

# From an Emerging Economy Perspective: Central Bank Digital Currency Analysis of Turkey

*September, 2019*

# PROBLEM DEFINITION

- Digitalization of financial services and products
- Problem of underground and informal economy activities
- Distrust for financial institutions
- Need for financial inclusion
- Emergence of cryptocurrencies



# CASH MANAGEMENT COST OF CBRT

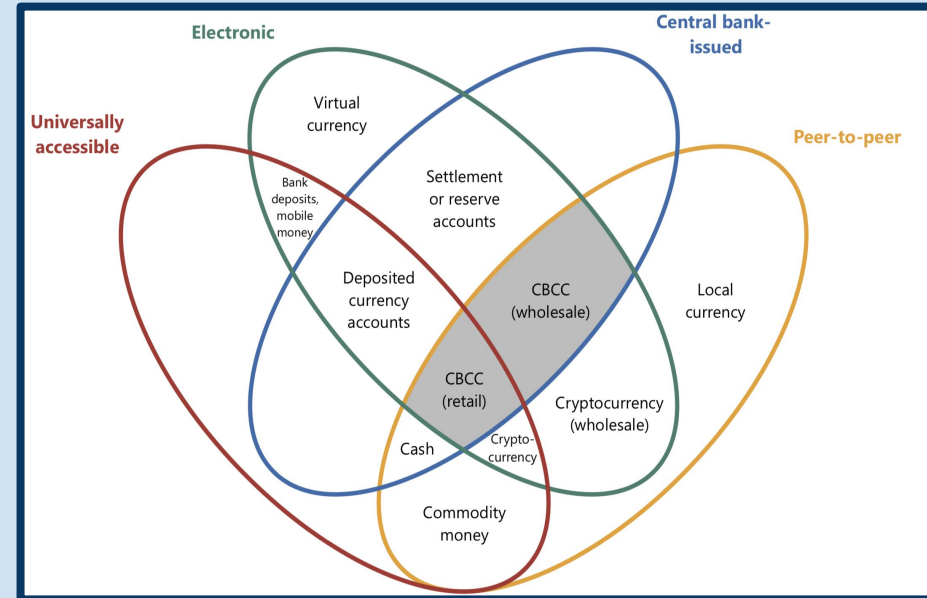
Expenses	2018 (TRY)
Personnel Expenses	236,900,240
Other Expenses	48,081,091
Banknote Printing Expenses	41,744,932
<b>Total</b>	<b>326,726,263</b>

Banknote paper and ink expenses are

**151,586,286 TRY**

# SOLUTION PROPOSED

- A digital currency issued by the Central Bank
- Store value electronically and make transactions in digital form



# Motivation Benchmarking of Central Banks

Central Banks	Diminishing Cash Usage		Cost Efficiency	Financial Inclusion
	Monopoly Distortions	Operational Risks		
Canada	X			
China	X	X	X	X
Norway	X			
Sweden	X	X		
Uruguay			X	X
Ecuador			X	

# Classification of Central Banks by their Progress

<b>Adaptors</b>	<b>Rejectors</b>	<b>Researchers</b>	<b>Experimenters</b>
Tunisia	Germany	Canada	Uruguay
Venezuela	Japan	China	Singapore
Senegal	Switzerland	Sweden	Iran
Marshall Islands	Ecuador	UK	
	Hong Kong	Israel	
	Denmark		

# ATTRIBUTE BENCHMARKING

Attributes	Reserves	Cash	CBDC	Cryptocurrencies
<b>Format</b>	Digital	Physical	Digital	Digital
<b>Denomination</b>	TRY	TRY	TRY	-
<b>Legal tender</b>	No	Yes	Yes	No
<b>Convertibility</b>	Par	Par	Par	Par
<b>Access</b>	Restricted	Inclusive	Inclusive	Partial
<b>Availability</b>	During operating hours	24/7	24/7	24/7
<b>Confidentiality of use</b>	Non-anonymous	Anonymous	Both possible	Anonymous
<b>Payment Network Structure</b>	Centralized	Decentralized	Decentralized	Decentralized

