INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION STANDARDIZATION SECTOR

STUDY PERIOD 2017-2020

Focus Group on Digital Currency including Digital Fiat Currency

FGDFC-O-003

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Source:	Focus Group Digital Currency Including Digital Fiat Currency
Title:	Summary of Second Meeting of Focus Group Digital Currency including Digital Fiat Currency (FG DFC)

1. Opening Plenary

1.1 Opening Remarks

The second meeting of the Focus Group Digital Currency including Digital Fiat Currency (FG DFC) took place on 18-20 July 2018 at Cornell Research Academy for Development, Law and Economics, Cornell University, New York City. The opening plenary took place on 18th July 2018 and was followed by an ITU Workshop on standardizing Digital Fiat Currency and its applications at the same venue.

The Chairman, David Wen, Digital Fiat Currency Institute, opened the meeting and welcomed the participants.

Some 98 participants from 29 countries (of which 23 developing countries and Least Developing Countries (LDC)) attended the FG DFC meeting. The list of participants is in document DFC-I-033 (see meeting documents, which can be accessed with ITU TIES or Guest account on the FG DFC collaboration website: https://extranet.itu.int/sites/itu-t/focusgroups/dfc/SitePages/Home.aspx).

The Chairman provided a short feedback on the outcomes of the first meeting of the Focus Group. The concept of digital fiat currency is meant to be inclusive, not only for financial access but should be universally usable and technology neutral so all the technology providers can participate. The starting point for digital fiat currency (DFC) is to bring all the stakeholders to ensure there is an inclusive approach from all stakeholders to meet the requirements of each stakeholder. During this meeting, a number of use cases for digital fiat currency from countries such as Norway, Sweden, China. Philippines and Brazil would be presented and discussed. The Chairman in his speech thank the ITU team for making the logistics arrangements for the meeting, Carolyn McMahon for her support for the work in the Regulatory Requirements and Economic Impact Working Group and Prof Robert Hockett and Mr Rohan Grey for their support as focal points from Cornell University to facilitate the process.

Dr Bilel Jamoussi, Chief Study Groups Department, TSB, ITU in his address mentioned that FG DFC can be a platform to bring together the stakeholders in the DFC ecosystem together (i.e Central Banks, telecom regulators, Fintech Community and digital currency providers) to discuss the requirements for digital currency and digital fiat currency. This Focus Group emerged from a previous ITU Focus Group on Digital Financial Services. That Focus Group was the first initiative to be successful in bringing together all stakeholders working in the interest of financial inclusion. FG DFC has positioned itself very well to achieve similar success. This group's work is driven in collaboration by Central Banks, ICT regulators, commercial banks, financial service providers, network operators, security professionals, FinTech innovators, and technical and financial standards bodies.

Prof Robert Hockett, Professor, Director of Cornell Program for Regulation of Financial Institutions and Financial Markets made a brief intervention on the work that Cornell University has been doing on the topic.

Prof. David Chaum in his keynote address provided an overview of how mobile payments is evolving since the early days of e-commerce. He gave an overview of the DigiCash project which started in 1982 and which was the pioneer for digital payments. Prof Chaum discussed the new project on blockchain payment system, which he is currently working on. The system is a federated architecture, which supports multiple commercial banks. Current Privacy protection systems have a very slow performance and this is one reason why their usage is low. This payment system would address the scalability can be achieved with low latency and ensuring privacy as well. Prof Chaum provided an example. For instance, a single server per node can do 50,000 payments per second, with only four seconds latency from submission to transaction completion; scales linearly to billions of transactions per second, using more than one server per node without more latency; gives strong privacy for all parties and payment details; can be secure against attack by quantum computer and can run as a permissioned or unpermissioned blockchain.

1.2 Approval of Agenda (DFC-I-13)

The Chairman introduced the draft agenda of the FG-DFC meeting and invited for comments from the floor. The meeting approved the agenda.

