



Seven lessons from the e-Peso pilot plan: the possibility of a Central Bank Digital Currency

Adolfo Sarmiento

16th June 2021

(The views in this presentation are those of the author)

- What has Banco Central del Uruguay done?
- What have we learned?

- Issue, put in circulation and test in the real world a Central Bank Digital Currency (CBDC) called e-Peso
- e-Peso is the Uruguayan Peso in digital



- e-Peso:
 - legal tender digital currency issued by the Central Bank
 - electronic platform for the Uruguayan Peso
- Pilot plan:
 - needed for verification of technical issues
 - needed to keep risks under strict control
- Conditions set forth by the Central Bank
 - No cost for CB
 - No cost for final users



Legal

- Legal framework was sufficient for the issuing electronic bills as a complement of paper bills



Security

- Cyber and information risks have been reasonably mitigated
- Other risks (e.g. financial and reputation) have been reasonably hedged



Tecnology

- Successful testing of the system's component (e-Peso production, digital vault, digital wallets, transactional system, infrastructures, etc.) and business continuity



6 months
Nov. 17 to Apr. 18
**(e-Peso bills are being
destroyed now)**

Limited

\$30000 per wallet
(aprox. 1000 EUROS)
**\$200000 for registered
business**



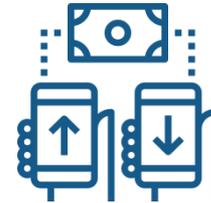
**Limited bill
issuance**
(20 million)



Payment transactions
**in registered stores
and business**

antel

**10.000 mobile phone
users**



**Transfers P2P among
registered users**

1°

Stage

- Issuing \$20,000,000 Uruguayan pesos in digital (e-Peso)
- Transferring to virtual vault
- Transferring to *RedPagos* first \$7,000,000 e-Pesos
- Starts Nov. 17 for 6 months
- Antel users install e-Peso app (digital wallet)
- Cash-In through *RedPagos* (incentives to the first 1000)
- Random, monthly, monetary incentives for active users
- Making transactions

