





Kimberly Process pilots a blockchain for tracking the world’s diamonds


Luke Parker (/authors/luke-parker/), 28 Aug 2016 - Authentication (/news/tag/authentication), Blockchain Adoption (/news/tag/blockchain+adoption), Diamonds (/news/tag/diamonds)

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The recently published inaugural Kimberley Process (<https://www.kimberleyprocess.com/>) (KP) mid-term report (https://www.kimberleyprocess.com/en/system/files/documents/kimberley_process_mid-term_report.pdf) highlights key initiatives and includes a section dedicated to blockchain technology, detailing a proposal “which explores the use of blockchain technology to help enhance security measures.”

“The KP Chair’s office is committed to the examination of [Blockchain technology’s] benefits and is working on a potential pilot project that would use Blockchain technology to monitor KP statistics.”

- Kimberly Process Mid-term report

The Kimberley Process Certification Scheme (KPCS) is an international effort to keep conflict diamonds out of circulation. Created in November 2002 and entering into full use in 2003, the Process sets out the requirements for controlling rough diamond production and trade.

The Scheme imposes extensive requirements on its members to enable them to certify shipments of rough diamonds as “conflict-free” and prevent conflict diamonds from entering legitimate markets.

Participants can only legally trade with other participants who have also met the minimum requirements of the scheme, and international shipments of rough diamonds must be accompanied by a KP certificate guaranteeing that they are conflict-free.

Participating states must meet minimum requirements and put in place national legislation and institutions - export, import and internal controls - and also commit to transparency and the exchange of statistical data.

“The Kimberley Process (KP) is a joint governments, industry and civil society initiative to stem the flow of conflict diamonds – rough diamonds used by rebel movements to finance wars against legitimate governments.”

- Kimberly Process

The KP Chair rotates annually, and this year the KP chairmanship is held by the UAE’s Ministry of Economy, Ahmed bin Sulayem. Bin Sulayem was appointed by Sultan bin Saeed Al Mansouri in January, coinciding with the start of the KP Chairmanship.

The UAE is the first Arab nation to hold the KP Chair, which oversees the implementation of the KPCS, the operations of the working groups and committees, and general administration and facilitation of the KP worldwide.



KP members account for approximately 99.8% of the global production of rough diamonds. The World Diamond Council, which represents the international diamond industry and civil society organisations, participate in the KP and have played a major role since its outset.

While the KP is open to all countries that are willing and able to implement its requirements, there are currently 54 participants representing 81 countries, with the European Union and its Member States counted as a single participant.

Forged documents accompanying rough diamonds have always been the program’s achilles heel, making it so that diamonds born out of some of the worst human suffering can make it through the cracks, and end up being sold at legitimate outlets worldwide. The KP program has worked for over a decade to fight this problem, but has not yet prevailed.

“The KP Chair’s office in collaboration with the UAE KP office discovered that Blockchain could be immensely important to the future of the Kimberley Process, and help to eradicate false KP certificates and reduce the impact of human error while uploading data significantly.”

- Kimberly Process Mid-term report

Bin Sulayem first discussed the possibility of using a blockchain for the KP process during a series of talks held with the members of The Blockchain Council of the Dubai Prime Minister’s office earlier this year.

The Council had already researched how Blockchain technology could be used to prevent conflict diamonds from entering the market at the time, and convinced Bin Sulayem and the UAE KP office that “Blockchains could be immensely important to the future of the Kimberley Process, and help to eradicate false KP certificates and reduce the impact of human error while uploading data significantly,” according to the report.

Despite global diamond sales declining sales in general, problems with the supply and production pipeline are starting to eclipse the decline and create a scarcity of diamonds on the market.

According to an independent Global Diamond Industry 2015 report (http://www.bain.com/Images/FINAL%20bain_diamond_report_2015_01122015.pdf) by Bain & Company, commissioned by the Antwerp World Diamond Center (AWDC), the rough-diamond supply-demand balance will be tight in the near future. The long-term outlook for the diamond market remains positive, “with demand expected to outpace supply starting in 2019.”

“Rough-diamond production volume fell by 4% globally in 2014 to slightly less than 125 million carats. [...] Botswana’s continued production growth was not sufficient to offset a major drop in production from Zimbabwe caused by deterioration of its existing alluvial deposits and lack of investments and expertise to enable deeper mining operations.”





- Bain & Company

Blockchain technology may be able to provide more benefits than simply establishing a permanent public record of diamonds, and the KP office has been incorporating them into their pilot test.

On top of simply recording the origin of each diamond, a blockchain can record their entire chain of ownership transfer over its lifetime. It can also tie that information to a description and insurance information to tell law enforcement any pertinent data about a stolen diamond if needed.





Blockchains can also save money by replacing physical certificates for each stone. Providing customers with a certificate of authority using digital signatures can save both time and fees, while making the entire lifecycle of each diamond more efficient and secure.