1.3 Working methods and procedures for FG-DFC

Vijay Mauree, TSB Secretariat, explained the procedures to be followed for the Focus Group according to Recommendation ITU-T A.7. An explanation for creation of Guest account, accessing the meeting documents and collaboration site was provided to the participants. Participants were informed to contact the FG DFC Secretariat (tsbfgdfc@itu.int) by e-mail for queries they may have. Vijay Mauree also presented the IPR policy in DFC-I-027.

1.4 FG DFC Management Team Changes

The Chairman announced the following changes to the FG DFC Management team and working group leaderships:

- Russian administration will nominate a representative to replace Mr Yury Grin as Vice Chair.

- Mr Sun Lilin, Juzik has informed that he cannot continue as Vice Chair and Co-Leader of the Security Working Group.

The Chairman's proposal for Jacques Francoeur, San Jose State University to replace Sun Lilin as Vice Chair and Co-Leader of the Security Working Group was approved at the meeting.

1.5 Document Allocation

The document allocation for the meeting was approved:

- o Regulatory Requirements and Economic Impact WG [DFC-I-014, DFC-I-017, DFC-I-018, DFC-I-023]
- o Reference Architecture WG [DFC-I-015, DFC-I-018, DFC-I-020, DFC-I-024, DFC-I-025, DFC-I-026]
- o Security WG [DFC-I-016, DFC-I-019, DFC-I-021, DFC-I-022 DFC-I-28]

2. Workshop on Standardizing Digital Fiat Currency and its applications

The workshop on Standardizing Digital Fiat Currency and its applications took place after the opening plenary. All the presentations made at the workshop can be accessed here.

The first session of the workshop addressed the role of Central Banks and the potential implications of a Central Bank issued Digital Currency. It was observed for example, in not all countries, can the Central Bank issue digital currency. For instance, the US Federal Reserve Bank cannot issue cryptocurrencies under existing laws. The other issues to consider are what would be the use of central bank issued digital currency (CBDC) (ie would be at the wholesale level or retail level or both), what could be the potential implication on the payment system if the Central Bank issue digital currency and what type of architecture should be considered.

It was observed that the Bank for International Settlements, Money Flower identified four categories of CBDC:

- Reserves and settlement accounts (not tokens based)
- Central Bank accounts (not token based)
- General purpose Central Bank accounts, (token based)
- Wholesale (token based)

It was noted that for

a) Central Bank wholesale digital tokens, some central banks are experimenting with blockchain applications and the purpose seems to be to gain familiarity with the technology;
b) General purpose central bank accounts, the purpose is not clear yet how it could benefit central banks;
c) General purpose central bank digital tokens: some central banks are considering the costs and benefits of such tokens

In general for any general purpose central bank digital currency there is considerable implementation challenges.

2.1 Sessions on country use cases

Six country use cases were presented from China, Sweden, Norway, Philippines, Brazil and Egypt during the workshop on 18th July 2018. All the presentations made during the workshop can be accessed on the event website.

2.1.1 China

Dr Yao Qian, People Bank of China (PBOC) presented the China use case on digital fiat currency. In his presentation, he outlined the following design principles for central bank digital currency (CBDC):

a) Security and Stability: identify risks of business objectives
b) Use digital technology to reinvent and optimize the process
c) Able to support demand of various application scenarios
d) Proprietary and controllable: core technology of the system
e) Tiered design based on the requirements of all stakeholders and standards for specifying interaction and interoperability
f) Technology neutral and pick the best from the various options available
g) Ensure integrity of the lifecycle

People Bank of China is considering a two tiered architecture for CBDC:

a) Central Bank issue CBDC directly to the public
b) Another entity distribute the CBDC to the public

Two-tiered system allows Central Bank to easily replace physical cash and not replace existing system. Commercial banks apply for CBDC from the Central Banks. They play an important role in distributing CBDC to the public. Central Bank and commercial banks are part of this two-tiered system. This forms a closed loop between the central banks and commercial banks for the circulation of CBDC. CBDC is loosely coupled with bank accounts in terms of form. Technical implementation can be account based or non-account based. Specific form of CDBC can be a number based on a cryptography formula. Each bank has their own way of doing business. The ownership or control of business logic – the constituting process are tightly coupled.

