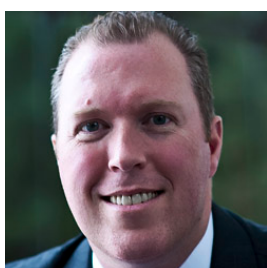


Cannot read this email? [Click here](#)

November 2016



Welcome to the final issue of Velocitates for 2016. One of the core tenets of the SWIFT Institute is the dissemination of knowledge and information, and through this newsletter that is exactly what we'll do.

As ever when I look back over the year I am pleasantly surprised at how much has been achieved, and also aware of how our industry (and the world in general) continues to evolve. 2016 is no exception. New research and new events, and already new and exciting plans for 2017 to look forward to.

We began 2016 with a new initiative. After years of working with professors, we decided to focus on students at universities, and so we launched the SWIFT Institute Student Challenge. We challenged students across the UK to come up with ideas to solve a real world financial industry problem. The support from the UK government and banking community was overwhelming, and working with the students was a wonderful experience. We took two members of the winning team to Sibos Geneva, where they wowed delegates with both their professionalism and enthusiasm. I am pleased to announce that we will be running the Student Challenge again in 2017, this time in Canada, where it will culminate at Sibos Toronto.

Sibos Geneva in September was a huge success. More than 8,000 delegates from around the world spent a week network, doing business and discussing some of the hottest topics impacting the global financial industry. The Institute provided a great line-up of speakers from academia and business, lecturing on topics ranging from FinTech to Artificial Intelligence to Cyber-security, amongst many others. The year is not yet finished, and already we are working on plans for the SWIFT Institute to bring a bigger programme to Sibos 2017.

As part of our build up to Sibos Toronto, the Institute is hosting a conference later this month in Toronto on Digital Disruption in Financial Services. We are partnering with the Ivey Business School at Western University, and have a great line-up of speakers from academia, the FinTech community, the five biggest Canadian banks. As Velocitates is published, I am pleased to say that this conference is already sold out!

Cyber-security is an ever-evolving challenge to our industry, and so we have recently issued three research grants to look at this space. The grants will result in new insights covering the taxonomy of cyber-security, evolution and trends of the threats, and new ideas on how to combat cyber-threats and share information. The initial results of this research will be presented at a conference in London on 30 March 2017.

Blockchain continues to be a major topic, and in this issue of Velocitates we are pleased to welcome Ferdinando Ametrano, a teacher of Bitcoin and Blockchain Technologies at Politecnico di Milano. Ferdinando shares his thoughts in an opinion piece on blockchain.

Finally, our hot topic feature in this issue really is looking to the future, as we explore artificial intelligence for financial services. The Institute spoke to Amber Case, a cyborg anthropologist, and

Edouard d'Archimbaud, Head of Artificial Intelligence Lab at BNP Paribas. This is sure to be a topic that we will continue to explore in the years ahead.

My best wishes to you all for the remainder of 2016, and for a safe, happy and prosperous 2017.

Peter Ware

Topics in this issue

[Hot Topic](#), [Research](#), [Conferences](#), [Coming Soon](#)