Blockchain startup Everledger (<http://www.everledger.io/>) has been highlighting this particular opportunity ([news/everledger-uses-the-blockchain-tackling-conflict-diamonds-and-insurance-fraud/](#)) for over a year now, although the company’s name is not mentioned in the KP mid-term report. Everledger is exactly the kind of service that is needed to track all of the world’s freshly-mined diamonds on the blockchain.

The KP Mid-term report did, however, mention that blockchain service providers are being consulted with for some level of involvement. “The KP Chair engaged with Blockchain technology providers to adapt this technology to the Kimberley Process Certification Scheme,” the report stated.


The pilot program will continue at least until November when the next report is due. “An update on the project will be provided at the Plenary meeting in November 2016,” the Mid-term report explained. With any luck, the service provider will be named at that time and we can learn more about the specific type of blockchain technology being tested.


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Public blockchains gaining acceptance at Bank of Japan’s Payment and Settlement Forum


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A summary of the Bank of Japan Forum on Payment and Settlement systems, released (https://www.boj.or.jp/en/announcements/release_2016/index.htm/) on Friday, revealed that public blockchains were discussed in a positive light. Banks and financial institutions typically focus on projects using private blockchains, where a greater amount of privacy and control can be held by the issuer. Their public counterparts, such as Bitcoin’s blockchain, are usually sidelined.

The Bank of Japan (BoJ) Forum was held on March 17 and 18, with 49 companies and organizations participating on the first day and 45 on the second. Kenji Hoki, a Senior manager at one of Japan's leading audit corporations with approximately 5,600 professionals, KPMG AZSA LLC (https://home.kpmg.com/jp/en/home/about/azsa.html), delivered the opening presentation.

Using the term Distributed Ledger Technologies (DLTs) in place of blockchains, Hoki discussed the merits of “private-type” versus “public-type.” According to Hoki, private would be the “only feasible choice” for security settlement, adding that public would be “a bit too costly and take too much time in finalizing the settlements.”

While claiming that public DLTs are suitable for retail payments, it would be difficult to judge which is better for fund settlements, he argued.

“Public-type DLTs would be suitable especially for retail payments with huge volume and standardized procedures. Nonetheless, it would be necessary to overcome the possible flaws in public-type DLTs such as lengthy process of ‘mining’ that could hinder real-time settlements.”

- Kenji Hoki, KPMG AZSA Senior Manager

The Senior Manager then discussed an increasing use of digital currencies, based on public DLTs, which “could prevail instead of sovereign currencies.”

“When digital currencies become to be widely used, people will not have to have bank accounts for payment purposes.” Commercial banks could become “unable to provide ‘finality’ to payments,” Hoki states.

In this scenario, non-bank financial intermediation “might become more pronounced,” he claimed, and the possibility of using public-type DLTs for fund settlements will subsequently be undeniable.

A discussion about financial blockchain applications followed Koji's presentation. Ryu Takaki (https://jp.linkedin.com/in/ryu-takaki-711991113), an Associate Partner at IBM Japan, Ltd, raised various issues including anonymity, transparency, delayed finality, and maintaining mining incentives.

Takaki informed the Forum attendees of IBM's various blockchain projects, such as the Open Block Chain and its participation in the Linux Foundation Hyperledger Project.

“In applying blockchain technologies to financial businesses, it would be important to ‘standardize’ those technologies so as to facilitate wider use.”

- Ryu Takaki, IBM Associate Partner

The completeness of settlements was heavily discussed in Takaki's presentation. “It seems that Japanese banks generally consider the ‘finality’ of settlements very strictly while overseas banks tend to grasp the ‘finality’ less strictly.”

“Public-type blockchain technologies, which are used in Bitcoin, do not provide ‘100 percent finality’ in a strict sense due to the possibility of ‘forks’,” the Associate Partner added.

“Frontiers of applying DLTs to businesses” was the next topic at the meeting, presented by Yuzo Kano, CEO and founder of one of Japan's largest bitcoin exchange, bitFlyer. Kano revealed that bitFlyer has been conducting research and analysis into the application of the technology over the past two years, and is developing its own blockchain.

The CEO cited “the management of credit history and real estate transactions” as examples of blockchain use. “I believe that our technologies, if applied to financial transactions, would enable high-speed processing of transactions, which the existing blockchain technologies cannot bring about,” Kano claims. Bitcoin and the prospects of digital currencies were also discussed during his presentation.

“In developing countries where confidence towards own currency is low, Bitcoins may substitute the sovereign currencies in the future.”

- Yuzo Kano, bitFlyer CEO and founder

Currency Port CEO, Yasunori Sugii, presented next. Currency Port provides various payment APIs as well as Point of Sale (POS) contactless payment solutions for vendors. One of Japan's largest financial holding companies, Mizuho Financial Group (MFG), announced (news/trillion-dollar-japanese-financial-group-explores-blockchain-technology-solutions/) a collaboration with three companies, including Currency Port, in February. Mizuho is investigating Microsoft’s Azure Blockchain as a Service (BaaS) for its syndicated loan business.

