



## SCOTIABANK DIGITAL BANKING LAB

Scotiabank gives \$3 million to create Scotiabank Digital Banking Lab at Ivey Business School, Western University

# FinTech 101: What Policymakers Need To Know

Prof. Michael R. King ([mking@ivey.ca](mailto:mking@ivey.ca))

Co-Director, Scotiabank Digital Banking Lab @ Ivey

April 4, 2017

# Today's Agenda



Scotiabank  
Digital Banking Lab

Day	Session	Speakers
11:30 – 12:00	Arrival and registration	
12:00 – 1:00	Buffet Lunch and Opening Talk: “Understanding Canada’s FinTech Ecosystem”	Prof Michael King Ivey Business School
1:00 – 1:20	Peer-to-Peer Lending	Lendified (Troy Wright) LendingLoop (Cato Pastoll)
1:20 – 1:40	Equity Crowdfunding	CrowdMatrix (Rubson Ho)
1:40 – 2:00	Robo-Advisors and wealth management	Nest Wealth (Randy Cass)
2:00 – 2:30	Blockchain 101: An Interactive Simulation	Paycase (Michael Young)
2:30 – 2:45	Break	
2:45 – 3:05	Blockchain	Nuco (Matthew Spoke)
3:05 – 3:25	Digital Payments	Plutoo (Hamed Abbasi)
3:25 – 3:45	Regtech / Cybersecurity	SecureKey (Andre Boysen)
3:45 – 4:00	Break	
4:00 – 5:00	Incubators, Accelerators & Investors	MaRS (Dinaro Ly) Portag3 (Sue Britton) OneEleven (Bilal Khan) ScaleUp Ventures (Matt Roberts)
5:00 – 6:00	Reception and networking event with FinTech community	ALL SPEAKERS AND PARTICIPANTS + guests from FinTech community



**Amy**



**J.P.**



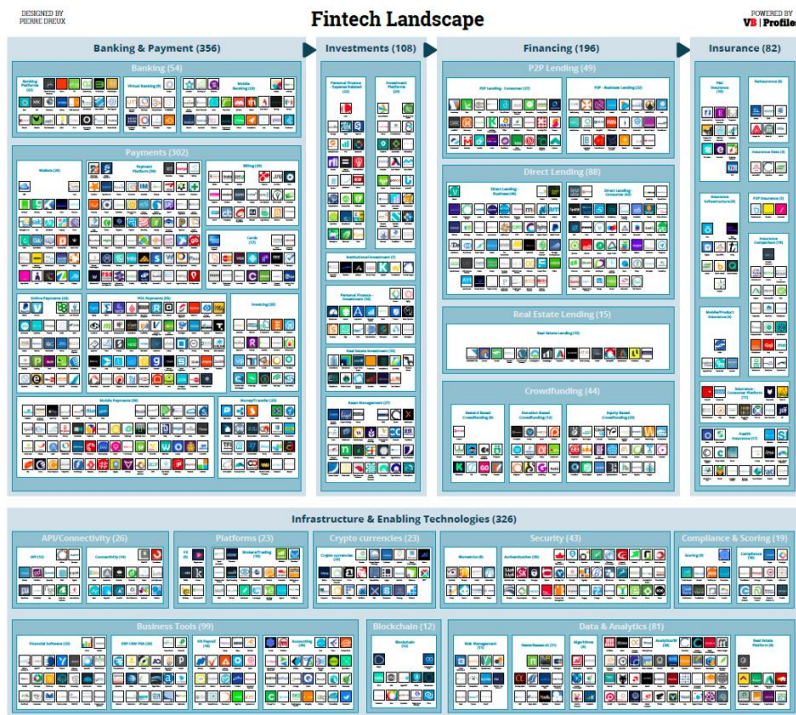
**Chuck**

- Founded April 2016 with a \$3 million gift from Scotiabank over 10 years with two co-Directors (Profs. M King & JP Vergne)
- Three objectives:
  1. **Research:** practitioner-focused & academic
  2. **Education:** students & public
  3. **Outreach:** alumni, practitioners, public sector & media
- Key annual deliverables:
  - Student projects, internships, hackathon & case competitions
  - Speaker series (Jun 1, 2017), practitioner conference (Jun 23, 2017)
  - Academic conference (Oct 21-22, 2017), refereed publications & cases