# MODELLING THE CBDC

Features

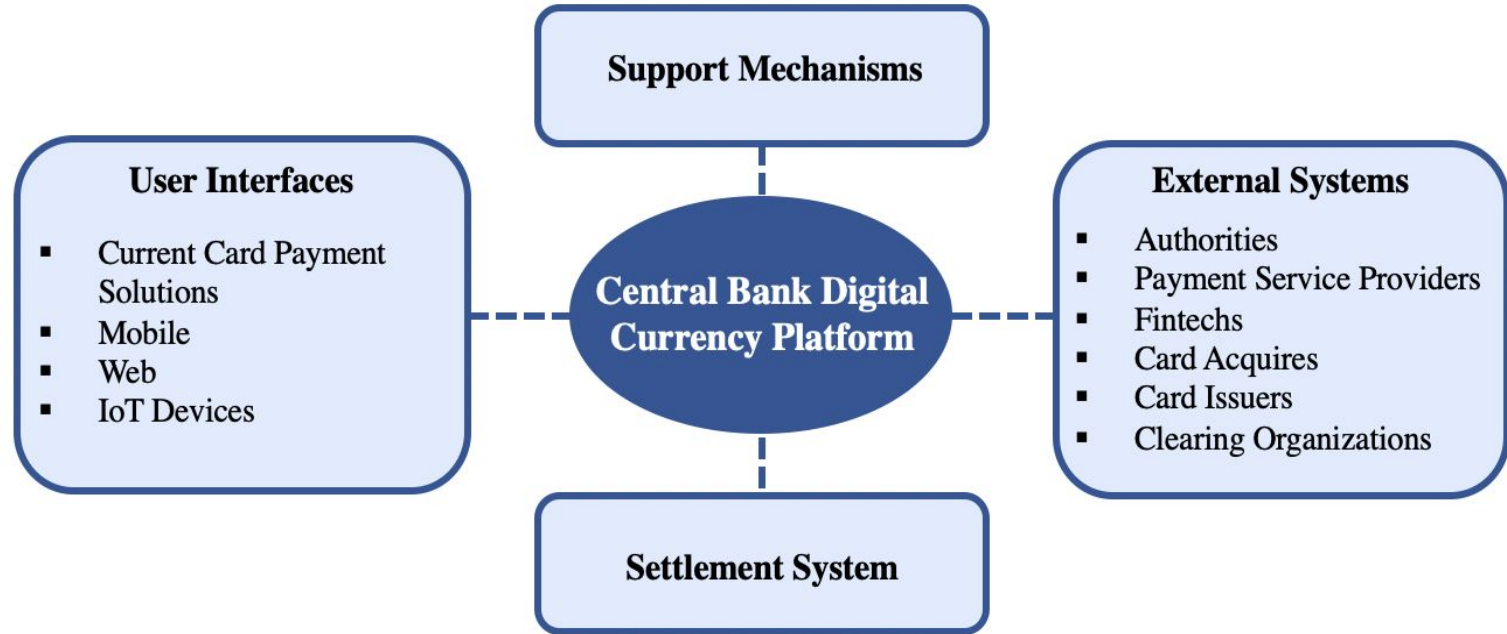
<ul style="list-style-type: none"><li>• <b>Availability &amp; Access</b></li><li>• <b>User adoption</b></li><li>• <b>Economic growth</b></li></ul>	<ul style="list-style-type: none"><li>• <b>Distribution channel</b></li><li>• <b>Payment network structure</b></li><li>• <b>Convertibility</b></li><li>• <b>Bank runs</b></li></ul>	<ul style="list-style-type: none"><li>• <b>Account vs. Token Based</b></li><li>• <b>Interest-bearing</b></li><li>• <b>Legal tender</b></li></ul>	<ul style="list-style-type: none"><li>• <b>Data protection</b></li><li>• <b>Control</b></li><li>• <b>Confidentiality of use</b></li></ul>	<ul style="list-style-type: none"><li>• <b>Scalability &amp; Performance</b></li><li>• <b>Security</b></li><li>• <b>Competency</b></li><li>• <b>Resilience</b></li></ul>
<b>Financial Inclusion</b>	<b>Financial Stability</b>	<b>Functionality</b>	<b>Privacy</b>	<b>Technology</b>



