury Branches (ATB Financial) banking licence and regulations. It offers an “automated rounding-up” savings mechanism connected to a digital bank account.</p>

<b>Motusbank</b> <a href="http://www.motusbank.ca">www.motusbank.ca</a>	<p>Motusbank is a digital full-service bank that operates online and through a phone. It provides a human help desk but no actual branches. It offers no-fee, no minimum balance savings and chequing accounts, access to no-fee ATM networks, and free and unlimited e-transfers. It also has a host of credit and investment products at competitive rates (given the cost savings from no-branch operations).</p>
<b>Stack</b> <a href="http://www.getstack.ca">www.getstack.ca</a>	<p>Stack is a Toronto-based mobile financial services application with no fees and a pre-paid, reloadable Mastercard, a mobile tap payments application, cashback rewards, no foreign exchange fees, no ATM withdrawal fees (based on a network of approved ATMs), spending trackers, and an automated savings mechanism.</p>
<b>EQ Bank</b> <a href="http://www.eqbank.ca">www.eqbank.ca</a>	<p>EQ Bank is a subsidiary of Equitable Bank and is a purely digital bank. It offers a high-interest hybrid account (which can serve as both a chequing and savings account) with no monthly fees, no minimum balances, free unlimited <i>Interac</i> e-transfers and free unlimited electronic fund transfers.</p>
<b>Raisin</b> <a href="http://www.raisin.com">www.raisin.com</a>	<p>Raisin is a German-based open banking fintech platform that describes itself as “[t]he first and only pan-European deposit marketplace.” It facilitates access to term deposits, with attractive interest rates, across Europe through 100 partner banks in a secure online platform.</p>
<b>NorthOne</b> <a href="http://northone.com">northone.com</a>	<p>NorthOne is a U.S.-based “neo” or “challenger” digital bank that describes itself as “proudly made for small businesses, startups and freelancers.” It serves financial inclusion goals by offering low-cost bank accounts, company debit cards, a payments mechanism, mobile cheque deposits, and a variety of other features.</p>
<b>Revolut</b> <a href="http://www.revolut.com/en-CA">www.revolut.com/en-CA</a>	<p>Revolut is a U.K.-based “neo” or “challenger” digital bank that provides mobile banking and financial services. It has signalled an intent to enter Canada and provides a number of financial inclusion mechanisms, including global fee-free accounts, budget tools, a rounding-up savings mechanism, low-fee international money transfers, and instant spending notifications.</p>
<b>Fintech Credit, Peer-to-Peer Lending, Credit Improvement, and Small Business Services (Underbanked)</b>	
<b>Amber Financial</b> <a href="http://www.amberfinancial.com">www.amberfinancial.com</a>	<p>Amber is an online lending business (offering mortgages, personal loans, and investment products) that is specifically built with financial inclusion as a stated goal. Its “[m]ission is to provide Canadians a better borrowing experience. FinTech is changing traditional finance landscape. By using big data analysis and internet technology, Amber Financial lowers the cost of borrowing. The result is lower interest rate and better experience for borrowers. Online borrowing achieves and popularizes the idea of financial inclusion. The user-friendly interface of Amber Financial revolutionizes the inflexibility of bank service. People can now apply online anytime anywhere. And the use of sophisticated data replaces various kinds of assumptions and</p>



	estimation. Amber Financial utilizes technology and data to build a financial platform for Canadians by Canadians.”
<b>Refresh Financial</b> <a href="http://www.refreshfinancial.ca">www.refreshfinancial.ca</a>	Refresh Financial is a fintech company that is designed with financial inclusion goals. Its goal is to “help Canadians take control of their finances. We do that by providing programs that help people to build credit safely. We choose to focus on credit because it is a key part of financial freedom.” Refresh accomplishes this goal through a “cash secured savings loan” or a “secured credit card.”
<b>Marble Financial</b> <a href="http://www.mymarble.ca">www.mymarble.ca</a>	Marble Financial’s mission is “.to empower Canadians to manage their personal finances, with credit building products, guidance and tools to optimize their credit wellness.” They do this through a variety of “proprietary technology solutions” including “Fast Track Loan”, “Score Up” and “Credit Meds” products that are designed to “guide our customers back to mainstream credit faster than traditional methods.”
