



SWIFT INSTITUTE

2017 ANNUAL REPORT

SUMMARY:

In 2017 the SWIFT Institute celebrated its fifth year. So far it has awarded 38 research grants, 27 of which are completed with papers published. A total of eight proprietary conferences have been held, whilst the Institute has participated in more than 30 SWIFT and third party events. Recent grants and event topics have included a focus on FinTech related areas (e.g. Blockchain, digital currencies) and cyber security.

The SWIFT Institute continues to evolve and is currently in the midst of the second annual Student Challenge, whereby university students devise solutions related to global banking issues. New in 2017 is the Institute's endorsement of third-party executive education courses.

At Sibos Toronto the Institute will bring experts from academia (and industry) to present new research and share insights on cyber, artificial intelligence, regulation, diversity and the future of transaction banking (amongst other topics).

Issued by: Peter Ware

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1. OVERVIEW

The SWIFT Institute launched in April 2012, with the aim of bridging the gap between academia and the financial industry. Over the past five years the Institute has awarded 38 research grants on topics ranging from RMB internationalisation to mobile banking in Africa to Blockchain in the securities space to SWIFT's own interbank payments network. All of our completed papers are available on www.swiftinstitute.org. In the spirit of expanding knowledge, Institute research is freely available and can be disseminated to all.

In recent years grants have been issued on cyber security, digital currencies, US and EU compliance law, API's, a comparison of FinTech in China and the West, and financial crime mitigation. New research topics being considered for potential grants in the future include instant payments, artificial intelligence, digital identity and the internet-of-things.

A core aim of the Institute is to bring academia and the financial industry together to debate with and learn from each other. Over the past five years eight SWIFT Institute conferences have been held, in partnership with institutions such as Harvard, the London School of Economics and Singapore's Nanyang Technological University. Two conferences held in 2017 (March in London and August in Singapore) focused on cyber security and each attracted nearly 200 delegates primarily from the financial community.

The Institute increasingly brings speakers and content from academia to SWIFT events (e.g. Business Forums and Regional Conferences in Toronto, Kuala Lumpur, Mauritius, and Athens) and third-party events (e.g. ISITC and Finextra). Sibos has become the Institute's biggest annual showcase with an ever expanding programme. Sibos Toronto will see the Institute have a dedicated room for the first time, and 20 sessions held across the four days. Experts from academia (and industry) will present new research and share insights on cyber, AI, regulation, diversity and the future of banking (amongst other topics).

We are currently in the midst of the second annual Student Challenge. Launched in the UK in 2016, university students are asked to devise solutions to global banking issues. The 2017 challenge is open to students of Canadian universities, and is focused on cyber security. This year's challenge will culminate at Sibos Toronto.

A new initiative launched in 2017 is the Institute's endorsement of third-party executive education courses. Three courses have been endorsed: FinTech for Bankers by Imperial College London, Payments Certification by the London Institute of Banking and Finance, and Capital Markets Operations by Financial Market Training.

2. ADVISORY COUNCIL UPDATES

The SWIFT Institute is overseen by an Advisory Council, comprising leading academics and financial industry experts. Over the past five years the Council has evolved, and in 2017 welcomed two new members:

Stella Cramer – Partner, Global Technology & Innovation, Norton Rose Fulbright

Stella is a technology and innovation lawyer based in Singapore, and is the Co-Head of the technology and innovation practice for Asia, Head of the FinTech Practice for Asia and Head of Risk Advisory for Asia. She advises global financial institutions and major corporates in the region on complex transformational technology and commercial transactions, outsourcings, global compliance programmes, and complex regulatory projects and incidents, including data privacy, cybersecurity, FinTech, RegTech and emerging technologies, across Asia.



Soumitra Dutta – Dean, College of Business, Cornell University

Professor Dutta is the founding Dean of the College of Business at Cornell University, New York. From July 2012 till June 2016, he was the Anne and Elmer Lindseth Dean of the Samuel Curtis Johnson Graduate School of Management. Previously, he was on the faculty of INSEAD. He is an authority on technology and innovation policy and is the co-editor and author of the Global Information Technology Report, published by the World Economic Forum and the Global Innovation Index, published by the World Intellectual Property Organization.