CBDC design should protect consumer privacy and there should be a proper equilibrium for privacy protection to meet all the needs of the financial services sector. Regulators should promote financial institutions on how to protect personal information of consumers and this is a pre-requisite for CBDC to be accepted by the public. Regulators may allow complete anonymity to parties other than the trading parties. There is a need to have controlled anonymity for CBDC – identify real identities of the trading parties and verifying digital currency ownership.

2.1.2 Sweden e-Krona

The demand for cash has been falling steadily since 2008 onwards in Sweden. Digitalisation of payment markets is playing a big role in this. For example, everyone can accept card payments easily. In 2012, the banks came out with an innovation called swish, a mobile application providing instant payments and can enable P2P payments just like cash. The expansion of swish in Sweden has been tremendous and has reached 6 million (population of 10- million). Although number of ATMS in Sweden has been quite stable, the amount of money withdrawn through ATMs have

decreased by 60% over the last eight years. According to the survey of payment behavior in Sweden, the number of persons who pay using cash has declined drastically from 39% to 13% from 2010 to 2018. A study done by academia with Swedish merchants, on when they would stop accepting cash. According to figures provided by Swedish merchants association, merchants are still accepting cash but it will be a problem beyond 2030.

Some of the options available to Central Bank in such a situation are:

- Subsidize management of cash
- Provide stricter regulation so banks cannot reduce the number of ATMs so people can still access cash
- Do nothing let cash disappear (will this be a problem? Private sector is providing better alternatives. If people is abandoning an outdated technology not Central bank money because it is not suitable for today's society then we should think about modernizing the product (which is a decision which Riksbank has decided to adopt, through the e-Krona project).
- Guarantee access to central bank money
- Central Bank can develop payment applications aimed for certain vulnerable groups.

eKrona is central bank money and will enable instant payment. It will be a combination of an account based system and a value based system. The introduction of the eKrona will be gradual and will not impact the banks in a significant way.

Three workstreams have been set up by Riksbank to investigate the implication for issuing eKrona:

- Legal issues- Can Riksbank issue a digital currency and clarify the central bank mandate? The ekrona will not be anonymous and transactions will be traceable.
- Infrastructure – provide the platform and application required for the system.
- Policy issues – Analysis of financial stability, demand of ekrona in normal and at times of stress, impact on the retail payments market, does it affect the interest

A report is expected at the end of this year.

2.1.3   Norges Bank

Cash use in Norway has also fallen dramatically like Sweden (Cash is just 2% above M1 and declining). Volume of CBDC would depend on the market interest rate. The lower the market interest rate the higher the volume of CBDC will be. A potential deterioration could be faced as the market rate reaches the policy rate.

Central Banks do not want a situation where

- There is a large demand for CBDC and there is lending from Central banks to the banks
- Crowding out private sector credit, if demand for CBDC becomes too large, then this could impact the funding for private sector
- Large volumes of CBDC
- Make cash disappear.

Norges Bank are investigating two types of design for CBDC:

a) Account-based model:
Main feature are that it is adaptable, provide a secure value storage, is suited to payments of any size, dependent on contact with a central third party and is close substitute to bank deposits

b) Token-based model:
Main features are that it is local and independent on communication with a third party for making payments, cannot be traced or recorded in a central database and money is lost if the payment instrument is lost or damaged.

Norges Bank is currently examining the two options for CBDC design and the impact on the payment system.

2.1.4 Central Bank of Brazil

The Central Bank of Brazil presented its report "Currency in the digital era" and the plans for the Central Bank to introduce CBDC.

2.1.5 Central Bank of Egypt

The Central Bank of Egypt presented the state of mobile money in Egypt and its studies on how it is planning to introduce digital fiat currency and the regulations that it is planning to introduce in the procees.