<b>Progressa</b> <a href="http://www.progressa.com">www.progressa.com</a>	Progressa is a fintech lending company that helps Canadians “improve their financial health by paying off outstanding debt and collection items, resulting in improved credit.” In facilitating debt consolidation loans, Progressa uses a proprietary algorithmic function, including an assessment of alternative data that isn’t normally utilized by traditional banks. It also allows for credit extension on unconventional parameters and loans to individuals who would otherwise be excluded from traditional credit.
<b>Canada Drives</b> <a href="http://www.canadadrives.ca">www.canadadrives.ca</a>	Canada Drives is an online auto-lending platform that offers competitive car loans with \$0 down payment options. It could be used as a financial inclusion mechanism for individuals who can’t otherwise qualify for auto loans from traditional financial institutions.
<b>SYOMortgage</b> <a href="http://www.syomortgage.com">www.syomortgage.com</a>	SYO Mortgage is a fully automated mortgage application. It could provide financial inclusion value as a potential lending/credit platform for individuals excluded from credit approval from traditional institutions.
<b>Fresh Start Financial</b> <a href="http://www.freshstartfinance.ca">www.freshstartfinance.ca</a>	Fresh Start Financial is a fintech lending platform that is looking to increase market share by seeking out consumer segments that are overlooked by banks and by capitalizing on negative experiences that many individuals face when dealing with a traditional financial institution. They provide an online application process, and quick approval for personal loans. They expand credit outside of what’s offered by traditional banks including for people previously bankrupt, and with poor or no credit.
<b>Finjoy</b> <a href="http://www.finjoy.ca">www.finjoy.ca</a>	Finjoy is a fintech lending platform that seeks out consumer segments that are overlooked by banks and by capitalizing on negative experiences that many individuals face when dealing with a traditional financial institution. They have financial inclusion goals to provide a simplified loan application process online and quick

	approval for personal loans. They expand credit outside of what's offered by traditional banks and look to be the needed market segment between the traditional large banks and high-cost payday lenders.
<b>Lendful</b> <a href="http://www.lendful.ca/#/about">www.lendful.ca/#/about</a>	Lendful is a fintech lending platform that segments itself between traditional banks and payday lenders. It offers a simple online application, with a quick and simple approval process and transparent fees that allow for borrowing savings for refinancing costs. Like other fintech lenders, Lendful uses online data and technology in an algorithmic process to determine credit risk and assign rates. It also facilitates a variety of loan offers based on the online assessment.
<b>Merchant Growth</b> <a href="http://www.merchantgrowth.com">www.merchantgrowth.com</a>	Merchant Growth is a fintech lending platform that targets small businesses and entrepreneurs (a market segment underserved by traditional banks in Canada). The platform is also designed with financial inclusion goals in mind, directed as access to credit for small businesses.
<b>Manzil</b> <a href="http://www.manzil.ca">www.manzil.ca</a>	Manzil is an Ontario-based fintech application that facilitates Halal-compliant Islamic loans and investments. Its stated mission is "to help ethically-conscious people balance their financial needs with their ethical and spiritual obligations." It creates a financial inclusion utility for people who, because of religious adherence, cannot access certain investment and credit products.
<b>Next Door Lending</b> <a href="http://www.nextdoorlending.ca">www.nextdoorlending.ca</a>	Next Door Lending is a Toronto-based micro-finance company that offers loans to entrepreneurs and start-up businesses. It works to provide tailored funding partners uniquely suited for the borrower's needs. It also provides for factoring and merchant advance services.
<b>Fund Through</b> <a href="http://www.fundthrough.com">www.fundthrough.com</a>	Fund Through is a factoring credit platform for small businesses that allows receivables to be turned into working capital loans. It allows for a digital application and capital transfer and helps start-up businesses who otherwise have difficulty attracting short-term lending products.
<b>Lending Loop</b> <a href="http://www.lendingloop.ca">www.lendingloop.ca</a>	Lending Loop is an Ontario-based peer-to-peer lending platform that provides online loans. It serves a financial inclusion goal by providing credit access to certain market segments (like start-up businesses) that are historically underserved by traditional financial institutions.
