Alouette – Rapid deployment of helicopter money

An immediate and impactful alternative to QE

<URL here>

EUvsVirus

Digital finance | Speed-up distribution of financial support

Team:

<TBA>

# Evaluation criteria

impact potential: 40%

technical complexity/novelty: 20%

prototype completion (does it work, further development): 20%

business plan (feasible at scale): 20%

[Participant information kit](https://docs.google.com/document/d/1rAYXfAgKqT9Uz20ej_UymxA_sRzeQxCxHXO-G5NWTeQ/preview#)

Composed of 7 questions that you should prepare in advance before submitting to [DevPost](https://eunitedvsvirus.devpost.com/):

* The problem your project solves
* The solution you bring to the table
* What you have done during the weekend
* The solution’s impact to the crisis
* The necessities in order to continue the project
* The value of your solution(s) after the crisis
* The URL to the prototype [Github, Website,...]

II. Video Pitch

For the video part, you have two strict requirements:

No longer than 2 minutes

Uploaded to YouTube as a public video (it can be “unlisted” if you want to)

For the rest, it is up to you, but we recommend structuring the video into 4 parts: the problem, the solution, what you accomplished and finally what you are planning to do next. So you have 2 minutes to cover 4 topics. We suggest dedicating about 30 seconds for each topic, but you are free to be more flexible. Please keep in mind that the problem should only focus on the Covid crisis that your solution is solving: even though your solution could be more extensive, do not focus on it. When showing off the demo, we recommend you not doing a walkthrough and focusing on the 2-3 features that help the user the most. Ignore the little animations and profile structures.

## VIDEO

Problem:

* Mario Draghi
* Clips
  + Empty streets
  + Unemployment claims
* 8 challenges underlying deployment
  + Flashing up on screen
* ECB is spending ~9000€ on QE per adult citizen

Solution:

* What if we had a solution to deploy helicopter money to the economic impact 4 x more effective
* Why?
  + <Show the graph of how much we can solve> = 10% adds €200bn to the economy>
  + AND it’s cheaper by 75%
  + AND we can rapidly rapidly deploy it

What you accomplished?

* We are very proud to have built an end to end prototype for stimulus distribution during the hackathon and a solid underlying business model. There were many challenges in achieving this however the team pitched in immediately to support and reprioritise in a very efficient way. We learned a lot in the process and the result provides a strong basis to lead Europe as quickly as possible out of the current financial crisis.

What are you planning next?

* Meeting being arranged with ECB (thanks Alexander!) to elaborate on the concept and how it can be implemented
* .
* with EU officials
* ...

# Executive summary

To be added at end of the project

[**Evaluation criteria**](#_9wsk2ub9wtro) **2**

[**Executive summary**](#_h3wlkwuar4yl) **3**

[**Problem**](#_cel2vlk1r2kl) **5**

[**Solution**](#_osvofadrws2r) **6**

[**Prototype**](#_7clb5sdfp95y) **7**

[**Impact for crisis**](#_pgsvjhsqniu6) **8**

[**Next steps requirements**](#_fiky376ue3jd) **9**

[**Post-crisis impact**](#_ojf21mjvvtt8) **10**

# Problem

Quantitative easing has led to low interest rates leaving little room to continue this fiscal stimulus during a crisis. Helicopter money is a proposed alternative.

Helicopter money appears to be a viable alternative to quantitative easing during a crisis. Helicopter money is defined as...

*“Can Blockchain Technology offer a better approach to deploy Helicopter money to Citizens?”*

## Helicopter money as an alternative to quantitative easing

There is not enough monetary policy space to deal with the next downturn (<https://www.blackrock.com/us/individual/literature/whitepaper/bii-macro-perspectives-august-2019.pdf>)

Forms of monetary financing (see p.15) (<https://www.ucl.ac.uk/bartlett/public-purpose/sites/public-purpose/files/iipp-wp-2018-08.pdf>)

### What is helicopter money?

Milton Friedman conceived helicopter money in 1969 as part of a thought experiment where a helicopter drops fresh money. It has also been called “money-financed fiscal program” (MFFP) – is simply to distribute newly printed cash directly to consumers, such as through tax rebates (<https://www.weforum.org/agenda/2016/05/the-problem-with-helicopter-money/>).