SWIFT Institute

Bridging the Gap between Academia and Financial Services

Snapshot: November 2016

24
Paper published

34
Grants awarded

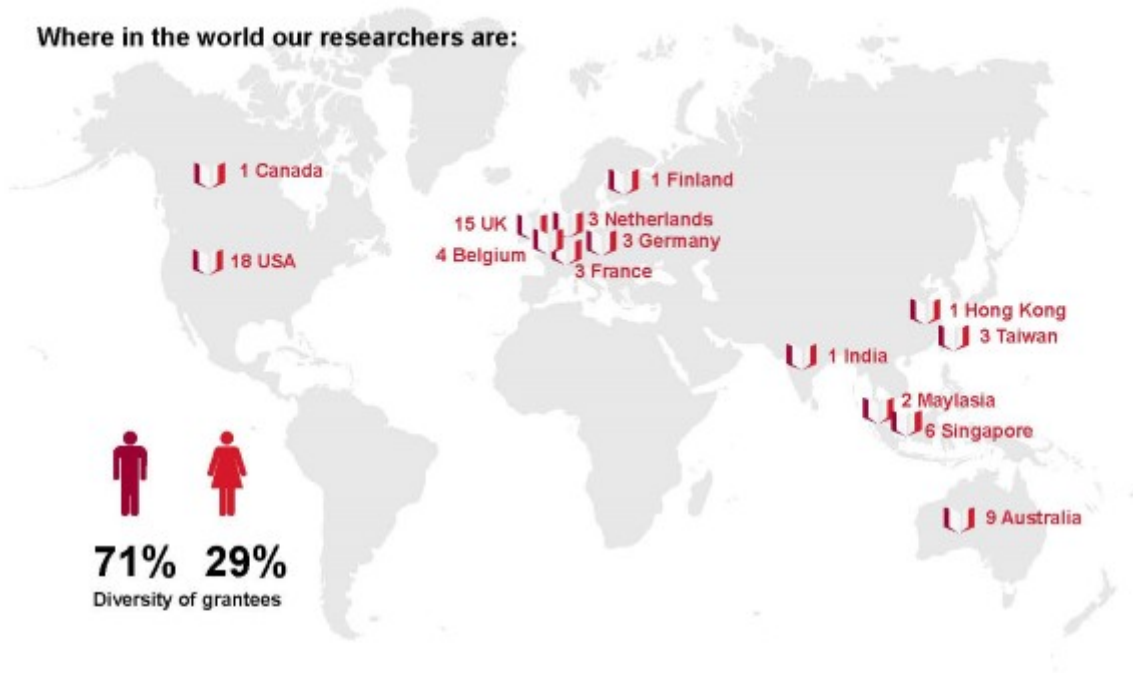
Goals of the SWIFT Institute

To bring science and practice together

To fund independent research

To support knowledge-led debate

Where in the world our researchers are:



71% **29%**
Diversity of grantees

Upcoming Research

- The Potential use Cases of Blockchain in the Securities Transaction Lifecycle
- Transatlantic Extraterritoriality & the Regulation of Derivatives
- Competition and Innovation in Payment Services
- CREST 20th Anniversary Review
- Impact of Open APIs on Banking

To find out more, download the research papers, or register for events, visit <http://www.swiftinstitute.org>

Follow us on LinkedIn: SWIFT Institute or Twitter: @SWIFTInstitute

To download our infographic, click [here](#).

News

SWIFT Institute @ Sibos



SWIFT Institute at Sibos 2017 Geneva

The week began on Monday morning with Blockchain 101 by Professor Michael Mainelli. Full to capacity, the high audience turnout proved that people are eager to understand the basics of distributed ledger technology and how it might be used. His second session later in the week looked more specifically at blockchain and the securities industry.

MIT's Dr. Kalyan Veeramachaneni explained how artificial intelligence can help predict cyber attacks, and also talked more generally about machine learning. Dean of Lerner College at the University of Delaware, Bruce Weber, spoke twice throughout the week on fintech. First he examined the forces favouring co-opetition between banks and fintech players. He also spoke about the fintech talent pipeline and the changing relationship between millennials and employers.

John Trundle, CEO of Euroclear UK & Ireland, stressed that cyber-security is a business issue, not an IT problem. In a talk that echoed points made by SWIFT CEO Gottfried Leibbrandt, Mr. Trundle highlighted the importance of getting the basics of cyber-security right, and to always plan for the worst.

Three SWIFT Institute funded research projects were presented at Sibos. Harvard professor Jay Rosengard spoke about mobile banking in Africa, and highlighted the impact of and lessons learned from M-PESA. Dr. Markos Zachariadis and Dr. Pinar Ozcan, both of Warwick Business School, discussed the preliminary results of their research into the impact of open APIs on banking. The API session also included the financial industry perspective given by Damian Richardson, Head of Payments Strategy and Innovation at RBS. And Fulbright Scholar Dr. Michelle Frasher discussed data privacy and the impact on AML / CTF regulations in Europe and America.