<b>Lendified</b> <a href="http://www.lendified.com">www.lendified.com</a>	Lendified is an Ontario-based fintech lending platform specifically designed for small and start-up business owners who can't get credit from traditional banks and as a result go to alternative lenders and pay high fees for credit products. Its online loan application is specifically designed for entrepreneurs and provides a streamlined and fast process for loan approvals and fund disbursement.

<b>Borrowell</b> <a href="http://www.borrowell.com">www.borrowell.com</a>	Borrowell is an Ontario-based platform that provides free credit score reporting and monitoring, personalized financial product recommendations (including loans, credit cards, mortgages, and other banking, insurance, and investing products), and free credit improvement tips and credit education.
<b>Finance It</b> <a href="http://www.financeit.io">www.financeit.io</a>	Finance It is an Ontario-based fintech credit platform that provides financing for retail point of sale. It provides a credit-extension, deferred payment opportunity for individuals who may have challenges receiving similar credit from traditional banks.
<b>Ondeck</b> <a href="http://www.ondeck.ca">www.ondeck.ca</a>	Ondeck is a Quebec-based online lending platform for small businesses. It facilitates business loans for underserved segments and entrepreneurs using a simplified online application and approval mechanism. Ondeck uses a proprietary credit assessment algorithm.
<b>Easyfinancial</b> <a href="http://www.easyfinancial.com">www.easyfinancial.com</a>	Easyfinancial is a fintech platform that facilitates unsecured personal loans, secured personal loans, credit-plus savings loans, and merchant financing options.
<b>SoFi</b> <a href="http://www.sofi.com">www.sofi.com</a>	SoFi is a large U.S. digital peer-to-peer lender that uses an online application and a proprietary credit-scoring algorithm to approve borrowers and connect them to willing lenders. They also provide a variety of credit products including student loan refinancing, personal loans, and home loans as well as credit protection products.
<b>Fintech Payments and Money Transfer Services</b>	
<b>PayWith</b> <a href="http://www.paywith.com">www.paywith.com</a>	PayWith is a mobile payments platform that allows individuals to integrate multiple payments forms and rewards systems in an integrated application. The financial inclusion value with this fintech is to reduce the cost of payments using an integrated interface.
<b>RentMoola</b> <a href="http://www.rentmoola.com">www.rentmoola.com</a>	RentMoola is a fintech platform that allows tenants to pay their rent more easily through a variety of payment mechanisms that can be organized flexibly (including credit, bank account, or debit cards) where amounts are deducted from multiple payment sources. Also facilitates a reward-earning mechanism through the platform.
<b>AgilityForex</b> <a href="http://www.agilityforex.com">www.agilityforex.com</a>	AgilityForex is an online currency and international money remittance platform created as a direct response to the high fees that banks take when converting currency and transferring money internationally. It provides a low-cost, commission-free currency exchange and international remittance mechanism through a proprietary technology bypass.
<b>Mi-Pay</b> <a href="http://www.mi-pay.com">www.mi-pay.com</a>	Mi-Pay is a consumer payments integration service that facilitates fee savings by allowing consumers make secure payments and also “top up” their phone or other prepaid cards.