2.1.6 Bangko Sentral ng Pilipinas (BSP)

Rizal Commercial and Banking Corp (RCBC) was granted by BSP an approval to pilot by way of sandbox implementation the use of digital cash through Digital Stored Value (ePiso) in the Philippines in partnership with eCurrency Mint Ltd. The main objectives were to promote the efficiency and use of electronic payment service in the country, Encourage and develop cooperation and collaboration between Philippine payments players and create an interoperable digital financial services platform, ensure consumer protection and adopt a transparent and risk-controlled digital financial service.

The pilot implementation aimed to discover and capture the real user experience for digital financial services. The information will allow RCBC to ensure the relevance, improved usability and accessibility for intended users.

The presentation provided a case on how DFC technology can be used to enhance security and provide efficient and interoperable settlement solution among many micro-loan as well as a vast array of vendor networks.

2.2 Thematic Panels

Four thematic panels were held during the workshop on the 19th July 2018:

- Central Banks, Banks and Fintech
- DFC Regulatory & Economic Impact
- Reference Architecture & Ecosystem
- Security & Standards for DFC

2.2.1 Thematic Panel on Central Banks, Banks and Fintech

The main objective of this panel was to discuss the changes that fintech is likely to bring, and what changes it is not likely to bring by considering specially the role of the central bank and how it is likely to be impacted by fintech. Sarah Raskin, Deputy Secretary of U.S Treasury and Prof Hockett, Cornell University, provided an overview on how the United States is addressing the proliferation of crypto currency and Initial Coin Offering (ICO).

Since 2011 there has been 55 cyberattacks targeting cryptocurrency exchanges in US, causing some 1.5 billion dollars loss. With the disintermediation brought about by the distributed ledger, the potential for manipulation potentially drops significantly. The cost for trusting the middleman goes away. Despite all this, there are continued threats of manipulation affecting Bitcoin. It took months to figure out the concerted manipulation had happened around the rising price of Bitcoins. Bitcoin futures are manipulable. Bitcoin future relies on the reference rate which relies on the Gemini trade which can be influenced by traders. It was observed that the lack of liquidity and the small number of key players behind the hundreds of crypto currencies will allow bad actors to manipulate the prices of these crypto currencies, and result in losses for unsuspecting investors.

In his presentation, Rohan Grey, Modern Money Network observed that the future of banking in connection with cryptocurrency, is similar to the past of paper money. He provided a short history of how money has evolved in the US. He observed in his presentation that a uniform national currency should be elastic. The supply function should be controlled to grow and accommodate transaction volume but not speculative needs. Money supply should be expanded to accommodate productive activities. The Federal Reserve Bank was thus set up to modulate the supply of the money supply. The modulatory function invested in the Federal Reserve Bank, and the investment function was with the private sector. The allocation function and the collection of seignorage were outsourced. This worked well till the 1990s. It was noted that according to current trend, it seems that there is a movement towards a cryptodollar issued by the Fed Reserve Bank Every citizen in the country, would have a citizen account with the Fed Reserve. Fed Reserve will be able to credit directly to people account and be able to do direct money modulation rather that relying on intermediaries. Digital Fiat Currency is broader than digital currency issued by central banks. Sarah Raskin expressed the belief that DFC will eventually bring stability, trust and efficiency to the innovation and confusion brought about the digital currency revolution.

2.2.2 DFC Regulatory and Economic Impact

This panel is linked to the activities of the Working Group on Regulatory and Economic Impact in the Focus Group. The Digital Revolution under way in the global economy has brought to the forefront of the policy debate the need for central banks to issue their own digital fiat currencies (DFCs). The session focused on the economic benefits and challenges from a shift to DFCs along with regulatory requirements. Questions evolve around the desirability of issuing DFCs, and implications for monetary policy, financial stability and cross-border transactions

The panelists provided inputs on regulatory measures that were being considered at international level (e.g IMF, World Bank) and at level of some countries like Indonesia, Egypt and US. Ahmed Said, NTRA, Egypt and Wimboh Santoso, OJK, Indonesia provided information about the policy and regulatory measures that the government is planning to introduce for digital currency. In both these countries, Fintech is seen as an enabler for financial inclusion by giving unbanked customers access to financial services. Banks are usually concerned for the unbanked due to the cost of KYC as well as cost of maintaining customers.