<https://www.ivey.uwo.ca/scotiabank-digital-banking-lab/>

# THINKING ABOUT FINTECH

# FinTech: the **digital** delivery of **financial products & services** through the **internet** or a **mobile phone**



In USA:  
 1000+ Companies  
 \$105 billion in funding  
 (2015 \$38 billion  
 2014 \$17.8 billion)

Source: Citibank (March 2016) "Digital Disruption – How FinTech is Forcing Banking to a Tipping Point"



# CANADA FINTECH ECOSYSTEM

200-300 Companies

\$1 billion in funding since 2010

## Incubators:

Creative Destruction Lab

Next 36 / NextAI

Ryerson DMZ

Velocity

## Accelerators:

Communitech

Diagram

OneEleven

Ryerson Futures

ScaleUp

## Hubs:

MaRS FinTech



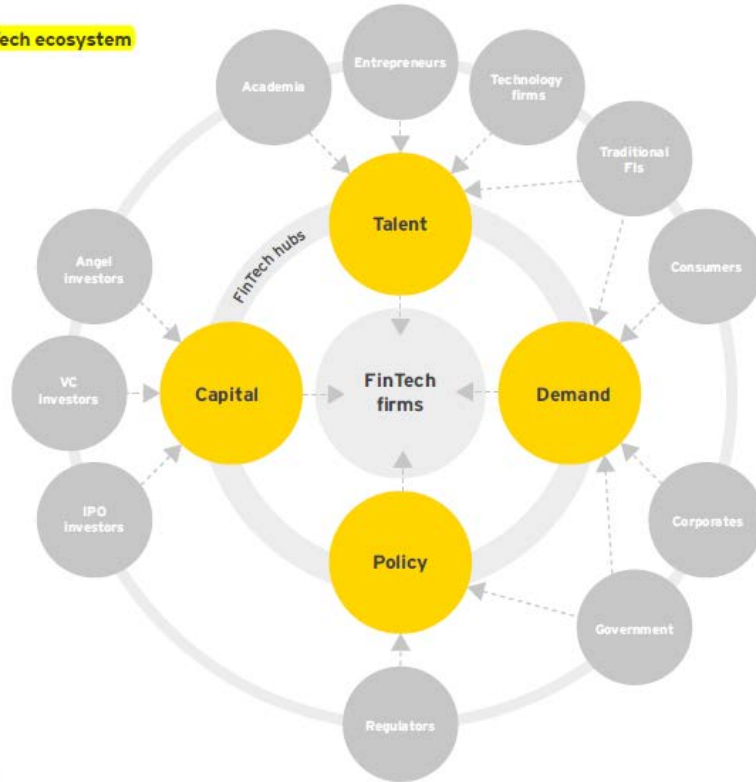
Source: <http://crowdmatrix.co/home/canadian-fintech-ecosystem/>

# How to Think about FinTech

- Distinguish three business segments:
  1. **Products & services**: digital currencies, peer-to-peer lending (Lendified, LendingLoop), crowdfunding (CrowdMatrix), robo-advisors (Nest Wealth), insurtech, real estate, accounting, etc.
  2. **Infrastructure & platforms**: payments & money transfer (Paycase, Plooto), Blockchain (Nuco), capital markets, cybersecurity (SecureKey), digital ID
  3. **Regulation & procurement**: RegTech, ProcTech
- Distinguish three customer segments:
  1. **B2C**: FinTech startups targeting retail looking to disrupt incumbents or serve new segments (i.e. LendingLoop, Lendified, CrowdMatrix)
  2. **B2B**: FinTech startups providing IT solutions to incumbents, looking to partner / collaborate (e.g. Nest Wealth, Nuco, Plooto, SecureKey )
  3. **C2C**: Customers transferring funds internationally, incl. remittances (Paycase)

# FinTech Ecosystem

Figure 1: The FinTech ecosystem



Four core attributes of well-functioning FinTech ecosystem:

- **Talent**: the availability of technical, financial services and entrepreneurial talent.
- **Capital**: the availability of financial resources for start-ups.
- **Policy**: government policy towards regulation, tax and sector growth
- **Demand**: end-client demand across consumers, corporates and financial institutions.



# Example of one bank's ecosystem

Building out a  
rich partner  
ecosystem

Scotiabank  
Digital Banking  
Update

February 2, 2017



Leveraging startups, tech companies, universities, VCs, industry consortiums...