<p><b>Instant Financial</b> <a href="http://www.instant.co/about">www.instant.co/about</a></p>	<p>Instant Financial is a unique fintech proposition that looks to replace payday lenders through the use of technology. Like other fintechs profiled, they build financial inclusion goals in their core mission. “Our mission is to fix the pay frequency problem at its root by providing businesses and their employees with an instant pay platform and their employees with earned income access through Instant Financial app – at no cost to both”. Through an online application notice (that can run on a smartphone) combined with a no-fee “instant card,” employers can provide employees with instant access to earned pay through the app rather than in lump sums. The instant card can be used directly to make payments at point-of-sale machines or to transfer funds into a bank account. The primary financial inclusion benefit of Instant Pay is that employees who don’t have access to credit facilities can access earned income immediately, once it is earned, rather than when it is distributed at the end of pre-determined pay periods.</p>
<p><b>Remitbee</b> <a href="http://www.remitbee.com">www.remitbee.com</a></p>	<p>Remitbee is an Ontario-based online payment company that allows users to send money from Canada to foreign destinations online or via a smartphone application at lower, fixed rates than traditional financial institutions. It facilitates multiple payment options, including Interac online, Visa debit, Mastercard debit, and bank accounts.</p>
<p><b>QicSEND</b> <a href="http://www.qicsend.com">www.qicsend.com</a></p>	<p>QicSEND is an Ontario-based online payment company that allows for instant, low-cost international money transfers via the Internet through a mobile phone. It has low fixed fees and makes it simple and affordable for people who have to make frequent international payments.</p>
<p><b>FreshEBT</b> <a href="http://www.freshebt.com">www.freshebt.com</a></p>	<p>FreshEBT is a U.S.-based fintech application that allows users to “manage your benefits, save money, and earn income in all one place.” It allows a financial inclusion mechanism by making it “easy and secure to check your food stamp balance on your phone” and also integrates coupons, as well as a job search functionality and freelance income opportunities.</p>
<p><b>TransferWise</b> <a href="http://www.transferwise.com">www.transferwise.com</a></p>	<p>TransferWise is a fintech company whose mission is “to bring transparency to finance. We charge as little as possible, and we always show you upfront. No hidden fees. No bad exchange rates. No surprises.” It serves financial inclusion goals by lowering the cost of money transfers and is available for use in Canada (despite being a foreign platform). International money transfers are an important part of the financial behaviour of many Canadians living on low incomes, including many recent immigrants.</p>
<p><b>Cybersecurity and Identity Verification</b></p>	
<p><b>Trulioo</b> <a href="http://www.trulioo.com">www.trulioo.com</a></p>	<p>Trulioo is a global identification verification service that is also designed specifically to serve financial inclusion goals. Trulioo provides electronic identity verification, ID document verification, business verification, AML watchlist checks, and data partnerships.</p>

<p><b>Plurilock</b> <a href="http://www.plurilock.com"><u>www.plurilock.com</u></a></p>	<p>Plurilock is a biometric identification authentication company. It uses machine learning and “behavioral-biometric data” combined with “ambient data factors” to confirm identities. The use of technology to verify identity can help remove a barrier to access for many people who are unbanked and underbanked.</p>
<p><b>Finn AI</b> <a href="http://www.finn.ai"><u>www.finn.ai</u></a></p>	<p>Finn AI is an established artificial intelligence company that provides fintech banking products, including virtual financial assistants, text/voice inputs/natural language processing, machine learning (decision-making and response) to make online banking easier for customers. This approach has positive implications for individuals who are unbanked and underbanked and who may have lower levels of financial literacy.</p>
<p><b>ConfirmU</b> <a href="http://www.confirmu.com"><u>www.confirmu.com</u></a></p>	<p>ConfirmU is a Singapore-based “data analytics” fintech that allows potential lenders to “score people with no financial history through alternative credit scoring.” ConfirmU’s financial inclusion mission states “[t]here are 3 billion consumers worldwide that cannot access the financial services they need because credit risk assessment depends on historic payment information. This means that a consumer cannot access credit unless they have had credit before. We believe this is wrong and that everyone should be able to access the products and services they need regardless of age, location or past performance.”</p>
<p><b>Wealth Management Advice and Investing</b></p>	