Sugii started his presentation with the benefits of blockchains, beyond financial and the certification of content, highlighting industries that use automatic transactions and the Internet of Things (IoT).

Advocating for the best of both worlds, the CEO proposed linking private and public blockchains, for example, when newly issuing values. “Those values can be kept on the public-type blockchains that excel in external auditability, while their transactions can be managed on the private-type blockchains that are good at high-speed processing.”

“It is necessary to provide opportunities for matching engineers from major research institutes with those specialized in blockchain technologies,” he proposed.

“Public-type and private-type blockchains have respective advantages and disadvantages. It is therefore important to come up with ideas for linking these two types of blockchains and complementing characteristics of respective types.[...]it is also important to link the blockchain technologies with those in other fields.”

- Yasunori Sugii, Currency Port CEO

Sugii also discussed digital currency usage and credit card payments, highlighting obstacles from both the direction of credit card payment infrastructure as well as customers: “I do not think that [card payment companies] are very willing to invest in new infrastructure unless the direction of future settlement measures is clearly seen.” On the other hand, the CEO states that consumers will not be willing to switch to the settlement measures that are not accepted by many stores.

The discussions on March 17 ended with closing remarks from the Assistant Director-General of BOJ Monetary Affairs. Shuji Kobayakawa briefly summarized the points of discussions, as well as offering the Bank's view.

“If such technology that allows real-time validation is used, consideration will be promoted in the future not only on administrative work of issuance and custody of securities more efficient, but also on possibility of simultaneous settlement of securities and funds,” Kobayakawa said, adding it’s “essential to promote standardization and commonalization of technologies as well as to improve externality of the network.”

The second day of the Forum discussion, March 18, started with presentations on the current state of the Japanese financial system. The fourth presentation for the day returned to the subject of blockchain, when Deloitte Touche Tohmatsu LLC Senior Manager, Taketoshi Mori, gave his presentation.

Asserting that blockchain technology made a non-centralized system possible, with “real-time and low-cost settlement with improved accuracy in transaction handling and reduced transaction risks,” Mori cautioned that “major changes are required.”

Mori explained that numerous issues are likely to emerge, such as different securities laws in different countries and “supervisory power on browsing of the books.” To that end, he highlighted the necessity of “demonstration experiments with relevant parties.”

The Senior Manager also rekindled the subject of public versus private blockchains. After acknowledging the efficiency and cost reduction of private blockchains, he added “this may overshadow the advantages of the public-type.”

“If the private-type blockchain is excessively sought after, it is true that the advantages of the public-type blockchain, such as Bitcoin, may be lost. I think it is sufficient to select the public, private or hybrid types according to the use.”

- Taketoshi Mori, Deloitte Touche Tohmatsu LLC Senior Manager

Mori proceeded to describe his vision of an “ideal settlement system,” where “transactions are settled on an RTGS (real-time gross settlement) and DVP basis and central banks cooperate across the border to completely eliminate the settlement risk.” He added that blockchain technology makes this future feasible.

“I do not think it necessary to replace everything with the blockchain, such as exception handling of securities transactions,” Mori states. The Senior Manager referenced the Australian Securities Exchange (ASX), an entity in the process of reviewing everything from laws and regulations to market practices in contemplating of using blockchain technology to replace existing systems.

ASX recently announced ([news/major-stock-exchange-completes-blockchain-trial-for-replacement-settlement-system/](#)) that it has completed a successful blockchain prototype that could replace its existing settlement system, CHESS. The company is currently working with Blythe Masters' Digital Asset Holdings to develop a settlement system that could potentially handle all of the Exchange's transactions.

Following Mori's presentation were the closing remarks from BOJ Director-General, Hiromi Yamaoka. He summed up the points raised by the participants and gave the Bank's view as well as a possible course of action.




“Blockchain and distributed ledger technologies try to enable a system free from an "entrusted third party to manage a centralized ledger." In applying those technologies to various practices, it would be important to examine to what extent the current institutional framework such as legal systems are based on the concept of a "centralized ledger managed by an entrusted third party," and whether we need to modify those traditional framework so as to apply new technologies to the real world.”

- Hiromi Yamaoka , BOJ Director-General

After acknowledging the benefits of and hurdles in applying blockchain technologies, Yamaoka asserted that the BOJ confirmed its commitment to maximize the benefit of financial innovations.

Citing the work at the new BOJ's FinTech Center, he said the Bank will “enhance its research and analysis activities as well as public relations regarding financial innovations and relevant new technologies.” Furthermore, it is important to have interactive communications with a wide range of economic entities including non-banks and startups. His closing remark was “The Bank of Japan is ready to play the role of ‘catalyst’ of those communications, and to make its best possible contribution to the improvement of financial services.”

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