# Domestic Innovation Landscape



Most Active it has been in Decades; but still Small and Niche  
Family Office & Corporate Could be Growth Sectors

# FinTech Hubs Globally

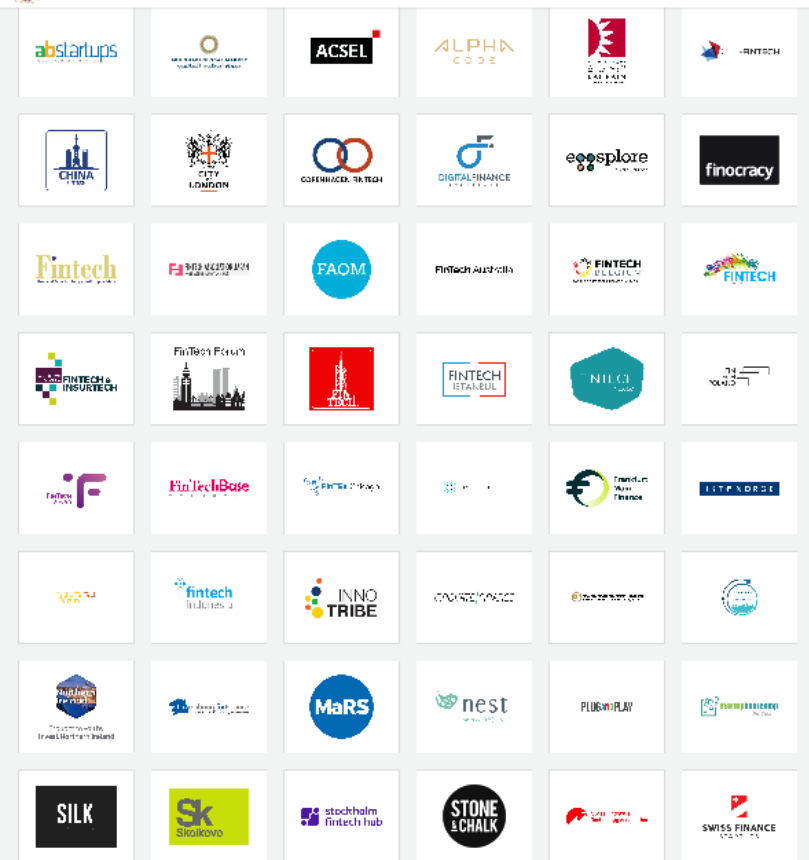


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GLOBAL FINTECH HUBS  
FEDERATION

ABOUT US MISSION PARTICIPANTS [FEDERATION](#) BENEFITS CONTACT US Q



Hub	Hub Representative
Belgium	<a href="#">Egsplore</a>
Canada	<a href="#">FinTech Association of Canada</a>
France	<a href="#">Paris FinTech Forum</a>
Frankfurt	<a href="#">FinTech Forum</a>
Holland	<a href="#">Holland FinTech</a>
Hong Kong	<a href="#">FinTech HK</a>
India	<a href="#">Nathan Associates India</a>
Ireland	<a href="#">Deloitte Ireland</a>
Israel	<a href="#">Startup Nation Central</a>
Kenya	<a href="#">NEST Nairobi</a>
London	<a href="#">Innovate Finance</a>
Luxembourg	<a href="#">Luxembourg for Finance</a>
Mexico	<a href="#">FinTech Mexico</a>
New York	<a href="#">Partnership Fund of NYC</a>
Shanghai	<a href="#">Silk Ventures</a>
Silicon Valley	<a href="#">500 Startups</a>
Singapore	<a href="#">Monetary Authority of Singapore</a>
South Africa	<a href="#">Techstars</a>
South Korea	<a href="#">Deloitte South Korea</a>
Sydney	<a href="#">Stone &amp; Chalk</a>
Switzerland	<a href="#">Swiss Finance + Technology Association</a>

Source: <http://thegfhf.org/>

# Canada

## Hub profile



The FinTech industry in Canada has been gaining considerable momentum in recent years. Toronto boasts the largest Financial Services sector in Canada, followed by Montreal and Vancouver. The technology spend in this sector is growing rapidly, on pace to reach nearly \$15bn CAD by 2018. Canadian FinTech companies are attracting increasing attention on both a local and international stage, as waves of investment capital is constantly reinvigorating the organic growth of the industry.