Existing members of the Advisory Council are:

- *Ron Berndsen* – Head of the Oversight Department of De Nederlandsche Bank, Amsterdam and attached to the department of Economics at the University of Tilburg as an endowed professor of Financial Infrastructure and Systemic Risk
- *John Trundle* – Chief Executive Officer, Euroclear UK and Ireland Ltd.
- *Bruce Weber* - Dean of the Lerner College of Business and Economics at the University of Delaware
- *Yawar Shah* – Chairman of the Board of Directors, SWIFT and Chief Operating Officer, Customer Intelligence, Citi
- *Gottfried Leibbrandt* – Chief Executive Officer, SWIFT

3. RESEARCH

38 research grants have been issued to date, with 27 completed papers published. For full details of all research grants issued and their status, refer to Appendix A. All published papers are freely available to download and share at www.swiftinstitute.org.

3.1. Published Research

Regulatory Focus on Competition and Innovation in Payments Services

The research asked whether Australian regulation, aimed at encouraging competition and innovation, conflicts with requirements for KYC, AML/CTF and privacy protection. A disjoint was noted between the authorities that implement the AML/CTF legislative regime and those that implement privacy, innovation and competition legislation. The disjoint often creates a scenario of multiplicity in reporting to various authorities, affecting efficiency and effectiveness, and increasing costs to all players. Consequently, countries need to do a thorough study of these competing legislations and ensure that the disjoint is avoided. However, though KYC and AML legislation will inevitably impact competition, it cannot be said that KYC/AML laws and competition laws per se are in conflict.

- Milind Sathye, University of Canberra
- Geoffrey Nicoll, University of Canberra
- Paula Chadderton, University of Canberra

API Economy and Digital Transformation in Financial Services: The Case of Open Banking

The research focused on open banking, looking at the possible impact of the adoption of public application programming interfaces (APIs) on the financial industry. The research made clear that regulatory changes taking effect in the banking sector in the near future (e.g. the EU's revised Payment Services Directive - PSD2) will require traditional players



to change their mind-set from a closed model to an open but secure one. In practical terms, this will mean learning how to collaborate, how to share the customer with platform partners, and to restructure internally to become more agile. A lot of the regulation is at the hand waving stage, with many elements still not standardised across Europe, and potentially taking much longer than foreseen due to the UK's departure from the European Union. This may motivate large players to adopt a "wait and see" attitude. The researchers recommended, however, that the time to start the change process is now. Banks who move early to establish an attractive platform will obtain a customer base that is increasingly unwilling to switch to competitors as more and more third party developers offer services as part of the platform.

- Markos Zachariadis, Warwick Business School, University of Warwick
- Pinar Ozcan, Warwick Business School, University of Warwick

3.2. New Grants

Seven grants have been issued over the past year. Three were on cyber security and are soon to be published (see the *Upcoming Papers* section below for details). The research on the remaining four grants is underway, with details as follows:

The Future of Transaction Banking in 2030 and Beyond

The research will take a long-term look at defining an optimum global banking system that will be able to deliver economic efficiencies such as low cost and speed as well as operational and security resilience of execution, combined with the capability of addressing transparency and regulatory requirements.

- Barbara Casu, Cass Business School, City University London
- Ruth Wandhofer, Citi

Comparison of the Fintech Revolution in China and the West

The research will compare the evolution of FinTech in China with three Western markets (US, UK and Sweden). It will examine the history, current status of the FinTech sector (including sources of value and risk) and the outlook for FinTech in these markets.

- Bonnie Buchanan, Albers School of Business and Economics, Seattle University
- Cathy Cao, Albers School of Business and Economics, Seattle University

Financial Crime Mitigation through Increased Data Sharing

The research will aim to determine if a fusion centre comprising public and private sector organisations could improve information sharing between those sectors and be effective in combatting money laundering and terrorism financing related crimes.

- Paula Chadderton, Australian Transaction Reports & Analysis Centre (AUSTRAC)
- Simon Norton, Australian Strategic Policy Institute (ASPI)

Future Generation of Payments Market Infrastructure

The research seeks to address how the future generation of PMIs may mitigate existing "pain points", create opportunities and understand resultant risks. This project was



suggested by, and includes the support of, the International Payments Think Tank, which counts amongst its members ABN AMRO, Banca d'Italia, Barclays, BNP Paribas, Citi, Deutsche Bank, JPM Chase, Standard Chartered, UBS and Wells Fargo.