It was observed that mobile money policies and regulatory measures are already in place and the recent growth of the fintech sector in those countries are bringing new services which require new policy measures. For example in Indonesia, transaction value involving startups has exploded in the past 2 years, reaching USD18.6 billion in 2017. A big proportion of Indonesia fintech goes to fintech payment (around 41%) and fintech lending (around 30%).

Some of the issues raised during the panel discussion for consideration by the Focus Group are:

a) The Central Bank Digital Currency (CBDC) is not easy to implement. It can significantly alter the business processes in the financial system that could potentially put pressure on financial system stability. Therefore, CBDC must be designed to preserve the important role of the Central Bank, Commercial Banks and Non Bank sector in order to maintain the overall financial stability.

b) Gradual implementation may be an alternative, for example starting with transactions between and among Banks and the Central Bank, then expanding to the Non Bank FI industry and finally to the individual customer.

c) A deep understanding on the technology used and its future trend are also important. Same story goes to the much needed infrastructures such as hardware, software, data center, DRC, network services and bandwidth, availability of electric power, human resources, SOP and also supported with effective communication and socialization.

d) Data privacy and consumer protection is of great importance, and need to be managed through Central Bank restriction on access to customer account information and also the availability of a transaction dispute settlement mechanism.

e) How to determine value of the CBDC is the next issue. Will it be Demand & Supply dynamics?

f) How the development of Fintech and E-Commerce platforms can be accelerated through the implementation of CBDC?

g) The possibility of implementing Centralized E-money and Direct Individual Settlement

2.2.3 Reference Architecture and Ecosystem

Building on the Work of Working Group Two: Reference Architecture and Ecosystem, this panel looks at specific reference architectures for a DFC solution. The panelists for this session discussed some platforms for digital currency and their main technical features.

Michael Li, Tencent, presented WeChat platform and how it has evolved from a social networking tool to a super application with a number of different services. WeChat is used to send messages, read news, play games, share moments, make payments, book a taxi, even to make a doctor appointment. WeChat Pay was launched 5 years ago. Today there are 800 million monthly active users, daily transaction reaches more than 600 million; peak 250 thousands transaction per second; and more than 300 financial institutions, including banks and some 1.1 million merchants, are using this platform.

Konstantin Peric, Bill & Melinda Gates Foundation presented design principles of the Level One project, which is a new digital payments platform that supports inclusive, interoperable digital economies. The main design principles of the Level One Project are:

- An open loop system, available to any licensed digital financial service provider (DFSP) in the country. This includes banks and licensed non-banks.

- Payments that are near-real-time and "push" only. This removes many of the risks and costs inherent in batch processed and "pull" payments systems. Payments are irrevocable.
- A system, which is governed by the DFSPs that use it: this well-tested model creates a feeling of fairness among participants. Same-day or better settlement among participants. A system which operates on a cost recovery model at the scheme level. This does not preclude DFSP's from making profits or other value-added services providers to the system.
- A shared investment in fraud detection and management services. The compliance burden remains with the DFSP, but they share in a less costly, more efficient fraud service.

Through the Level One Project, Mojaloop was designed in collaboration with Ripple, Dwolla, ModusBox, Software Group, and Crosslake Technologies. The Mojaloop API was designed in collaboration with Ericsson, Huawei, Mahindra Comviva and Telepin. Mojaloop is an open source for creating interoperable payment platforms that connects digital financial service providers and customers. The main components of the Mojaloop system are the Central Ledger for handling payments, Central Directory for account lookups and KYC and fraud sharing service for fraud prevention and AML. The Central Ledger is based on the Interledger Protocol to provide the following features:

- Conditional Payments— cryptographically strong
- Messaging between direct scheme participants and the Central Ledger
- Interledger Addressing—enables inter-scheme and over-the-top Internet payments

Thomas Kudyricki presented the eCurrency platform, its features and how it can be implemented to deploy DFC. Its implementation is based on requirements from over 30 central banks and there are pilots deployed in multiple markets. It is being commercialized in West African Economic and Monetary Union as DigiMoney and in Philippines as ePiso.