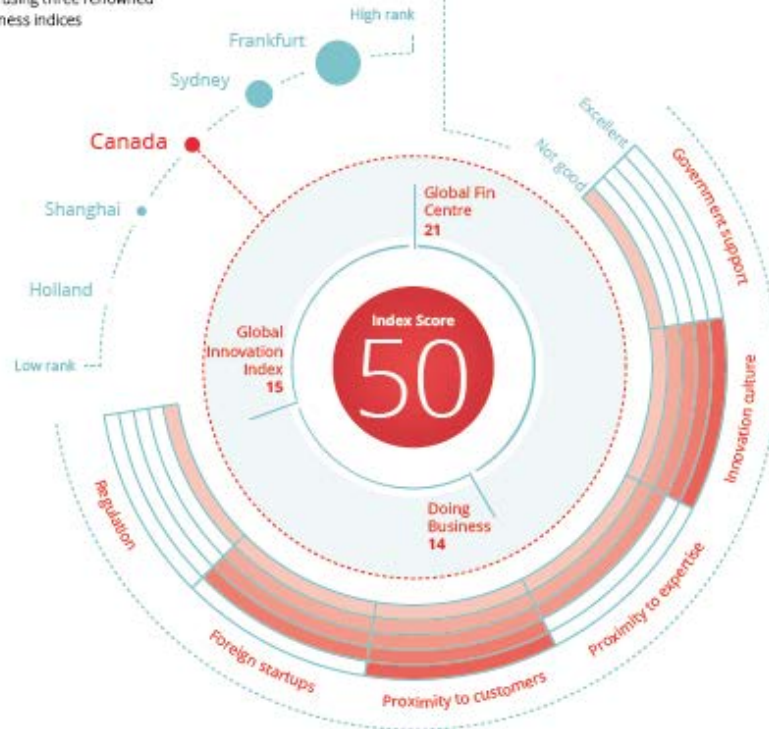
**Hub representative:**  
 FinTech Association of Canada  
**Founder and Executive Director:**  
 Christine Duhaime

### Index Performance Score

The aggregate rank of the Hub using three renowned business indices

### Hub indicators

Self-evaluation of the Hub in six key areas



# TOWARDS A FINTECH STRATEGY FOR CANADA

# Towards a FinTech Strategy for Canada (1)



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- Nov 30, 2016: Amy Young & I met with 18 FinTech stakeholders to debate strategy for Canada's FinTech sector incl. potential interventions, who should do what & key steps.
  - Also held meetings with: regulators; startups; VCs, incubators, accelerators, & hubs; federal govt,...
- Canada has many of elements required to support a vibrant FinTech ecosystem.
- Key shortcoming: **Absence of clearly defined FinTech strategy championed by federal government.**
- Two models are the FinTech strategies published by the United Kingdom and Australia, both in 2016.



# Towards a FinTech Strategy for Canada (2)



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UK developed a FinTech strategy over two years:

- Sep 2012 Accenture & banks launch *FinTech Innovation Lab* with support of **City of London & Innovate UK**.
- Dec 2013 **PM Cameron** holds meetings with 30-40 companies to discuss making UK centre for FinTech globally
- 2013 **UK Trade & Industry (UKTI)** launches [Financial Services Organisation](#) to attract FinTech startups to London
- June 2014 **Financial Conduct Authority (FCA)** announces Project Innovate, consisting of Innovation Hub & regulatory sandbox, to help FinTechs
- Aug 2014 **Chancellor Osborne** launches industry body *Innovate Finance* to promote UK fintech sector with 50 members. Supported by **City of London**. Ernst & Young releases FinTech study commissioned by **UKTI**.

# Towards a FinTech Strategy for Canada (3)



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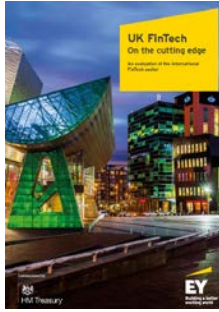
April 2016: UK Treasury outlined key elements of FinTech strategy:

- Create an industry-led FinTech panel
- Identify FinTech niches to gain competitive advantage
- Provide open access to bank data (Open API); see EC's PSD2
- Attract foreign talent via Tech Nation Visa Scheme
- Provide regulatory relief and consulting (FCA Project Innovate "sandbox")
- Provide access to professional services at reasonable cost
- Champion industry in delivering a Pensions Dashboard
- Build bridges to FinTech clusters abroad



# Case Study: United Kingdom (2)

Dec 2016: UKTI flies eleven Canadian FinTechs to London for 5-days of meetings with govt, regulators, VCs, & banks (Barclays, Lloyds, RBS): Blockchain Technology, Control, Grow Financial, Horizn, Kooltra, Lendified, Q4 Inc, RentMoola, Sensibill, Veriday, & Zafin.