- Daniel Gozman, Henley Business School, University of Reading
- Jonathan Liebenau, London School of Economics

3.3. Upcoming Papers

The three cyber security research projects are nearing completion, and should be ready for publication in September. All three will be presented at Sibos Toronto.

Forces Shaping the Cyber Threat Landscape for Financial Institutions

The threat landscape for financial institutions is becoming bigger, more complex and more sophisticated, and as financial institutions strengthen their protection against consumer fraud, attacks increasingly target financial institutions directly. While the big multinational banks in the U.S. and Europe have invested heavily in their defences, they face a growing number of well-resourced, sophisticated adversaries. These attackers have the patience to take their time and go for one very big score instead of opportunistically going after softer targets, and they increasingly have the tools, skills, and knowledge necessary to overcome new defences. In order to get ahead, financial institutions will need to develop new approaches to fighting cyber threats. The financial system is global and integrated, and defenders need to become more global and better integrated to keep up. While the big global banks have invested in multi-layered, cutting edge defences, small and medium banks and financial institutions in emerging markets serve as easy entry points to the global financial system. The industry's leaders need to strengthen their smaller partners and help build cyber awareness and capacity in emerging markets to stay ahead of attackers.

- William Carter, Center for Strategic and International Studies (CSIS)
- James Lewis, Center for Strategic and International Studies (CSIS)

Sharing Insider Threat Indicators: Leveraging SWIFT's Messaging Platform to Combat Cyber Fraud

Cyber actors are operating under a shared services model giving them access to infrastructure, tools, targets and the ability to monetize their exploits. As a result, organizations across industries must enhance communication channels to share threat information in order to pre-empt cyber fraud schemes. This requires both an ability to identify the patterns of behaviour that indicate cyber fraud activity is occurring and a platform for communicating potential threat information. This report focuses on identifying the patterns of behaviour typically indicative of efforts by criminals to use insiders to cash out on fraudulent activity. The objective of this research is to enable organizations to use an existing telecommunication platform, such as SWIFT, to communicate cyber fraud threat information by establishing indicators of cashout behaviour, which could warn of cyber fraud activity.

- Casey Evans, Kogod School of Business, American University
- Elizabeth Petrie, Citi



Cyber Security Ecosystem: Defining a Taxonomy of Cyber Threats

The research presents a new Cyber Threat Taxonomy, Cyber Attack Taxonomy and Knowledge-based Cyber Resilience Framework. Despite high-profile cases in the media and the push from government agencies and industry groups, the importance of understanding cyber threats and associated risks are still not widely known (or at least not widely communicated within organisations). Adopting these models across industries would enhance our understanding of cyber security and enable organisations to improve communication, coordination, governance and recovery when managing cyber security. These taxonomies are built upon the result of a systematic literature review and empirical research, which provides an overview of the cyber security ecosystem. They incorporate the most up-to-date understanding of 'cyber harm' as an attempt to facilitate a more incisive understanding of Value at Risk in Cyberspace (VaRiC).

- Jason Ferdinand, IKSM Ltd
- Richard Benham, Coventry University

4. EVENTS

Over the past year three SWIFT Institute hosted conferences have been held, and we have been involved in several SWIFT Business Forums. Plans for Sibos Toronto are complete, with 20 sessions scheduled across the four days.

4.1. SWIFT Institute Events

Digital Disruption in Financial Services

On 30 November 2016, the SWIFT Institute hosted a FinTech focused event in Toronto in partnership with Ivey Business School's Scotiabank Digital Banking Lab. Partnership rather than competition between FinTechs and banks was seen as the way forward. The disruptive potential of Blockchain technology was deemed to be the top area of interest amongst delegates. Panellists predicted that, assuming cyber security remains manageable, the digital world will eventually allow you to bank anywhere at any time without requiring access to a computer or smartphone.

Cyber 3.0 Better Together – London

On 30 March, the SWIFT Institute showcased the preliminary results of our three research grants on Cyber Security in Financial Services. The conference attracted nearly 200 attendees from the UK and EU. Delegates were given detailed insights into the evolution of both the threat landscape and the defence mechanisms being employed across the financial services industry today, along with ideas of how to increase cyber resilience in the future. Collaboration was the theme of the day, both within individual organisations, and across the financial industry as a whole. By working together as an industry, we can be far more resilient in the face of increasing cyber-attacks. A wrap-up article of this event is available to download [here](#).