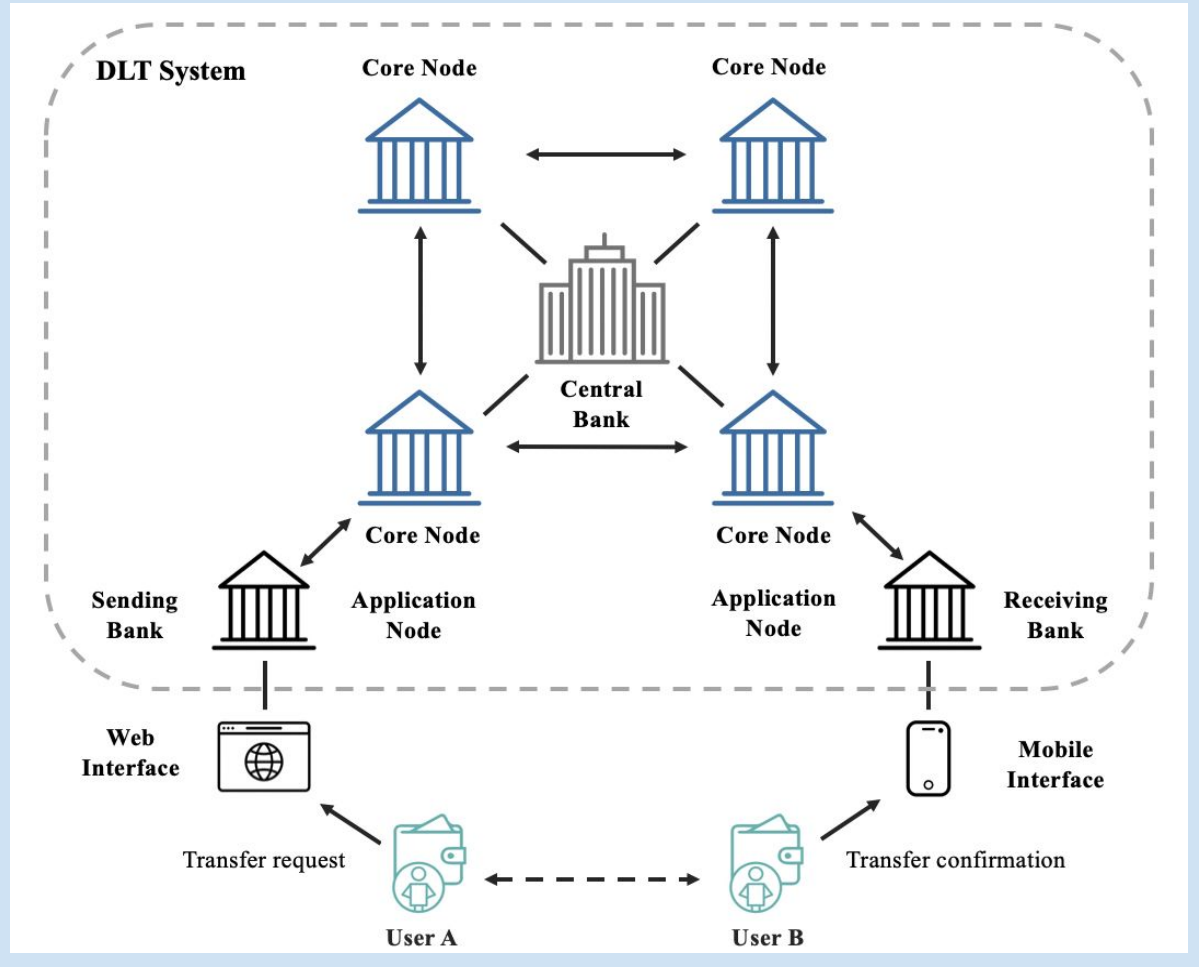




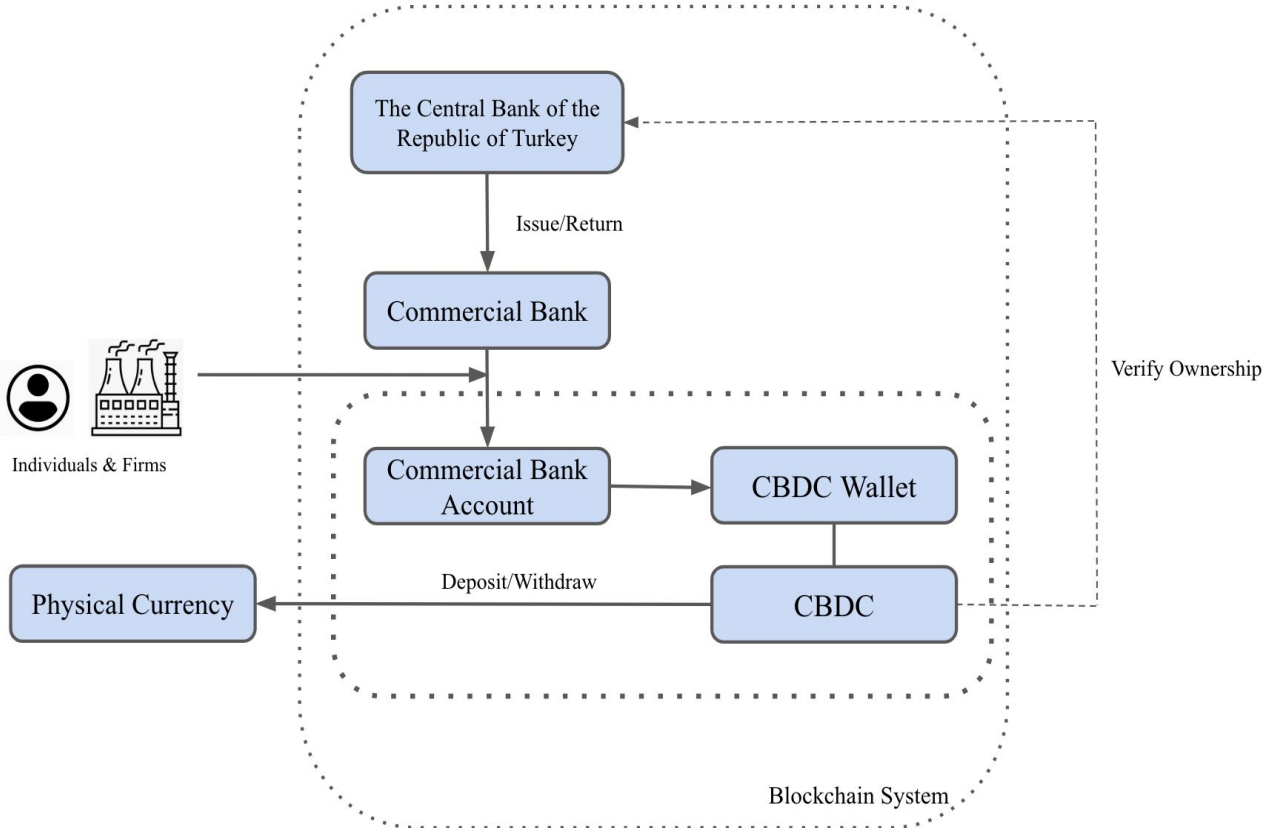
# Possible Design of CBDC Platform



# Blockchain Based Interbank Settlement System



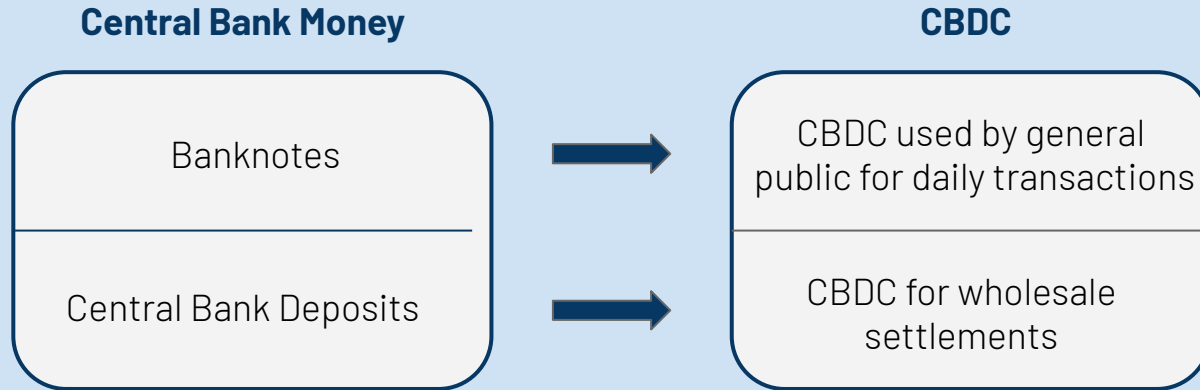
# Integration of CBDC into Retail Bank Account System



## Potential Benefits:

- **Safe & efficient payments**
- **Reduced costs**
- **Financially inclusion**
- **Fighting with underground and informal economies**

# Phases of the CBDC Project



**Thanks for listening!**

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**Avni Güven**

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