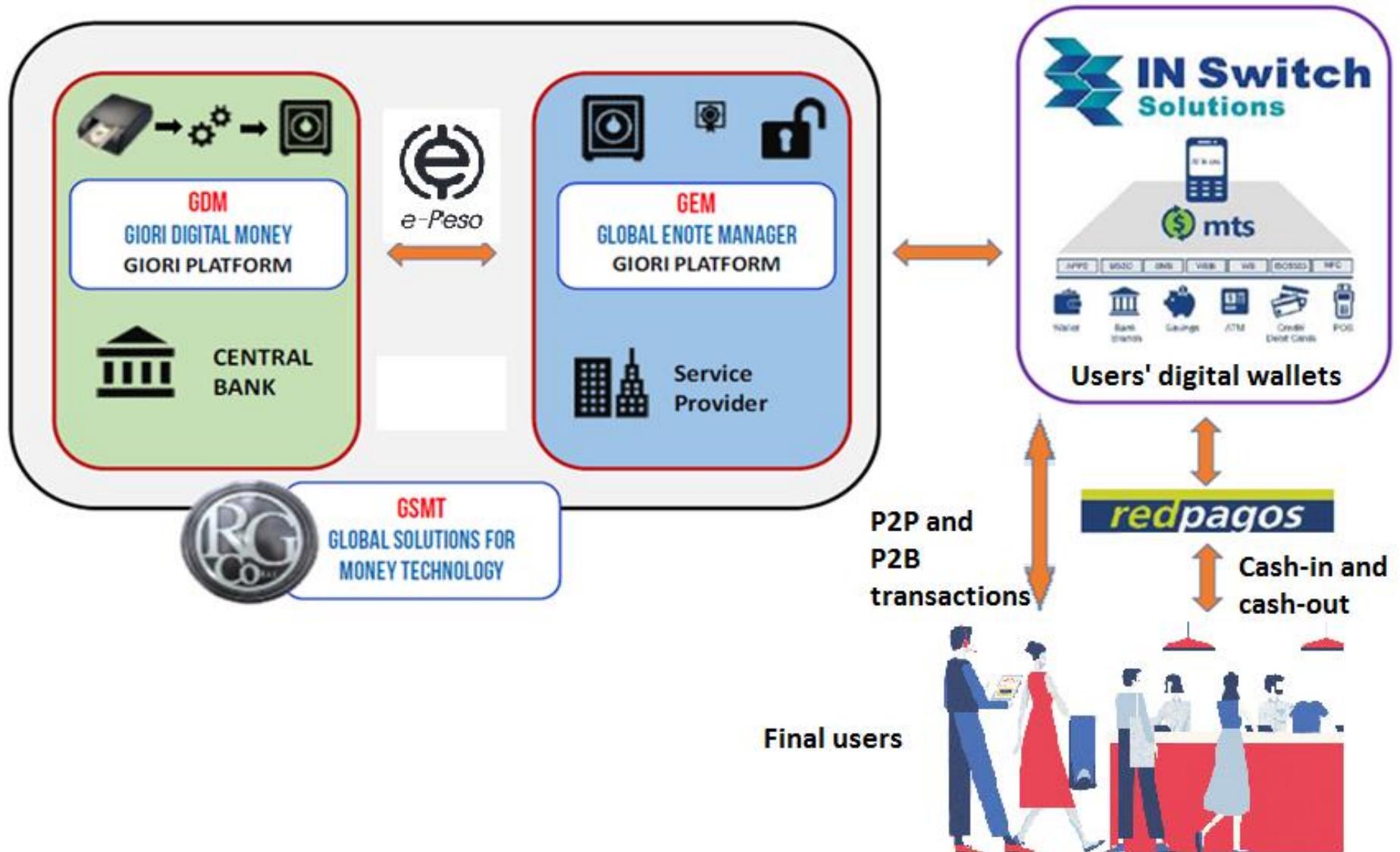
2°

Stage

- Cash-Out through *RedPagos*
- Returning of e-Pesos to the BCU for destruction
- Evaluation of the Pilot and decision on future steps

3°

Stage



- Instant settlement
- Does not require internet connection (just a mobile phone line)
- Anonymous but traceable
 - users' wallets and encrypted Global E-note Manager (GEM)
- Security improved
 - e-Pesos are secured at GEM even if users lose their phones or password of digital wallet
 - Unique, traceable bills prevent double-spending and falsification
- Digital bills difficult complete fungibility but GEM may change automatically

1. Reputation: the stem of the money flower

- Reputational risk is part of the key discussion on central banks' corporate governance.
- The decision to introduce a CBDC pilot plan, beyond the existing uncertainties about the development of technology and cyber risk, will be a decision on central banks' reputation
- This reputation will be the stem of the flower and will allow the new petal to grow or not.

2. Motivation: from financial inclusion to cultural dimensions

- Even sometime digital currencies are considered a substitute to cash, it may be considered as a complement to cash.
- The use of cash is still there not only for financial inclusion purposes but also for cultural reasons.
- The elderly and those with little financial education see some added value in cash.
- CBDC introduction must be: simple, accessible and trustworthy.

3. Technology: the simpler the better

- The e-Peso pilot plan chose to manage the electronic platform to issue money without DLT.
- The platform function is a register of the ownership of the digital banknotes linked to a telephone number without DLT.
- Even if in the next stages of a pilot banks could be included, the technological solution must stay as simple as possible because the operation of the system and the cyber risk concerns must be under control.

4. Operational risk: 'printing money' and Big Brother

- CBDCs can be seen as a digital version of printing physical cash. Each e-Peso digital note includes an identification (ID) serial number so these digital notes could be traced back.
- This process has two important implications, (i) each digital note includes security aspects and (ii) the use of each note can be traced from one wallet to another.

4. Operational risk: 'printing money' and Big Brother (cont.)

- This identification and monitoring model is one important way to mitigate operational risk from double-spending and falsification.
- But at the same time opens a discussion about the legal control on the use of money.

5. Tokens as a solution

- The design decision of a token-based CBDC that involves the transfer of a token directly between wallets has worked properly in many ways.
- The verification process to test a genuine token, and that the e-Peso is not duplicated, the mobile wallet app was proven successfully.
- This design not only was interesting for those parts of the population with limited access to bank accounts, it was also used for small payments, mostly related to everyday needs.

6. The use of money: small payments and transfers

- Transfers between peers with e-Pesos were very common through the pilot period. The quantity of operations rose with the learning process of users.
- Another issue is the cultural use of money: nearly all the participants use the e-Peso in the same way, which was not surprising because the voluntary participants were familiar with electronic means of payments.

7. Complement versus competition

- The first issue to discuss is if compete with bank deposits. Even more, CBDC can compete with payment service providers questioning disintermediation.
- Although it would take some time for CBDC to be widely used, one very important issue in the e-Peso pilot plan was to impose a limit on the amount of e-money to have in the e-wallet.
- So, the main use of e-Pesos is the same as cash, to do small payments and not to compete with other means of payments or at least, no to compete in a different way than cash does.

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Thank you!