In unconventional monetary policy suggested as an alternative to quantitative easing (QE) when interest rates are near zero (as they are in Europe) and when an economy is facing deflation (once again, Europe) (<https://www.irishtimes.com/business/economy/helicopter-money-a-direct-economic-shot-in-the-arm-for-all-citizens-1.4202171>)

### Benefits

1. Does not augment debt burden. (<https://www.weforum.org/agenda/2016/05/the-problem-with-helicopter-money/>).
2. Equity markets benefits (could be counterbalaned by a weaker euro) (<https://www.irishtimes.com/business/economy/helicopter-money-a-direct-economic-shot-in-the-arm-for-all-citizens-1.4202171>)
3. A number of academics and commentators have called for this as a more effective approach to monetary stimulus than asset purchase programmes and Mario Draghi commented in March 2016 that it was “an interesting concept” (<https://www.europarl.europa.eu/cmsdata/190219/IPOL_STU(2019)642363_EN-original.pdf>)
4. “Instead of helping banks or making bondholders richer, the central bank gives money to the people, a transparent way of increasing their purchasing power.” (<https://www.piie.com/blogs/realtime-economic-issues-watch/euro-area-not-yet-ready-helicopter-money>)
5. Research shows it “would hardly affect inflation expectations” (<https://www.tandfonline.com/doi/full/10.1080/00036846.2019.1613504>)
6. “The helicopter drop requires only a temporary form of coordination between the central bank and ministry of finance, under extraordinary circumstances.” (<https://www.ucl.ac.uk/bartlett/public-purpose/sites/public-purpose/files/iipp-wp-2018-08.pdf>)
7. Asset purchase programme (APP) has benefited wealthy households disproportionately, HM might be viewed as a distinct improvement over the APP (Muellbauer 2014).” (<https://www.europarl.europa.eu/cmsdata/189494/PIIE%20(Peterson%20Institute)-original.pdf>)

### Challenges

**Challenge statement:** Current (when) European (where) helicopter money distribution systems are ineffective (what) at stimulating mass consumer and business spending among european citizens( who) because (why) they lack crucial key capability and analytical components that are necessary in order to effectively quantify the success of the endeavor.

Currently there is no way for the ECB to distribute helicopter money directly to citizens during the Covid-19 crisis.

(our solution compared to current methods) ) analysis into the drawbacks

|  |  |
| --- | --- |
| Challenge | Source |
| 1. Could produce too much demand | <https://www.weforum.org/agenda/2016/05/the-problem-with-helicopter-money/> |
| 1. Central banks retaining independence from government   Finally, helicopter money would involve risks for the ECB as an institution | <https://www.weforum.org/agenda/2016/05/the-problem-with-helicopter-money/>  <https://www.piie.com/blogs/realtime-economic-issues-watch/euro-area-not-yet-ready-helicopter-money> |
| 1. Cannot distribute for specific purposes | <https://www.irishtimes.com/business/economy/helicopter-money-a-direct-economic-shot-in-the-arm-for-all-citizens-1.4202171> |
| 1. Only focuses on buyer | <https://ftalphaville.ft.com/2016/07/27/2170980/koo-on-why-helicopter-money-just-wont-work/> |
| 1. Inflation could spiral out of control | <https://ftalphaville.ft.com/2016/07/27/2170980/koo-on-why-helicopter-money-just-wont-work/> |
| 1. Distributing the transfers across countries and people (ECB does not have a register of everyone living in the euro area)   ECB lacks the technical capacity and information it needs to do the transfers | <https://www.europarl.europa.eu/cmsdata/189494/PIIE%20(Peterson%20Institute)-original.pdf>  <https://www.piie.com/blogs/realtime-economic-issues-watch/euro-area-not-yet-ready-helicopter-money> |
| 1. Where the debt appears between government and central banks (decrease in the net capital position of the central bank may weaken its political power, and lead the government to challenge the central bank’s independence) | <https://www.piie.com/blogs/realtime-economic-issues-watch/euro-area-not-yet-ready-helicopter-money> |
| 1. If all euro area member governments saw the existing fiscal rules as counterproductive, they might indeed give the ECB their blessing. | <https://www.piie.com/blogs/realtime-economic-issues-watch/euro-area-not-yet-ready-helicopter-money> |
| 1. Decisions would also have to be made as to the size and distribution of transfers, across countries and across people.   Deciding who should receive the money | <https://www.piie.com/blogs/realtime-economic-issues-watch/euro-area-not-yet-ready-helicopter-money>  <https://www.euractiv.com/section/economy-jobs/opinion/why-the-ecb-needs-to-look-at-helicopter-money-now/> |
| 1. These distributional implications would adding to the legal obstacles   Eurozone legal framework (p12) | <https://www.piie.com/blogs/realtime-economic-issues-watch/euro-area-not-yet-ready-helicopter-money>  <https://www.blackrock.com/us/individual/literature/whitepaper/bii-macro-perspectives-august-2019.pdf> |
| 1. People may not spend the money   Only spend ~30%  Only 1 in 4 people will spend all the money  23% of consumers report they would be more reluctant to spend the money if it were the ECB that handed it to them | <https://www.tandfonline.com/doi/full/10.1080/00036846.2019.1613504>  <https://voxeu.org/article/helicopter-money-loved-not-spent> |
| 1. Money could be leaked out the economy through imports | <https://voxeu.org/article/helicopter-money-loved-not-spent> |
| 1. Consumers may only use the money to buy things that were already on their lists to buy in the near future. This would lead to a temporary rise of consumption in the year of the hand-out, followed by a decline in the next year. Consumption (and growth) would only shift in time. | <https://voxeu.org/article/helicopter-money-loved-not-spent> |