A highlight of the week was the showcase by the winning team of the inaugural SWIFT Institute Student Challenge. Warwick Business School students Fiza Husain and Sneha Sunkara presented their team's solution to deliver remittance funds from the UK to Indonesia. They even promoted SWIFT's own GPI solution as part of their idea. The Student Challenge will return to Sibos in 2017, where the focus will be on students' ideas from across Canada.

Read what was said in Sibos Issues:

- [Tuesday](#) on Blockchain 101
- [Tuesday](#) on SWIFT Institute Quiz
- [Wednesday](#) on Cyber
- [Wednesday](#) on SWIFT Institute Challenge 2016 winners HADU
- [Thursday](#) on Financial Inclusion: Mobile Money in Kenya

SWIFT Institute Student
Challenge winners at Sibos:

***Fiza Hussain and Sneha
Sunkara from team HADU***



New Education Page

The SWIFT Institute, in collaboration with [SWIFTSmart](#), launches our new [Education](#) page.

Here you will find short tutorials designed to inform you about SWIFT and some of the services we bring to the financial industry.

In 2017 we plan to launch more educational initiatives, so look out for announcements in the new year.

Visit our [Education](#) page and learn something new.



2017 SWIFT Institute Student Challenge - Canada & Cyber

2017 SWIFT Institute Challenge creates opportunities for university students in Canada to contribute new ideas to banking and financial services

Following the success of the inaugural SWIFT Institute Student Challenge held this year in the UK on the topic of remittances, the 2017 Challenge will focus on university students in Canada, and the topic of 'making banking channels more secure against cyber threats'.

The SWIFT Institute has been liaising with the Canadian government and Canadian banks on this topic. The 2017 Challenge will be launched this month, on 30 November, in Toronto. The window for submissions will be between 3 January – 30 June 2017, and the top ten student teams that are selected will be invited to present their ideas at Sibos 2017 in Toronto. The winning team, as voted for by Sibos delegates, will receive a prize of 20,000 CAD.

- Full details are available in the [Competitor's Handbook](#)
- To enter the challenge, visit [Challenge](#)

Bitcoin, Blockchain and the DLT Chimera



Bitcoin, Blockchain and the DLT Chimera The Uncertain Promises of Distributed Ledger Technology for Financial Markets

*Opinion Piece by Ferdinando Ametrano
Teacher of Bitcoin and Blockchain Technologies at*

Distributed ledger technology ('DLT') is at a very early stage of development. Sometimes confused with the blockchain technology underlying bitcoin, it is supposed to be the evolution of that technology designed to avoid the architectural choices that make bitcoin's blockchain unsuitable for securities settlement and financial applications. DLT is enjoying the blockchain hype originating from the resiliency of bitcoin operations, but it still lacks a reference implementation or strict technical specifications, beyond being a shared ledger using cryptographic tools.

Understanding of the technology lags well behind the hype [... it] seems to promise major change for capital markets and other financial services, but few can say exactly how or why (Mainelli, Milne). Being at the crossroads of game theory, cryptography, computer networking, data transmission, economic and monetary theory, blockchain requires a hard to find skillset to be properly understood

Technically speaking, blockchain is an append-only sequential data structure; in order to change a single block in the middle of an existing chain, all subsequent blocks need to be changed, making this operation computationally inefficient. A blockchain is unsuited for data manipulation, being designed for the very specific idiosyncratic task of immutability. It makes sense only if associated to a decentralized virtual currency, i.e. to a [native digital asset](#) whose seigniorage revenues are used to provide the necessary economic incentive required to reach consensus in a distributed network. In this case the *distributed consensus* is about transaction history and can be obtained by anonymous uncensorable transaction validators (*miners*).

Does it make sense to consider a [blockchain without bitcoin](#)? Having no bitcoin implies having no asset available to reward miners, which in turn requires appointed officials for transaction validations. If the officials are appointed by some central organization, why should they choose to use a blockchain, i.e. a subpar data structure, instead of a regular shared database? Since the interest in virtual currencies within the financial markets has remained marginal so far, most of the interest for DLT seems to boil down to the cryptographic enhancements of coupling secure messaging with shared databases. Moreover, most of the benefits associated to the DLT are not really exclusive to this technology.

