



BANCO CENTRAL  
DEL URUGUAY



*e-Peso*

# Central Bank Digital Currency

## A central banker perspective

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(The views in this presentation are those of the author and not of the Banco Central del Uruguay)

# Outline

- What has Banco Central del Uruguay done?
- Why?

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# What has Banco Central del Uruguay done?

- 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



# A pilot plan for CBDC

- 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

# Proposal and assessment



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

# Participants



Issues digital bills

**antel**

Provides telecom network

**RGC**

GSMT (Global Solutions for  
Money Technologies)

**IBM**

Storage, management,  
control of circulation and call  
center



Management of users,  
transfers and transactions

**redpagos**

*Cash-In and  
Cash-Out*

# Pilot plan



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



**Limited bill  
issuance**  
**(20 million)**

**antel**

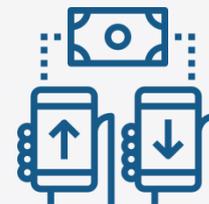
**10.000 mobile phone  
users**

**Limited**

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



**Payment transactions**  
**in registered stores  
and business**



**Transfers P2P among  
registered users**

# Timing

1°

Stage

- Issue \$20,000,000 Uruguayan pesos in digital (e-Peso)
- Transfer to virtual vault
- Transfer to *RedPagos* first \$7,000,000 e-Pesos

2°

Stage

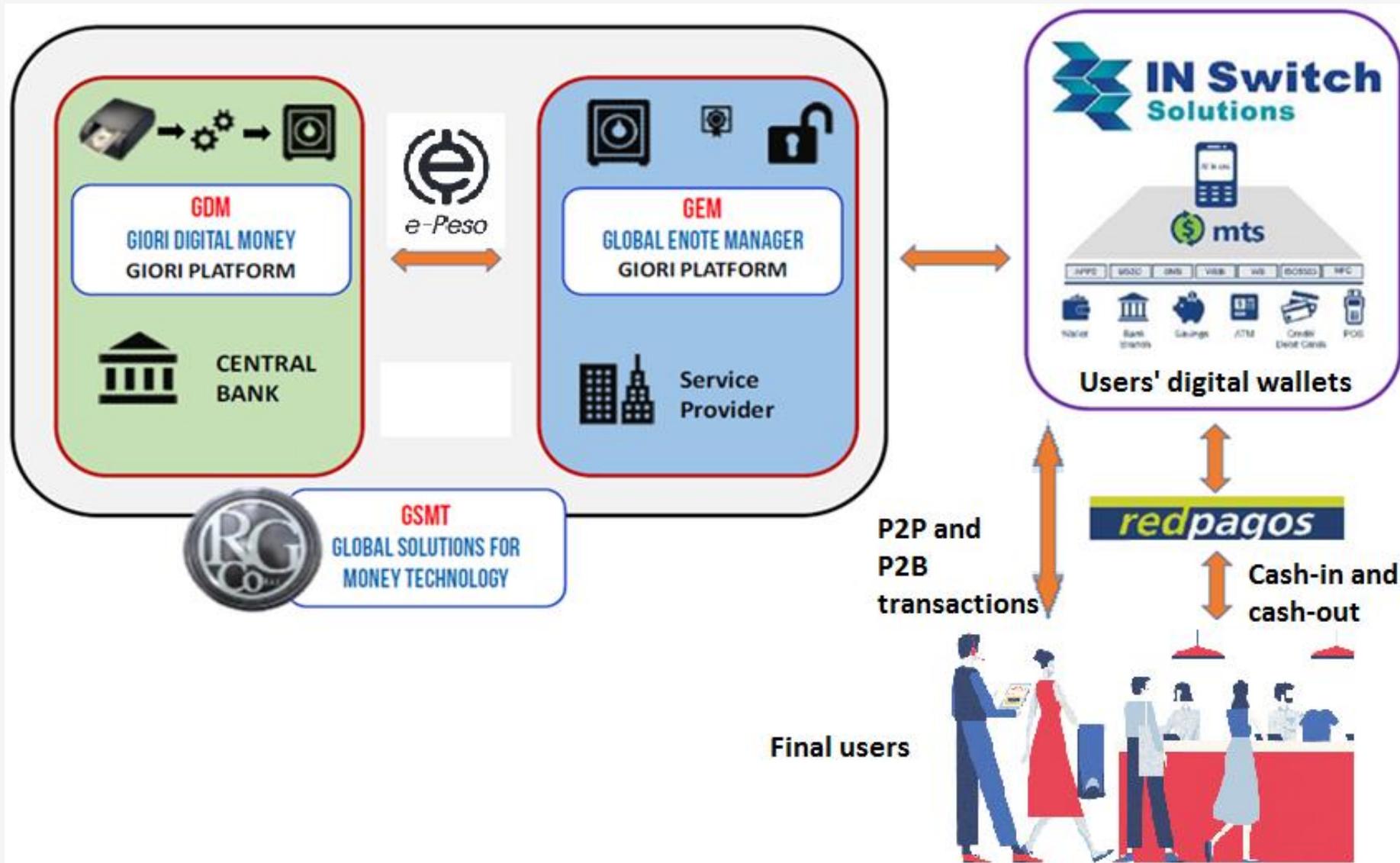
- Starts Nov. 17 for 6 months
- Antel users install e-Peso app (digital wallet)
- Cash-In through *RedPagos* (incentives to the first 1000)
- Random, monthly, monetary incentives for active users
- Make transactions