Referencing numbers ^

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Challenge** | **Supporting data** | **Can we solve** | **How we can solve** |
| 1 | Distributing across countries and people | Distributing the transfers across countries and people (ECB does not have a register of everyone living in the euro area) (6)  ECB lacks the technical capacity and information it needs to do the transfers (6) | Yes | Connecting with each member states’ citizen ID to delegate funds |
| 2 | Deciding size of transfer and recipients | Size and distribution of transfers, across countries and across people. (9)  Deciding who should receive the money (9) | Yes | Each member stay able to distribute own funds, connects with member states’ social security to delegate which recipients and how much |
| 3 | People not spending | People may not spend the money (11)  Only spend ~30% (11)  Only 1 in 4 people will spend all the money (11)  23% of consumers report they would be more reluctant to spend the money if it were the ECB that handed it to them (11) | Yes | Depreciation mechanism, vouchers |
| 4 | Maximising positive and minimising adverse economic impact | (+v) Money could be leaked out the economy through imports (12)  Cannot distribute for specific purposes (3)  (-v) Could produce too much demand (1)  Only focuses on buyer (4)  Inflation could spiral out of control (5)  Consumers may only use the money to buy things that were already on their lists to buy in the near future. This would lead to a temporary rise of consumption in the year of the hand-out, followed by a decline in the next year. Consumption (and growth) would only shift in time. (13) | Yes | Analytics, controlling where it can be spent, depreciation mechanism, giving to only EU business |
| 5 | EU area member coordination | Euro area member coordination (8) | Yes | Removing member states from decision of allocation |
| 6 | Central banks retaining independence | Central banks retaining independence from government (2) | Juror | Coordination mechanism |
| 7 | Legal obstacles | These distributional implications would adding to the legal obstacles (10)  Eurozone legal framework (p12) (10) | Out of scope | TBA |
| 8 | Liability on balance sheet | Where the debt appears between government and central banks (decrease in the net capital position of the central bank may weaken its political power, and lead the government to challenge the central bank’s independence) (7) | Out of scope | TBA |

8 challenges:

* Distribution
* Deciding amounts and recipients
* People not spending
* Economic impact
* Coordination
* Central banks independence
* Legal obstacles
* Liability on balance sheet

### Case studies

* Japan
* Hong Kong
* Singapore
* Macau

## Challenges distributing helicopter money

What are these challenges?

Why do they exist?

How are they made? By whom? When?

What criteria do we need to rapidly distribute Helicopter Money?