Read the full article [here](#).

New Interactive Graphic - AML / CTF

The SWIFT Institute is excited to bring you an Interactive Infographic which illustrates our sponsored research by Fulbright Scholar Dr. Michelle Frasher on the **Multinational Banking and Conflicts Among US-EU AML/CTF Compliance & Privacy Law: Operational & Political Views in Context**.

This paper which gives an in-depth comparison of 19 areas of conflict in the AML/CTF regulations, comes alive in this easy to use infographic.

View this Interactive Infographic [here](#).

Download the full paper [here](#).

The Origins of Big Data

Wikipedia defines 'big data' as a broad term for data sets so large or complex that traditional data processing applications are inadequate. But where did the now ubiquitous term 'big data' actually originate from?



We can trace origins for exponential data growth to the year 2000, when Seisint Inc. developed a C++-based distributed file-sharing framework that stored and distributed structured, semi-structured, and unstructured data across multiple servers. One year later, META Group (now Gartner) published a research report defining data growth challenges in the context of the now familiar 3 v's - volume, velocity and variety.

The origin of the term itself, however, is not as clear cut. The New York Times (NYT) wrote a [blog](#) about the difficulties of tracking it down. It appears that the name has roots in either the sphere of economic modeling or Silicon Valley itself.

According to research by Marco Pospiech at the Technical University of Freiberg, Germany, a paper was presented in 2000 by Francis X. Diebold entitled "[Big Data Dynamic Factor Models for Macroeconomic Measurement and Forecasting](#)" (it was subsequently published in 2003). A more likely candidate is from 1998, when John Mashey, former chief scientist at Silicon Graphics, gave a presentation with one slide entitled "[Big Data and the Next Wave of Infrastrass](#)". The NYT got in touch with Mashey who said that because Big Data is such a simple term it was not much of a claim to fame. Mashey commented, "I was using one label for a range of issues, and I wanted the simplest, shortest phrase to convey that the boundaries of computing keep advancing." The most he did at the time, he said, was simply popularise the term within a portion of the high-tech community in the 1990s.

Hot Topic



Amber Case
Cyborg Anthropologist
Massachusetts, USA

Don't automate the humans:

AI for Financial Services

Artificial intelligence (AI), especially in the banking world, is hitting all sorts of headlines lately. But did you know that there is an actual discipline that studies the interaction between humans and technology, and how technology affects culture? It is called cyborg anthropology: most people nowadays being defined as cyborgs due to the very fact we interact with technology.



Edouard d'Archimbaud
Head of Artificial Intelligence
Lab, Corporate and Institutional
Banking, BNP Paribas
Brussels, Belgium

The SWIFT Institute spoke to Amber Case, a cyborg anthropologist and author of [Calm Technology: Principles and Patterns for Non-Intrusive Design](#) about the impact of AI on the financial services industry. We also spoke to Edouard d'Archimbaud, Head of the Artificial Intelligence Lab, from the Corporate and Institutional Banking arm of BNP Paribas, about what financial organisations can expect out of pursuing a strategy of AI implementation.

Machine Learning

Amber Case is "third-generation AI", coming from a family of people working on artificial intelligence and machine learning. Her grandfather was an AI researcher at the University of Utah and worked on Project Mercury, the first US human spaceflight programme, and ARPANET, the predecessor to the Internet. Her father was an AI technologist for telecom companies and read to her [Naturally Intelligent Systems](#) as a bedtime story. As a result, Case much prefers the expression 'machine learning' to the term 'artificial intelligence' as she feels the latter tends to lead people astray. "Machine learning uses human information and context, instead of just raw programming," explained Case. "I think many people think that if we advance enough in our state of technology, we will be able to automate everything and won't have to work any more. But we have already automated a lot of things and it is those things that are giving us the most trouble right now. What we should aim for is a more cybernetic system, machine learning that works on a feedback loop between humans and technology. That is how we can achieve really smart systems that adapt and grow, and not end up being brittle."