3°

Stage

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

# Description of the system



# Characteristics of the system

- Instantaneous 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
- Unique bills difficult complete fungibility
  - but GEM makes change automatically

# Experience and preliminary evaluation

- Very positive experience
- Develops according to expectations
- No technical incidents
  
- Mostly P2P transactions
- Increasing number of stores and business
- Banks interested in entering

# Further questions and (some tentative) answers

- Impact on banks and other incumbents?
  - new equilibrium: in practice banks are interested to be onboard
- Impact on monetary policy?
  - positive: more transparent and systematic information in real time
- Impact on crisis times?
  - neutral or positive: e-Peso is legal tender as physical bills are
- Impact on users expenditures and consumption patterns?
  - limited: e-Peso will complement, not substitute, means of payment
- Impact on information?
  - positive: analysis (monetary policy, expenditure, etc.) and prevention of tax evasion, money laundry and terrorism financing
- Impact on competition and resilience?
  - positive: providing interoperability regulation and competition policy

# Outline

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- Why?

# Change of paradigm

- This digital era and *Fintech* implies challenges:
  - rapid and big changes in payment systems
  - potential disruptive impact on financial markets
  - risks to monetary policy and financial stability
  - risks to tax evasion and financing of illegal activities
  - challenges to customer protection
- Digital technologies also imply opportunities:
  - reduce transaction costs and improve efficiency
  - improve safety in financial transactions (crime vs. cyber risk!)
  - serve financial inclusion objectives (e.g. M-Pesa in Kenya)
  - *Regtech* contributes to price and financial stability

# Central banks in a digital era

- Central banks should:
  - be part of the new paradigm
  - be prepared to fulfill their mandates in a digital era
  - be able to exploit new technologies in their favor in order to:
    - improve efficiency,
    - protect the payment and financial systems, and
    - ensure financial stability

# Reducing transaction costs

- Central banks digital currencies could help to reduce transactions costs to operate means of payment and store of value by:
  - reducing costs of printing physical/paper bills
  - reducing logistics and cash management issues (importing, storing and distributing bills in the territory)
  - reducing paper bills related crime

- These costs may be important in magnitude:

- |             |                            | % of GDP |
|-------------|----------------------------|----------|
| Uruguay     | (Lluberas and Ponce, 2018) | 0.54%    |
| of which:   | Central bank               | 2.2%     |
|             | Banks and retails          | 87.6%    |
|             | Hoseholds                  | 10.2%    |
| Netherlands | (Nederlandsche Bank, 2004) | 0.43%    |
| Sweden      | (Bergman et al., 2007)     | 0.42%    |

- Crime rates are (Rogoff, 2016):
  - positively correlated with demand for paper currency
  - negatively correlated with credit and debit card penetration

# Increasing transparency and security

- Central banks digital currencies could also help to:
  - increase efficiency and transparency in the payment system
  - improve safety in day-to-day operations
  - improve control of illegal activities and tax evasion
  - improve customers protection and personal data security

# Promoting financial innovation and inclusion

- Central bank digital currencies could promote further financial innovation:
  - central banks are part of it together with the industry
  - prolific field for startups developing new products and services (e.g. digital wallets with enhanced customers' experience)
  - potential for incumbent banks to offer new products and services
- And financial inclusion:
  - traditionally financial excluded sectors of the population do access mobile phones

# Being proactive

- There is an unavoidable technological trend that sooner or later will challenge central banks:
  - jurisdictions going cashless
  - markets are organized based on electronic platforms, some of them without well-defined owners and without assets
  - cryptocurrencies: unit of value, mean of payment and reserve of value? And, who to “blame”? But, increasingly traded
  - better customers experience is highly demanded
  - new products and new ways to provide traditional ones should not scape prudential regulation when involving the same risks



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# Grazie mille!