Cyber 3.0 Better Together – Singapore

On 18 August, the Institute hosted a similar event to the one in London, this time in partnership with Singapore's Nanyang Technological University (NTU). Nearly 200



attendees from across APAC heard the preliminary results of two of the three cyber research grants. NTU presented their work in conjunction with the Monetary Authority of Singapore on managing cyber risk. The Carnegie Endowment for International Peace provided an overview of the importance of collaboration for cyber security risk at the international level – and the commitments that the G20 have made in this respect. SWIFT Institute Advisory Council member Stella Cramer, a partner at Norton Rose Fulbright Singapore, closed the event by highlighting key themes of the day. These included the importance of collaboration to battle cyber threats at the government level and internally within organisations, and how the risk of cyber threats is compounded in emerging market economies due to FinTech disrupting the provision of financial services to the unbanked.

4.2. SWIFT Business Forums

In recent months the SWIFT Institute has helped shape and / or provide content from academia in various SWIFT Business Forums, including:

- Canada – March – James Lewis of Strategic and International Studies (CSIS) presented a preview of the *Forces Shaping the Cyber Threat Landscape for Financial Institutions* research. He also chaired a panel discussion on this topic. Professor Michael King of Ivey Business School gave a lecture on whether FinTech is a disruptor or an enabler. He also chaired a panel discussion on this topic.
- London – April – During a lunch & learn session the three new SWIFT Institute endorsed executive education courses were launched.
- Athens – June – Dr Markos Zachariadis, Warwick Business School, gave the opening keynote at the event, talking about FinTech and his SWIFT Institute sponsored API research. He also participated in a panel discussion on *Harnessing New Technology to Shape the Future of Banking*.

4.3. Sibos

The SWIFT Institute returns to Sibos bringing some of the keenest thought leaders from academia (and industry) to share insights and the latest research on topics impacting the global financial industry. This year, the Institute has a dedicated room with a full four days of content. Included in this program is the grand finale of the 2017 Student Challenge, where millennials from Canadian universities will pitch their ideas on how banks can improve cyber security. The Sibos Quiz returns for the third year running – always a fun, interesting and highly competitive event! And as we are in Canada during its 150th birthday, a historian will give a brief lecture on this amazing country.

Sessions on the agenda:

- The future of transaction banking – moving into the digital age
- Trumping regulation – Where are we headed and what does it mean?
- The impending technological revolution in FinTech and Artificial Intelligence
- Forces shaping the cyber threat landscape
- Sharing insider threat indicators – leveraging the SWIFT messaging platform to combat cyber fraud
- Dodd-Frank is dead! Long live Dodd-Frank!
- Cyber security ecosystem – defining a taxonomy of cyber threats
- Avoiding fear-based technology decisions
- Tapping into academic research in today's turbulent world



- Results at the top – gender intelligence
- The quantum threat to financial services
- Daily lunch & learn session featuring executive education courses on FinTech, market infrastructures, payments and capital markets operations

5. STUDENT CHALLENGE

In 2016 the inaugural Student Challenge was held. Through the challenge we ask university students to devise solutions to global banking issues. In 2016 the challenge focused on UK based students and the topic related to remittances. The finalists showcased their ideas at SWIFT's Business Forum London event, and the winning team presented their idea at Sibos Geneva.

In 2017 the challenge is being held in Canada and will culminate at Sibos Toronto. The topic is "*How can bank channels be secured against ever increasing cyber-attacks?*" The topic was agreed upon with Canadian banks, Payments Canada and with input from the Canadian government. Eight finalist teams from across the country have been selected. They will each present their idea at Sibos Toronto on Wednesday 18 October. Representatives from Payments Canada and the Royal Bank of Canada will be among the judges. The winning team will receive a grand prize of 20K CAD.

6. NEW IN 2017

A new initiative is the SWIFT Institute's endorsement of third-party executive education courses. These are new courses delivered directly by the institutions that created them, aimed at industry practitioners. The courses cover both in-house and on-line training.

Three courses have been endorsed:

- FinTech for Bankers by Imperial College London
- Payments Certification by the London Institute of Banking and Finance
- Capital Markets Operations by Financial Market Training

7. LOOKING AHEAD

Over the course of the next year the SWIFT Institute will continue to fund new research. New topics being *considered* for *potential* grants include instant payments, artificial intelligence, digital identity and the internet-of-things.