## INNOVATE FINANCE PARTNERS WITH HARTREE CENTRE AND IBM ON BLOCKCHAIN LAB

Wednesday / 16th September / 2015



**Innovate Finance**, the Level39 member and independent membership association serving the global FinTech sector, recently announced it will establish a blockchain lab in partnership with the **Hartree Centre**, the research facility funded by the UK Government's Science and Technology Facilities Council as a research collaboration in association



Start-up Environment:				
Government Support				
Private/VC Funding				
Skills / Talent				
Business Environment				

# Towards a FinTech Strategy for Canada (4)



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In March 2016, Australia's Treasurer published report outlining FinTech Strategy in "Backing Australian FinTech". Key elements are:

- Define and promote a FinTech strategy
- Create a FinTech Advisory Group
- Provide federal government support for innovation
- Introduce funding and tax incentives
- Develop local talent and attract foreign entrepreneurs
- Provide support for incubators
- Reform insolvency laws to encourage angel investment
- Promote FinTech exports and partnerships
- Address data accessibility and cybersecurity
- Establish a regulatory sandbox and innovation hub
- Ensure regulation is technology neutral
- Provide support for crowdfunding, robo-advice, and digital currencies
- Encourage government procurement of FinTech

# FinTech Scorecard (1)



Ecosystem Attribute	Categories	Sub-Category
TALENT	Talent availability	Technical training (STEM programs)
		Financial expertise
		Entrepreneurs domestically
	Talent pipeline	Academia & curriculum initiatives
		Immigration / VISAs for tech employees
		Programs targeting foreign entrepreneurs
CAPITAL	Seed capital	Angel investors
		Incubators and Accelerators
		Angel tax incentives
		Affordable office space
	Growth capital	Size of VC funds
		Investor attitudes / risk appetite
		FinTech specialization
		VC tax incentives
	Listed capital (IPO)	Size & number of stock exchanges
		Research coverage
		IPO / Listing fees
		Tech valuations

# FinTech Scorecard (2)

Ecosystem Attribute	Categories	Sub-Category
POLICY	Regulatory Regime	Simple, transparent & easy to navigate
		Activist and collaborative
		Clear accountability across jurisdictions & products
		Dedicated FinTech team with expertise
		Regulatory sandbox and innovation hub
	Government Programs	Opening up FS to new entrants
		Access core infrastructure & data
		Attracting foreign FinTechs
		Ease of setting up business
		Strategy on cybersecurity
		FinTech steering group + budget
	Tax policy	Promote investment & funding
		Promote start-ups
		Incentivise entrepreneurship
		Innovation & R&D tax incentives

# FinTech Scorecard (2)

Ecosystem Attribute	Categories	Sub-Category
DEMAND	Consumer (B2C)	FinTech adoption & use
	Corporate (B2B)	Size and # of SMEs
		SME adoption of Tech & FinTech
		Corporate adoption of Tech & FinTech
		Government adoption of Tech & FinTech
	Financial Institutions (FIs)	Size and number of FIs
		Adoption of Technology and FinTech
		Partnerships with FinTech
		Incubators for FinTech
		FIs with Corporate venture vehicles

- Canada appears to be on its way to addressing some of these elements

# Two key reports on Canada

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

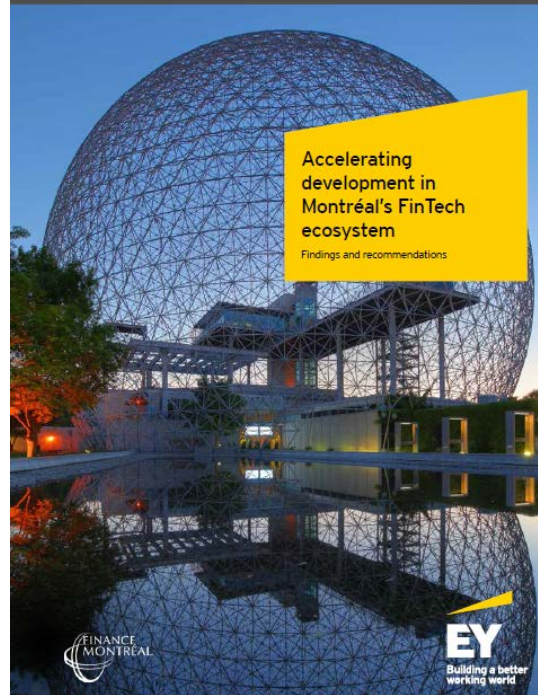
A REPORT FROM THE INNOVATION POLICY LAB  
MUNK SCHOOL OF GLOBAL AFFAIRS  
UNIVERSITY OF TORONTO  
PREPARED BY DAN BREZNITZ, SHIRI BREZNITZ  
AND DAVID A. WOLFE

MUNK SCHOOL OF GLOBAL AFFAIRS  
UNIVERSITY OF TORONTO

Innovation Policy Lab  
A 360 view of innovation

PREPARED WITH THE SUPPORT OF:

TFSA



Good and bad news:

- Two reports available examining FinTech ecosystems in Toronto & Montreal
- Third report on the way

Why does Canada have reports at level of cities, when UK & Australia have reports for country?