Case cited examples of automated systems that often fail us, such as automated parking garages when the machine cannot read your ticket, or being kept on hold for 40 minutes on an automated telephone line. “I think that as we get more automated it will become more important to have real people on the other end; instant customer service and talking with a person who understands you,” said Case. “This is the opposite of people's assumptions - we are not going to automate humans. The best technology should automate the boring, repetitive tasks in order to allow us to be more human.”

Perceptive patterns

Because we experience time at a human pace, it can be difficult for us to see patterns over time. But technology is great at showing and helping us understand these patterns. Patterns that would be helpful to people in terms of managing finances could be, for example, tools that help understand a person's spending patterns as an end-user with anonymous comparisons against other end-users, or a system that provides alerts when users are about to hit particular spending limits. Smartphone apps, such as Acorns, can invest the spare change from each of your retail transactions. Ideally these types of systems should work invisibly in the background for the end-user.

Intelligent innovation?

Case's view is that it is difficult for large financial institutions to do innovative things. “Even if a bank has an Innovation group, usually the organisation is so large it can be very difficult to allow people the freedom to make something really useful,” explained Case. “I think, therefore, there is a lot to be said of acquiring the best startups in the market after they have gained traction and been listed, say, for a minimum of three to five years. Financial institutions should bear in mind that these applications can supply a really good front-end for unwieldy banking applications and transactions.”

Case also made the point that it is not always about using the newest technology, but rather about making older technology sustainable. Banks have the choice of either simplifying their systems and stitching them together, or acquiring a new platform and leaving it alone, letting it grow and allowing people to eventually adapt, or by stitching some of the new analytics from an acquisition into their base platform.

Not surprisingly, Edouard d'Archimbaud from BNP Paribas CIB disagreed with Case regarding innovation within large financial institutions. “We looked at the origins of the most successful digital companies of today such as Facebook, Google, and Apple, and basically they all started in a garage. We set up our Artificial Intelligence Lab in the spirit of going back to the garage days, meaning a small team of diverse talents with less meetings and no red tape. We develop smart applications based on state of the art machinery and artificial intelligence.”

D'Archimbaud emphasised the ethos behind BNP Paribas' activity in automation. “AI could be the biggest technological shift in our history, bigger than either the computer, Internet or smartphone revolutions. Not only do we have to prepare ourselves for it, our clients expect it. Furthermore, banks are no longer responsible for simply managing financial transactions on behalf of their clients, they are also responsible for processing and safeguarding their information.”

Read the full article [here](#).

Research

All SWIFT Institute sponsored research is freely available to download on our [website](#). Our aim is to spread knowledge far and wide, so we encourage you to download our papers and distribute them throughout your own institutions and networks.

Our most recently published papers are:



- A Critical and Empirical Examination of Currently-used Financial Data Collection Processes and Standards
- Women in Finance

The name of the SWIFT Institute newsletter, Velocitates, comes from the Latin velocitas meaning swiftness, and in our case the plural therefore swiftnesses. The term Velocitates first appeared in print in the early 1700s in the world's first scientific journal; The Philosophical Transactions published by the Royal Society of London for Improving Natural Knowledge. The journal's aim was, and continues to be, to inform readers of the latest scientific discoveries. A worthy aim, and a goal the SWIFT Institute will strive to emulate.

Our most recently awarded grants all relate to cyber-security:

- Taxonomy / Trends / State of the Art Defensive Measures and Evolution of Threats - awarded to James Lewis and William Carter from CSIS (Center for Strategic and International Studies) in Washington DC.
- The Insider Cashout Typology: Sharing Threat Indicators of Cyber Fraud via Intelligence Information Reports - awarded to Beth Petrie from Citigroup Inc., and Casey Evans of Kogod School of Business, both in Washington DC.
- Taxonomy / Model / How Organisations Can Develop Cyber Resilience Capabilities - awarded to Richard Benham from Coventry University, and Jason Ferdinand from ISKM Ltd, both in the UK.

These grants will be initially presented at a conference in London on 30 March 2017.

Details of all SWIFT Institute research grants, including those that are still in progress, can be found [here](#).