## Benefits of blockchain technology

### Drawbacks

## 

## 

# Solution

A framework so that everyone can implement their own solution and own node - we are decentralising in that aspect

## Scope

## Scalability

## Industry / who it effects

# Prototype

## Room for further development

# Impact on crisis

## Total addressable market

“With the equivalent 10% of QE, the ECB could transfer around €900 to all adult citizens in the Euro area. If only 40% of this money is spent, the effect would likely be close to a 1% GDP boost. When a crisis hits, this would be a significant nudge to growth and confidence.” (<https://www.euractiv.com/section/economy-jobs/opinion/why-the-ecb-needs-to-look-at-helicopter-money-now/>)

The size of this consumption impulse would be almost 2% of euro area GDP. (<https://voxeu.org/article/helicopter-money-loved-not-spent>)

EU has 446m inhabitants

Amount of money

Population

Effect on GDP

## Timescale

## Benefits compared to non-blockchain solution

Cost to implement =

## Feasibility

## Scalability

## Cost / Business plan

## 

# Next steps requirements

## Requirements to scale

# Post-crisis impact

**Devpost OLD:**

## Inspiration

the best way to stimulate the economic recovery is directly. We now have the technology to do this efficiently and at scale but still policy makers prefer to involve middlemen. Remove them and accelerate recovery by 8-12 months is our hypothesis.

## What it does

Blockchain based direct and immediate delivery of stimulus to citizens and SME's

## How I built it

SettleMint BPaaS helps to delivery rapidly. Besides that, lots of elbow grease for the non blockchain bits.

## What's next for A Helicopter Money Distribution mechanism

roll out in a few brave countries with strong leaders .

# Devpost

## Title

Alouette: Rapid and Impactful Deployment of Helicopter Money

## Elevator pitch

There is no way for the ECB to distribute helicopter money directly to citizens during the Covid-19 crisis. Alouette offers a more effective, secure and cheaper solution for rapid deployment.

## Story

### Inspiration

Quantitative easing (QE) has led to low interest rates leaving little room to continue this fiscal stimulus during a crisis. “There is not enough monetary policy space to deal with the next downturn”. Helicopter money has been proposed as an alternative.

### What is helicopter money?

Helicopter money appears to be a viable alternative to quantitative easing during a crisis. Milton Friedman conceived helicopter money in 1969 as part of a thought experiment where a helicopter drops money directly to citizens.

In ‘unconventional monetary policy’ suggested as an alternative to QE when interest rates are near zero and when an economy is facing deflation, as is the case with Europe.

### Problem

Implementing a ‘drop’ of helicopter money from the ECB to Europe’s 360 million adult population is a huge problem, for:

1. **Allocation**: determining recipients and quantity
2. **Distribution**: transferring money to recipients and coordination
3. **Economic impact**: ensuring money is spent to stimulate economic growth

### How it works

Alouette creates a circular system introducing stimulus directly to citizens, spending of the stimulus by the citizens and finally automated removal of the stimulus measure from the economy.

1. Tokens are issued which are pegged one to one to the Euro
2. Alouette engages with ECB, EU member states (national banks, social security and tax authorities).
3. Ministry responsible for Social Security determines each citizens’ entitlement per country and creates wallets
4. Ministry of Finance and Tax Authority identifies registered businesses and creates wallets
5. Citizens receive tokens and can only spend in eligible wallets (shop, marketplace or online retailer in the EU). Eligibility can be changed to maximise economic impact
6. Citizens can spend tokens by: (i) citizen app to merchant app QR code scanning; (ii) citizen app to merchant QR code (printed version); or (iii) citizen QR code (printed version) to merchant app scanning
7. Tokens received by merchants are then used as credits towards future tax obligations (VAT or corporate tax)
8. To incentivise utilisation of the token, Alouette includes a mechanism to decrease the value of tokens by 25% per month; essentially ‘use it or lose it’

Whereas Quantitative Easing and other methods of Helicopter Money work via banks, Alouette removes them. The distribution process is thus streamlined providing a direct distribution method for tokens that are pegged one to one to the Euro.