...Lack of federal champion or national strategy!

TFSA | TORONTO FINANCIAL SERVICES ALLIANCE

<http://www.tfsa.ca/>

FINANCE MONTREAL

<http://www.finance-montreal.com/>

# Where is the Canadian govt?

Feb 2015: MaRS launches FinTech Cluster

Jun 2015: Digital Finance Institute holds first Cdn FinTech conference

Sep 2015: Canadian banks join R3 consortium (blockchain)

Nov 2015: Munk School publishes critical FinTech report (TFSA)

***Mar 2016: Cdn budget focuses on middle class, innovation, cleantech***

May 2016: Competition Bureau launches FinTech study

Aug 2016: FINTRAC Director expresses concern about FinTech

Oct 2016: OSC launches regulatory sandbox for FinTech (OSC LaunchPad)

Dec 2016: UKTI flies eleven Canadian FinTechs to London

Jan 2017: OSC names first FinTech advisory committee

***Mar 2017: Cdn budget focuses on middle class, innovation, digital, agri-food***

...No clear federal champion or national strategy!

# POLICY PERSPECTIVE ON FINTECH



# Risks of different business models



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Model	Traditional	FinTech start-up	Revenue model	Risks
Principal	<p>Dealer / Market Maker (e.g. Goldman Sachs)</p> <p>Counterparty (e.g. Manulife)</p>	<p>P2P lending</p> <p>Insurtech</p>	<p>Risk-taking</p> <p>Market positions</p>	<p>Credit, market, interest rates, FX, liquidity, funding, etc.</p> <p>Systemic</p>
Agent Inter- mediary	<p>Broker (e.g. Charles Schwab)</p>	<p>Crowdfunding</p> <p>Robo-advisors / Wealth mgt</p>	<p>Fees and commissions</p>	<p>Reputation</p> <p>Operational</p>
Back- office	<p>Depository (e.g. CDS, DTCC)</p> <p>IT department</p> <p>Payments infrastructure</p>	<p>Blockchain</p> <p>Digital payments</p> <p>RegTech</p> <p>Cybersecurity</p>	<p>Fees</p>	<p>Reputation</p> <p>Operational</p> <p>Systemic</p>

# Is FinTech a disruptor or an enabler?

- **Disruptor**: something that prevents something a system, process, or event from continuing as usual (or as expected)
  - e.g. Air travel was disrupted after Eyjafjallajökull erupted in 2010.
- **Enabler**: something that makes it possible for a particular thing to happen or be done
  - e.g. Technology is an enabler for better customer experiences.
- FinTech is a **Cost** disruptor, a **Revenue** disruptor & a **Revenue** enabler

# Background: Financial targets for Big 6 banks



- Canada's banks communicated targets for **earnings growth of 5%-10% p.a.**
  - Maintain **ROE of 14%-20%**, **high dividend payouts** and **strong capital ratios**
  - Canada's **GDP forecast to grow below 2% p.a.**; world GDP 3.0-4.0% p.a.
  - Canadian households at historically **high levels of debt to disposable income**
  - Foreign banking markets feature **high competition**

Financial Target	RBC	TD	BNS	BMO	CIBC	NBC
EPS Growth	7%+ (diluted)	7-10%	5-10%	7-10% (adjusted)	5%+ (diluted)	5-10% (diluted)
ROE	16%+	Above peer return	14%+	15%+	15%+	15-20%
Operating Leverage	-	Positive	Positive	2%+	-	-
Efficiency Ratio	-	-	50% by 2021	-	55% by 2019	-

Source: company annual reports.