The digital currency (eCurrency unit) that is issued is a cryptographic object representing a value and participating in transactions. Each eCurrency unit is uniquely identifiable just like physical currency. These eCurrency units circulate within existing and future electronic payment systems enabling them to operate in Central Bank issued, base money (M0). The eCurrency platform allows the Central Bank to issue their own digital currency and distribute it to commercial banks for circulation to the public. The same governance process as for printing of paper money can be applied to the eCurrency platform.The eCurrency DFC API allows it to be interfaced with other payment systems and also allows them to transact in DFC. Thomas announced the opening of the API and to contribute the API specification to the ITU Focus Group work.

Drummond Reed, Evernym presented how a self sovereign identity system can integrate a DFC system to provide a strong level of security and confidentiality.

2.2.4 Security

The objective of this session is to build on the work of Security Working Group and discuss the security issues that should be considered for digital fiat currency. Jacques Francoeur, co-chair of Security Working Group presented a model for the security architecture for digital fiat currency and how to manage the cyber threats throughout the entire DFC ecosystem. This security architecture model will be discussed during the Security Working Group meeting.

Ed Scheidt, Convenor of ISO TC68 SC2 WG13 Ad Hoc Group 4 presented the work of ISO in security for digital currency.

Alpha Wang, Tencent, made a presentation on the security process in place for WeChat pay and how the company is handling the security of payments. WeChat Pay has invested lot of resources to build

and maintain a state-of-the-art fraud control and security system. Security system is designed to analyze suspicious behaviors and aims to block such transactions in real time. Once a potentially risky transaction is discovered, account protection will automatically be activated to secure your account against further threats.

Oliver Pfeiffer, ID Quantique presentation focused on the need for quantum safe cryptography for digital fiat currency infrastructure. The essence of the security of transactions in digital fiat currency will rely to a large extent on the ability to protect the security and integrity of transactions which is largely dependent on cryptography. He presented some of the tools for quantum safe cryptography such as quantum key distribution and quantum resistant algorithms.

3. Working Group Meetings and Outcomes

The three working groups met on 19th and 20th July to review the progress on their deliverables and presented the outcomes of their meetings at the closing plenary on 20th July.

The report of each Working Group is available as document:DFC-I-30 (Security Working Group Report), DFC-I31 (Regulatory Requirements and Economic Impact Working Group Report) and DFC-I-32 (Reference Architecture Working Group Report). The main outcomes are summarized below for each working group.

Regulatory Requirements and Economic Impact WG

Work Items	Owner

Collect documentation that provides a reference foundation to the governance aspects of Digital Fiat Currency from the Central Bank and regulator perspective.
 	
• Legal Survey Results & Analysis
    o Deadlines: First Draft - September 30, 2018
 	
• Other aspects of legal and governance
    o Deadlines: October 2018 potential topics proposed and approved via eMeetings
	Subcommittee: Rapporteur Carolyn McMahon, Mr. Nadeem of State Bank Pakistan
	
	Subcommittee: Ad hoc, following survey analysis.