We achieve this by engaging several institutions at National level in our operating model. The ECB determines the entitlement of each Member State and distributes the equivalent in tokens to the National Bank of each Member State. The Ministry responsible for Social Security determines the entitlements per citizen of the Member State. A unique wallet for each citizen is created and credited with their entitlement according to the rules set forth at National level.

The Ministry of Finance and specifically the Tax Authority, identifies all registered businesses and creates a wallet for each business.

The citizen can spend the received tokens at the merchant whether this is a shop, marketplace or online retailer. Alouette enforces that only recognised wallets are able to receive the tokens and controls for the transfer from citizen wallet to merchant wallet.

Citizens have 3 ways to spend their tokens: citizen app to merchant app QR code scanning, citizen app to merchant QR code (printed version) or citizen QR code (printed version) to merchant app scanning. Flexibility is required to ensure utilization.

The tokens received by merchants are then used as credits towards future tax obligations (VAT or corporate tax). At the time when taxes are payable by the merchant, the tax authority automatically deducts the balance of the merchants wallet against the tax liability and only invoices for the balance.

To incentivise maximal utilisation of the token, Alouette includes a mechanism to decrease the value of tokens by 25% per month. Essentially, use it or lose it. As the token is fully programable, unlike other forms of money, a host of enhancements are possible to deliver extremely an efficient and effective policy tool.

Alouette creates a circular system of introducing temporary stimulus directly to citizens, spending of the stimulus by the citizen and finally automated removal of the stimulus measure from the economy.

### Solution

Alouette uses distributed ledger technology to tokenise and distribute vouchers to adult EU citizens which transfers to fiat currency (or tax) once it is spent.

Key benefits:

• 4-5 times economic impact

• 75% cheaper

• Rapid deployment in 3-4 weeks

These benefits are from ...

### Impact on crisis

ECB's crisis QE is €3.4tn. If 10% of this is distributed as helicopter money, each adult citizen would receive ~€900.

Research shows it would have an impact of €85bn-€100bn equating to 0.5-0.6% boost of GDP.

Alouette’s model would have an impact of €390bn equating to a 2.3% boost to GDP.

### How we built it

Alouette

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **Challenge** | **Alouette** | **How we can solve** |
| 1 | Distribution | Yes | Connecting with each member states’ citizen ID to delegate funds |
| 2 | Determining size and recipients | Yes | Each member stay able to distribute own funds, connects with member states’ social security to delegate which recipients and how much |
| 3 | People hoarding cash | Yes | Depreciation mechanism, vouchers |
| 4 | Economic impact | Yes | Analytics, controlling where it can be spent, depreciation mechanism, giving to only EU business |
| 5 | Coordination | Yes | Removing member states from decision of allocation |
| 6 | Central banks retaining independence | Juror | Coordination mechanism |
| 7 | Legal obstacles | Out of scope | TBA |
| 8 | Liability on balance sheet | Out of scope | TBA |

**Saving 19:34 26/4/20**

## Inspiration

Quantitative easing (QE) has led to near zero interest rates leaving little room to continue using this policy tool for fiscal stimulus during the current financial crisis.

Helicopter money has been proposed as a viable alternative to QE but has never been a policy tool of choice in the European Union. Milton Friedman conceived the theory in 1969 as part of a thought experiment where a helicopter 'drops' money directly to citizens.

The need for alternative tools to provide immediate economic stimulus have never been more acute.

## Problem

Implementing Helicopter Money as a policy tool from the ECB to Europe’s 360 million adult population is a monumental task that will require coordination on a technical, governance and policy level:

1. \*\*Allocation\*\*: determination of national and individual citizen entitlements (ECB does not have complete records to determine impactful entitlement at the citizen level)

2. \*\*Distribution\*\*: distributing funds to recipients (ECB does not have complete records necessary for this)

3. \*\*Economic impact\*\*: no guarantee that funds distributed will be spent rather than hoarded (empirically, just 25%-30% is spent)

## Solution

Alouette uses distributed ledger technology to tokenise and distribute Helicopter Money to adult EU citizens directly and efficiently. From the governance approach to the infrastructure and technology required to move Helicopter Money from a theoretical model to an active policy tool in Europe.