- Banks have been **reducing costs by automating** standard tasks for many years
  - Both for retail (i.e. ATMs) and wholesale (i.e. straight-through processing)
  - IT investment also focused on internal processes (i.e. reporting, document management, credit checks)
- Bank **efficiency ratios declined but leveled off**; can digital squeeze them lower?
- **Operating leverage slowing or negative** (costs growing faster than revenues)
- FinTech can help banks **lower costs**:
  - **Attract cheaper deposits** online (e.g. Marcus by Goldman Sachs)
  - **Reduce overhead**; fewer branches with **more efficient staff**
  - **Re-engineer** complex, fragmented business processes
  - **RegTech** to manage regulatory burden; **ProcTech** for procurement

# FinTech as **REVENUE** disruptor (1)

- FinTech startups have targeted **Personal and SMEs** customer segments
  - Represent 46% of global bank profits
  - Attracted 73% of capital deployed in FinTech sector



- Despite \$17b of investment, only 1% of N. American consumer banking revenue migrated to new digital models → banks remain dominant

Source: Citibank (March 2016) "Digital Disruption – How FinTech is Forcing Banking to a Tipping Point"

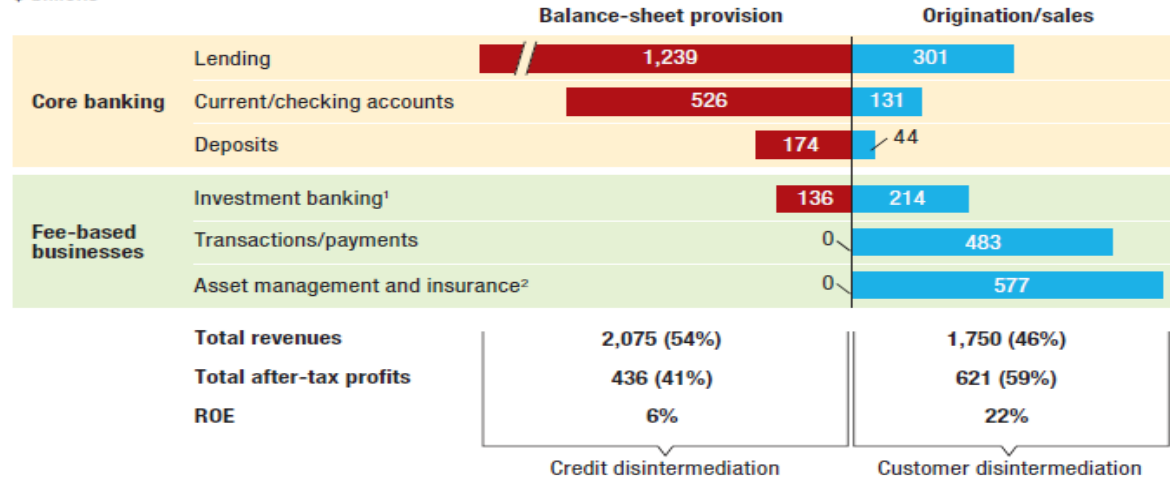
# FinTech as REVENUE disruptor (2)

- Media widely reported **60% of bank profits are at risk from FinTechs** – a typical misrepresentation of a statistic.

Exhibit 3

Origination and sales – the focus of non-bank attackers – account for ~60% of global banking profits

Global banking revenues and profits by activity, 2014  
\$ billions



<sup>1</sup> Corporate finance, capital markets, securities services

<sup>2</sup> Asset management includes investment and pension products. Insurance includes bank-sold insurance only.

Source: McKinsey Panorama – Global Banking Pools

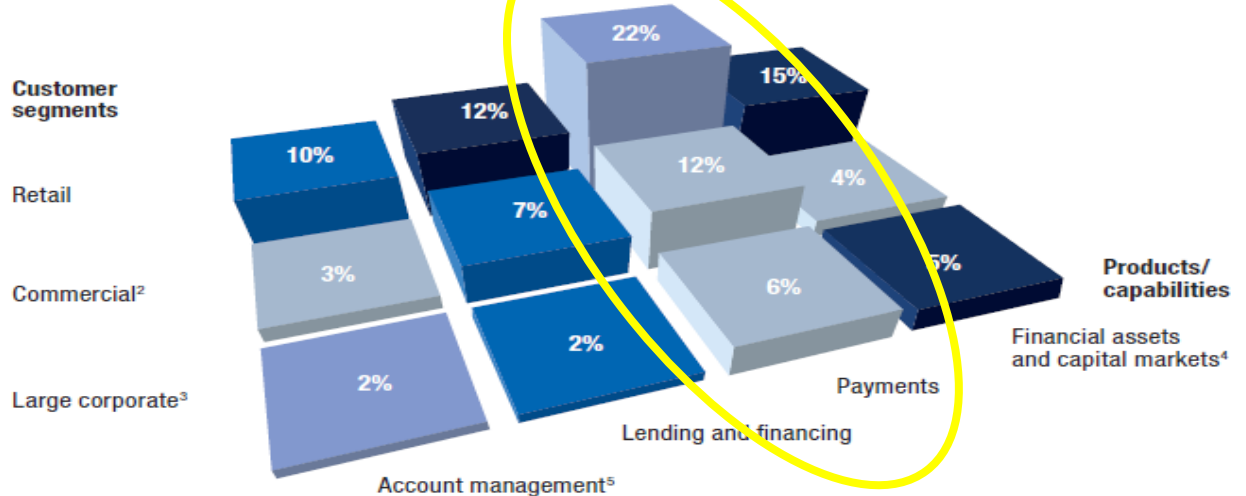
# FinTech as **REVENUE** disruptor (3)