As a new initiative we will look at existing academic research (not sponsored by the SWIFT Institute) that is relevant to the global financial industry, and create brief articles summarising the research. The aim is to publish regular and frequent articles throughout the year, commencing in January 2018.

We will explore opportunities to endorse more executive education courses. Possible topic areas could include market infrastructure, cyber and regulation.

The Student Challenge will be run again in 2018 in Australia. We will follow the same format as in Canada, to bring the finalists to pitch their ideas at Sibos Sydney. The topic of the 2018 challenge will be decided upon after consultation with the Australia financial community.

— End —



APPENDIX A

The following table lists all research grants issued to date. For those that are “published”, the working papers are available to download at www.swiftinstitute.org.

Research Title	Status
The Internationalisation of the RMB: New Starts, Jumps and Tipping Points	PUBLISHED
Financing the SME Value Chains	PUBLISHED
Can Mobile Money be Used to Promote Savings? Evidence from Preliminary Research in Northern Ghana	PUBLISHED
New Regulations and Collateral Requirements – Implications for the OTC Derivatives Market	PUBLISHED
The Prospects for Common Language in Wholesale Financial Services	PUBLISHED
SWIFT’s Interbank Payment Network	PUBLISHED
A Dynamic Stochastic Network Model of the Unsecured Interbank Lending Market	PUBLISHED
Modelling the Cost of Trade Finance in the Financial Crisis	PUBLISHED
Women in Finance: A Global Perspective	PUBLISHED
Theory of Optimum Financial Areas: Retooling the Debate on the Governance of Global Finance	PUBLISHED
Transatlantic Extraterritoriality and the Regulation of Derivatives: Conflict and Challenge for the Financial Services Industry	Expected Q4 2017
Macroprudential Oversight, Risk Communication and Visualization	PUBLISHED
A critical and empirical examination of four currently-used financial data collection processes and standards	PUBLISHED
Prospects and Challenges of the Development of ASEAN Exchanges	PUBLISHED
The Scope of International Mutual Fund Outsourcing: Fees, Performance and Risks	PUBLISHED
Who will take the lead in shaping China’s securitization market model?	PUBLISHED
Near Real-Time Retail Payment and Settlement Systems Mechanism Design	PUBLISHED
Cross-border Low Value Payments and Regional Integration: Enablers and Disablers	PUBLISHED
An analysis of Bitcoin as a novel distributed system	PUBLISHED
The influence of virtual currency on fiat currency	PUBLISHED
Multinational Banking and Conflicts among US-EU AML/CTF Compliance & Privacy Law: Operational & Political Views in Context	PUBLISHED
The Role of Big Data in Governance: A Regulatory and Legal Perspective of Analytics in Global Financial Services	PUBLISHED
Evolution of 3rd-Party Payment Providers & Cryptocurrencies Under the EU’s PSD2 and AMLD4 Directives	PUBLISHED



<u>Research Title</u>	<u>Status</u>
Does regulation aimed at encouraging competition and innovation conflict with requirements for KYC, AML, etc.? Are the two sides compatible?	PUBLISHED
Regulatory Focus on Competition and Innovation in Payments Services	Expected Q4 2017
CREST: A 20th Anniversary Review	PUBLISHED
Mobile Banking in Africa	PUBLISHED
The Impact and Potential of Blockchain on the Securities Transaction Lifecycle	PUBLISHED
The Impact and Potential of Blockchain on the Securities Transaction Lifecycle	Expected Q4 2017
API Economy and Digital Transformation in Financial Services: The Case of Open Banking	PUBLISHED
Forces Shaping the Cyber Threat Landscape for Financial Institutions	Expected Q3 2017
Sharing Insider Threat Indicators: Leveraging SWIFT's Messaging Platform to Combat Cyber Fraud	Expected Q3 2017
The Cyber Security Ecosystem: Defining a Taxonomy of Existing, Emerging and Future Cyber Threats	Expected Q3 2017
Future of global transaction banking	Expected Q1 2018
Comparison of the FinTech Revolution in China and the West	Expected Q4 2017
Financial Crime Mitigation through Increased Data Sharing	Expected Q2 2018
Future Generation of Payments Market Infrastructure: Recommendations for Policy and Practice	Expected Q2 2018