Key benefits include:

<li>\*\*4-5 times economic impact\*\*</li>

<li>\*\*75% cheaper\*\*</li>

<li>\*\*Rapid deployment in 4 weeks\*\*</li>

## How it works

Alouette creates a circular system introducing stimulus directly to citizens, spending and finally automated removal of the stimulus measure from the economy.

1. Alouette partners with ECB, EU member states (national banks, social security and tax authorities) to implement the required governance, infrastructure and distribution mechanisms.

2. Tokens are issued which are pegged one to one to the Euro by the ECB to the National Bank of each member state.

3. Ministry responsible for Social Security in each country determines each citizens’ entitlement and creates citizens wallets, funding them with allocated money.

4. Ministry of Finance and Tax Authority identifies registered businesses and creates wallets.

5. Citizens receive tokens and can only spend in eligible wallets (shop, marketplace or online retailer in the EU). Eligibility can be changed to maximise economic impact.

6. Citizens can spend tokens by: (i) citizen app to merchant app QR code scanning; (ii) citizen app to merchant QR code (printed version); or (iii) citizen QR code (printed version) to merchant app scanning.

7. Tokens received by merchants are then used as credits towards future tax obligations (VAT or corporate tax). To ramp up impact as needed via a multiplier effect, this restriction could be lifted in subsequent distributions.

To incentivise utilisation of the token, Alouette includes a mechanism to decrease the value of tokens by 25% per month; essentially ‘use it or lose it'.

## Impact on crisis

Total stimulus committed to the crisis (as of April 26th) is €3.4tn. If 10% of this is distributed as helicopter money, each adult citizen would receive ~€900. Research shows it would have an impact of between €85bn-€100bn equating to 0.5-0.6% boost of GDP.

Alouette’s model would have an impact of \*\*€390bn equating to a 2.3% boost to GDP\*\*. This is \*\*4-5 times impact on GDP\*\* than deployment by other means. This is due to (i) 'token economics' mechanism of depreciation to incentivise; (ii) possibility to direct capital to businesses that yield higher economic boost.

## What we accomplished in a weekend?

We have built an end-to-end prototype for stimulus distribution and a solid underlying business model. There were challenges, however, the team pitched in immediately to support and prioritise in an efficient and pragmatic way. We learned a lot in the process and the result provides a strong basis to lead Europe out of the current financial crisis as quickly as possible.

We have defined a complete operating model for the system, a governance model for implementation, identified key stakeholders and already started our outreach to them.

On the tech side, we have:

1. Deployed a working infrastructure that is fully EBSI compatible

2. Developed the end-to-end flow of the smart contracts in an MVP format

3. Launched a prototype wallet system for all stakeholders

4. Built an easy to use app for citizens and merchants

5. Had great fun along the way!

## How we built it

Having identified the challenges that surround Helicopter money, we tried to understand how best to approach these challenges at a European level. We developed High and Low level architectures and defined how parameters could be translated into Smart Contract Code.

To set up the Blockchain Infrastructure, we were able to deploy a full consortium, that can scale up to more nodes easily. Added with our experience with Smart contract writing, the first version was complete a little over an hour.

In parallel, we worked with our UX team to ensure that, in the end, the user would have a super intuitive experience.

The technologies used include:

Low-code Tools: SettleMint BPaaS (Settlemint.com) for the back end, Bubble.io for the front end

Additional tools: Truffle, Web3

Languages: Solidity, TypeScript, JavaScript

## What's next for Alouette

<ol>

<li>Roll-out: 4 Weeks to Integrate, Scale and Impact

<ul><li>Pre rollout: Onboard ECB and stakeholders (governments, national banks, social security, tax authority) through physical or online meetings

<li>Integrate with citizen ID and company ID registries

<li>Support Ministry of Social Security with smart contract modifications

<li>Maintain network</ul>

<li>Product roadmap:

<ul><li>Donate option to transfer funds to a charity

<li>Transfer funds to head of household so only one family member has to venture out to spend

<li>Fiat conversion off ramp for merchants

<li>Merchant to merchant transfers (pay my suppliers)</ul>

<li>Possible business model extensions:

<ul><li>Subsequent helicopter drops outside Europe

<li>Universal basic income trials or roll-out

<li>"Normal" times subsidy distribution system</ul>

</ol>