Report on best practices and guideline on policy and processes to ensure the sovereign security, transparency and verifiability of critical technology components. • Contributions to Cases as requested by WG II • A Short-List Reference Document for Regulators of Requirements: "What a Central Banker should consider when contemplating a DFC implementation" • Deadlines: First Draft – September 30, 2018	Subcommittee: Rohan Grey, Reza Jalili
Report on the possible economic benefits and impact of DFC on mobile payment ecosystem. • A. Economic Impacts & Benefits: Aspects to investigate (See Annex 1) [Deadline: 30 September 2018] o 1, 3,4,5 –	Njuguna Ndung'u

o 2, 6: Monetary & Fiscal Framework: efficiency of monetary policy –	Rohan Grey
o 7. Add privacy & environment, Social & Practical questions & Impacts AML.CFT	Angela Walch & Rohan Grey, Ashwini Satnhur
o 8	
o 9. Government as user:	Mandar Deshpande (in collaboration with 2&6)
o 10. Movement: Cross bank movement of money: cross border (data payloads):	Reza; Rohan
o 11. Roles & Stakeholder: to be suggested to the ecosystem group (WG II)	Subcommittee: (see above)
o 12. AML (with emphasis on Financial Inclusion in collaboration with 7),	Mohammad Mahbub Alam, Bangladesh Bank, Barry Cooper, Ashwini
o 13. Financial Inclusion –	Barry Cooper, Carolyn McMahon, Faith Cacnio; Ida Diaz; Mandar Deshpande, Ashwini Santhur, Muhammad Ali
• B. Complementary Document: Unintended Consequences & Possible Risks - "Key Concerns" and possible mitigation strategies o Deadline: Draft September 30	Subcommittee: Reza Jalili, Rohan Grey, Angela Walch, Akhis Hutabarat,
Others	
• **Governance Models Taxonomy**: We liaise with WG II regarding the taxonomy discussion: a goal is to capture the variety of governance models within the taxonomy. If WG II doesn't not have appetite for this, we consider taking it up in Deliverable II. [Deadline: TBD]	Subcommittee: (tbd) WG I leadership Team agrees to manage liaison with WG II

Reference Architecture WG

Work Items	Who
1. Report on Use Cases on DFC a) Use cases contributed by People's Bank of China, Bank of Canada and Bank of Tanzania before Aug 10, 2018.	Zhao Xinyu, Dinesh Shah James Masoy
b) A new use case template be drafted based on 3 use cases provided with a high-level approach before Sept 7, 2018.	Thomas Kudrychi (on BOT & BSP cases) Chackan Lai (on PBOC case) Dinesh Shah (on BOC case)

c) Use case template circulated for consultation and finalized before Sept 30, 2018.	Feng Lei
d) Use case template circulated to FG DFC members to fill in and collected before Oct 9, 2018.	Feng Lei
e) Develop draft report based on feedbacks.	Camilo Merchan James Masoy Chackan Lai
5. Report on Taxonomy and definition of terms used in DFC Action: To revise the draft report on taxonomy based on comments from WG1 and WG2 members at the joint presentation on July 20. The draft will then be circulated to the FG DFC for consultation before submitted as a WG2 deliverable.	Daniel Reiss
6. Report on Reference Architecture Action: Contributions to be sought on this topic.	Thomas Kudyricki, Carolina Caballero, James Masoy

Security Working Group

Work Items	Who
1. Security Architecture Report (First Draft Completed, End October 2018, Final Draft: January 2019)	**Jacques Francoeur, San Jose State University** Andrew Sierra, Manager, Product & Innovation Risk, VISA Ramakopoi Seeiso, Manager IT Infrastructure, Postbank, Lesotho Ed Scheidt, Vice Chair, X9F Global Security Standards, ISO
2. Security Governance Architecture (First Draft Completed, End October 2018, Final Draft: January 2019)	**Leon Perlman, Lead Researcher, Columbia Business School** Jacques Francoeur, San Jose State University
3. Big Data Analytics for DFC Fraud Prevention (First Draft Completed, End October 2018, Final Draft: January 2019)	**Richard O'Brien, CEO, Payment pathways**

	Yury Grin, Deputy Director General, Intervale

The reports of each working group was approved at the plenary on 20th July.

3. Closing of meeting

The Chairman thanked Cornell University and the ITU team for their support and for hosting the meeting and all the participants who contributed to the discussions. The next meeting will take place in the first quarter of 2019.

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