<p><b>CI Direct Investing</b> <a href="http://www.cidirectinvesting.com"><u>www.cidirectinvesting.com</u></a></p>	<p>CI Direct Investing is an online brokerage that also provides a “robo-advisor” service (algorithmic wealth management application). CI Direct Investing is a platform that furthers democratization efforts in wealth management services, which prior to the internet were historically only available to wealthy individuals. This evolution has obvious financial inclusion benefits since individuals otherwise precluded from investing and investment advice can gain access to professional wealth management services at low net worth and asset thresholds and at very low costs. The platform allows for low account minimums (for opening accounts), flat rate monthly fees, and access to professional advisors, and model portfolios.</p>
<p><b>ModernAdvisor</b> <a href="http://www.modernadvisor.ca/advantage"><u>www.modernadvisor.ca/advantage</u></a></p>	<p>ModernAdvisor is a robo-advisor (algorithmic wealth management application) that facilitates the construction of “ultra-low-cost portfolios” with small account opening minimum thresholds. This can serve as a financial inclusion device for individuals who, because of the traditional high fees and minimum account standards of bank-offered investment and wealth management, are otherwise precluded from opening an account. Also provides a very simple investment decision-making process to assist individuals who are not financially literate.</p>
<p><b>Vested</b> <a href="http://www.vested.ca/"><u>www.vested.ca/</u></a></p>	<p>Vested is an equity crowdfunding site that allows small businesses to raise capital from a wide range of investors, and investors to invest online for as little as \$100. Could facilitate financial inclusion goals for individuals with low income looking to raise capital for new businesses and facilitate low-threshold investment opportunities for people without high net worth.</p>

<b>Moka</b> <a href="http://www.moka.ai/">www.moka.ai/</a>	Moka is a Montreal-based fintech company that facilitates financial inclusion by providing a no-account size minimum investment platform. The platform links a bank account to a smartphone application and allows customers to round up their everyday purchases and invest the “spare change” in a low-fee index fund. The platform also provides for financial planning services at no additional cost to consumers
<b>Coinsquare</b> <a href="http://www.coinsquare.com">www.coinsquare.com</a>	Coinsquare is one of Canada’s largest crypto-asset trading platforms. It allows customers with no account minimums an access point to an alternative investment class, including a variety of decentralized crypto-currencies like Bitcoin and Ethereum.
<b>NDAX</b> <a href="http://www.ndax.io">www.ndax.io</a>	Alberta-based NDAX is also one of Canada’s largest crypto-asset trading platforms. It allows customers with no account minimums an access point to an alternative investment class, including a variety of decentralized crypto-currencies like Bitcoin and Ethereum
<b>Nest Wealth</b> <a href="http://www.nestwealth.com">www.nestwealth.com</a>	Nest Wealth is an Ontario-based robo-advisor that provides portfolio composition and planning services, capped management fees (regardless of account size), and an automated rebalancing option. It uses low-cost investment products like exchange traded funds (ETFs). Its mission is to “empower wealth management firms and individual advisors to provide and manage virtually any investment for any investor through any distribution channel.”
<b>Justwealth</b> <a href="http://www.justwealth.com">www.justwealth.com</a>	Justwealth is an Ontario-based low-fee robo-advisory platform that describes itself as, “Canada’s most comprehensive online portfolio management platform, committed to providing honest, smart and cost-effective wealth management.”
<b>Wealthsimple and Wealthsimple Trade</b> <a href="http://www.wealthsimple.com/en-ca/">www.wealthsimple.com/en-ca/</a>	Wealthsimple and Wealthsimple trade are two sister companies that offer algorithmic wealth management advice, and exposures to crypto-assets. They provide clients of all income and net worth levels access to professional investment products and financial planning advice. These platforms serve financial inclusion goals by enhancing savings and generating low-fee model portfolios based on the results of questionnaires and other provided customer data.
<b>Planswell</b> <a href="http://www.planswell.com">www.planswell.com</a>	Planswell is a Toronto-based free financial planner that provides investment, budgeting, financial planning, and credit counselling online. It can serve financial inclusion goals by educating individuals who are underbanked and unbanked about financial planning, investments, loans, and other financial products and services.
<b>HodlBot</b> <a href="http://www.hodlbot.io">www.hodlbot.io</a>	HodlBot describes itself as a “a customizable cryptocurrency trading bot that enables users to index the market, create custom portfolios, and automatically rebalance their cryptocurrency portfolio” It serves a financial

	inclusion purpose by providing “institutional portfolio management software” that is free for account values under \$500.
<b>Robinhood</b> <b>www.robinhood.com</b>	The U.S. based Robinhood technology brokerage platform is one of the first technology platforms to offer a commission-free trading environment. It serves financial inclusion goals by extending access to the purchase of investment products with no commission costs.

