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# Neurocash

A new way of designing cash



Neurocash has been developed by the Banco de España and Instituto LENI (Polytechnic University of Valencia). It is a new technology that uses the neuroscientific method to develop a more efficient cash during its life cycle and to create an emotional connection between the general public and its currency.

## The cash of the future should be:

-  **Attractive**, so that the general public accepts and takes pride in its currency.
-  **Intuitive**, so that its design and security features are easy to communicate and identify.
-  **Secure**, to prevent counterfeiting.

The Banco de España and Instituto LENI combine science and technology to efficiently neurodesign the cash of the future that can meet the needs of the whole of society.






## Why use Neurocash?

Neurocash enables us to learn, objectively and scientifically, how the general public perceives cash. Not only conscious responses are analysed, but also unconscious ones (these being the most reliable ones for understanding preferences).








## Applications: Neurocash is applied in different phases of the cash life cycle:

- Neurodesign of banknotes and security features. 
- Virtual neurodesign for quick and affordable banknote prototyping. 
- Perception of banknote production defects. 
- Resilience to counterfeiting. 
- Assessment of the efficiency of cash communication campaigns. 

## Some of the countless advantages of Neurocash are:

-  Achieving cash that, in terms of design and security, is attractive, intuitive and secure.
-  Reducing development costs by virtualising its design and improving quality control.
-  Meeting the requirements of an efficient means of payment, as demanded by the public and other stakeholders.

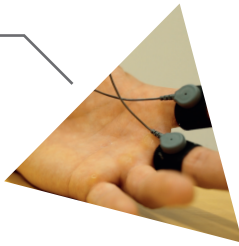
## How is Neurocash applied to cash?

We use the latest technologies for measuring human behaviour to analyse users' biometric response, visual interest, tactile perception and interaction with cash.

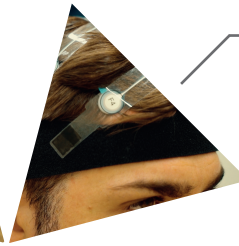
Algorithms based on artificial intelligence analyse these responses to obtain neurometric indicators of visual and emotional impact and feelings of security, which are used to guide the cash development process.



**EMOTIONAL  
IMPACT**



**COGNITIVE  
IMPACT**



**PERCEPTION OF  
SECURITY**



**VISUAL  
IMPACT**



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