- Many start-ups staffed / backed by ex-bankers who understand weak spots
- Tech giants seizing opportunity (Alibaba, Tencent, Apple, Google, FB, etc.)
- Best opportunity to disintermediate clients appears to be retail payments

Exhibit 2

FinTechs are making significant inroads into retail banking

Percent of total FinTech innovations<sup>1</sup>



# FinTech as **REVENUE** disruptor (4)



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- But **barriers to entry remain high**
  - Customer acquisition
  - Stable funding sources
  - Regulatory hurdles (and eventually compliance)
  - Trust and cybersecurity
  - Talent access and retention



# FinTech as **REVENUE** enabler

- FinTech start-ups form **partnerships** with deep-pocketed incumbents
  - Scotia / Kabbage, CIBC / Borrowell, Power Finl / Wealth Simple, JPMorgan / OnDeck
  - Successful FinTech startups **‘white label’** innovative customer offerings
  - Banking and financial services become more affordable / accessible
- Tech giants push into ‘shadow banking’ using **superior customer analytics** to sell financial products (payments, P2P, robo-advice)
- Banks collaborate to create **new standards + barriers to entry** (R3, Ripple)
- Regulators play catch-up

# How are Canadian banks collaborating?



# RBC Example: ApplePay and Siri



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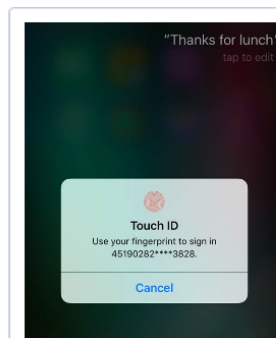


## RBC first Canadian bank to launch *Interac* e-Transfer® using Siri



**New RBC Mobile app capability further strengthens RBC's market leading position in the payments and mobile space**

**TORONTO, March 7, 2017** - Sending money is now as easy as saying "Hey Siri, send Pat \$20", as Royal Bank of Canada ("RBC") launches money transfers with Siri for its personal banking clients. This innovative money transfer solution is now available through an update to the RBC Mobile app for iPhone and iPad. Building on its market leading, free person-to-person money transfer services for chequing account clients launched last year, RBC continues to develop simple and innovative ways for clients to make payments and bank with their mobile devices.



"It's our goal to continue to be part of the everyday mobile experiences of our clients by adding more convenient and seamless ways to send money and bank with RBC," said Sean Amato-Gauci, executive vice-president, Digital, Payments and Cards, RBC. "Building on the explosive growth of our free person-to-person payments products, we're excited to provide the ability for our clients to now send free money transfers from their chequing accounts using Siri."

### Using Siri to send money with RBC

Also: American Express, ATB Financial, BMO, CIBC, Canadian Tire Bank, Desjardins, PC Financial, Scotiabank, TD

# Final Thoughts...

- Financial services sector accounts for 4.4% of employment and 7.0% of GDP in 2015, highest in G7 → Vital sector for Cdn economy
- Other countries formulated & communicated a national FinTech strategy.
- In each case, strategy is championed by national government in consultation with private sector.
- Domestic market size is not an obstacle – as seen with Australia, HK, Israel, Singapore – but a key part is to promote FinTech exports & partnerships
- Most activity seen in past 18 months

Canada needs a national champion  
& a strategy!

...No time to be complacent



Visit us at:

<http://www.ivey.uwo.ca/scotiabank-digital-banking-lab/>



**June 1**: Speaker Series – Dino Trevisani, IBM Canada

**June 23**: The Future of Banking and Financial Services

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