By the Numbers

Grants Awarded - 34

Papers Published - 24

Research Underway

- The Potential use Cases of Blockchain in the Securities Transaction Lifecycle
- Transatlantic Extraterritoriality & the Regulation of Derivatives
- Competition and Innovation in Payment Services: Regulatory and Compliance Conflict
- CREST 20th Anniversary Review
- Impact of Open APIs on Banking

For more details visit our web site.

Completed Research

- Can mobile money be used to promote savings? Evidence from Northern Ghana
- The Prospects for a Common Language in Wholesale Financial Services
- Internationalisation of the RMB: New Starts, Jumps and Tipping Points
- New Regulations and Collateral Requirements – Implications for the OTC Derivatives Market
- Financing the SME Value Chains
- A Dynamic Stochastic Network Model of the Unsecured Interbank Lending Market
- Macroprudential Oversight, Risk Communication and Visualization
- The Global Network of Payment Flows
- Theory of Optimum Financial Areas: Retooling the Debate on the Governance of Global Finance
- Cross-border Low Value Payments and Regional Integration: Enablers and Disablers
- Bitcoin – The Miner's Dilemma
- The Scope of International Mutual Fund Outsourcing: Fees, Performance and Risks
- Prospects and Challenges of the Development of ASEAN Exchanges
- Near Real-time Retail Payment and Settlement Systems Mechanism Design

- Who will take the lead in shaping China's securitization market model?
- The Evolution of Third Party Payment Providers and Cryptocurrencies Under the EU's Upcoming PSD2 and AMLD4
- The Role of Big Data in Governance: A Regulatory and Legal Perspective of Analytics in Global Financial Services
- Impact of Blockchain on the Securities Transaction Lifecycle
- A Quantum Leap Over High Hurdles to Financial Inclusion: The Mobile Banking Revolution in Kenya
- Women in Finance
- A Critical and Empirical Examination of Currently-used Financial Data Collection Processes and Standards

To download the papers visit our web site.

Conferences

Since launching the SWIFT Institute in 2012 we have hosted several events bringing academia and financial industry practitioners together to debate and learn from each other. These events have proven to be very successful, with both groups enjoying and benefiting from greater engagement. Looking ahead to 2017 the Institute will continue to host conferences, with the aim to have a continuous conversation around the globe. With each conference building upon the last.

Below you can find details of the upcoming events. Full details when available will be on our [website](#).

Upcoming:

- **30 November 2016**
- **Digital Disruption in Financial Services**
Venue: Royal York, 100 Front Street, Toronto M5J 1E3, Canada

The SWIFT Institute with the Scotiabank Digital Banking Lab at the Ivey Business School of Western University will host a day on Digital Disruption in Financial Services. Featuring speakers from all of the Canadian leading banks, academics from the University of Toronto, Ivey Business School, and researchers MaRS Innovation centre, not to mention the World Economic Forum and the Central Bank of Canada. Come here them discuss what is happening now in digital advances for finance and what the banks vision of the future is.

Full details including registration available [here](#).

- **30 March 2017**
- **SWIFT Institute on Cyber Security**
Venue - East Wintergarden, Canary Wharf , London, E14 5NX

Save the Date! 30 March 2017 in London UK

SWIFT Institute will bring to you the latest and most thought provoking insights based on recently awarded research grants on Defining the Cyber Threat Landscape as well as Innovative Tools to help fight Cyber Crime in Financial Services.

More details to follow, watch this space!

More details available [here](#).

Coming Soon

Here is what you can look forward to from the SWIFT Institute in the months ahead...

- Digital Disruption in Financial Services event (Toronto) - *30 November*
- Launch of SWIFT Institute Student Challenge 2017 - *30 November*
- New research on CREST: A 20th Anniversary Review - *December*
- New research on the Impact of Open APIs in Banking - *Q1 2017*
- New research on the Potential Use Cases of Blockchain in Securities - *Q1 2017*
- New research on Regulatory Compliance - The Extraterritorial Challenge - *Q1 2017*
- Cyber Security event (London) - *30 March 2017*

[Visit our website](#) to see what else is happening at the SWIFT Institute.

[Unsubscribe from the newsletter](#)



LinkedIn



Twitter

Copyright 2016 SWIFT Institute