# **Echo: Proposal**

Unifying nations through the honouring each other's fallen

# <u>Brief</u>

Build on top of the \$echo project presented at the "Hack The Space" in June 2014. Maximise access over all digital devices, keeping a simple yet potent narrative.

# Concept

# Old - \$echo

Challenge the way people perceive their security online by helping them hear and visualise the constant attacks on their presence, whilst challenging them to question the ethical reasons behind these attacks using a data set donated by Ai Weiwei.

# New - Echo

Bring together nations through digital art by engaging audiences in unearthing, exposing and honouring those fallen in rival camps of past and present conflicts. Beginning with the tragic loss of 1.2 million people at the Battle of the Somme in 1916

# Artistic Vision

# Past

\$echo was born within the context of a hackathon based on a dataset from Ai Weiwei, focusing on the Chinese government's failure to protect children within its schools during the Sichuan earthquake.

# Present

The new iteration of the project shifts away from blaming specific governments, and assumes a neutral position, from which people are empowered to honour the names of those fallen by their own nation's hands in past and current conflicts, focussing first on the Battle of the Somme, where 1.2 million soldiers lost their lives.

Echo seeks hackers to unearth the names of the fallen of the Battle of the Somme, and have audience members of former rival nations honour each other's dead through a series of smartphone-based interactions, including the reading out of their names. The project takes a potentially negative action (a hack) and transforms it into an act of remembrance.

This shift moves Echo away from assuming the purposes behind the hacks; instead treating each hack as a means of unearthing information, bringing to light the name of the fallen and, if available the context for their demise (e.g. 'going over, 1 July 1916').

The reclaimed names will then be made available in real time across multiple formats, exploiting each format's unique properties.

- Smartphones / Tablets
- PC's
- Larger format views (Smart TV's, Projectors...)
- Installation (beyond the scope of this proposal)

Smartphones and tablets will allow the audience to read out the names of a former rival nation's fallen, which will in turn be made available to all other formats (a complete breakdown can be found below.

Reading out the names can be assumed to represent many things, forgiveness, closure, respect, protest...Echo doesn't seek to explain the reason behind that action allowing the audience to make up their own mind about the reason audiences would take the time to remember former opponents.

A complete API will also be made available for developers to build on any of the data sets generated by Echo, encouraging the creation of art installations globally (see Technical Vision).

## Echo on Smartphones / Tablets - Remembrance

As the names of the fallen are unearthed by hackers, they will be sent to be displayed on any Smartphones currently viewing the project. These will be presented to the viewer as a pile of dusty telegrams, each representing the name of

a fallen opponent, from which the user chooses one. The chosen telegram may not always be readable at first due to the layer of dust (an indication of the age of the conflict). Its format will also vary based on the time and location of the conflict (e.g. germanic fonts for fallen German opponents).

Viewers will be prompted to shake the dust off by shaking/wiping their phone to make the name of the deceased visible. Once the name is readable, the viewer will then have the option to read the name of the fallen into their phones and blow it away (blowing into the smartphone's microphone will generate an accompanying sound of paper rustling and allow it to fly away); or to let it crumple away without honouring it.

No matter the viewers choice, they will then be once again be presented with the pile of telegrams from which to pick from until the project is closed.

# Echo on PC's - The Big Picture

PC's will allow audience members to view the entire process on one screen: the unearthing names, the wait for the name to be honoured, and them being reclaimed, all in real time.

The unearthing of names will remain true to our current iteration of \$echo, contrasting the digital information and contemporary view of hacking with the creation of meaningful information (the names of the fallen) which will come in as flying and crumpled pages together with the names being read out.

The remembrance of names could be enrichened by including the hacker's location, who it was that remembered the name, and where from, as well as an indication of how long it took before the name was read out.

## Echo on TVs, Projectors and Loudspeakers - Focus

Larger formats will give users control over the data they wish to focus on, giving art galleries, museums, and monuments access to a tailored audio and visual experience based on their own predefined filter. e.g. Only play the names of fallen British citizens

The following perspectives would be made available:

- Hacks: The volumes, locations and severity of hacks.
- <u>The fallen:</u> Names; context and date of death; conflict; location; which side (presented as a country or as a group e.g. 'Allies').
- Remembrance:Date, time and country of remembrance; time taken to<br/>remember a name; how many names have been<br/>reclaimed; how many were forgotten (i.e. left to<br/>crumple); how many are remaining.

Each perspective will need its own design to accommodate the narrative of the data presented. This could be the whispering of the names of the fallen, a pile of telegrams to indicate the number of names reclaimed, the listed hacks as a command prompt, etc.

These perspectives will be prioritised based on time and resources made available to Echo, focusing at first on the best formats to remember the Battle of the Somme. For example:

- A list of reclaimed names, filtered by side (Allied and German)
- A list of read out names, filtered by side (Allied and German)
- Volume of hacks by country
- Locations of those reclaiming

#### Installation

See "Further Artistic Applications" at the end of this document.

# Technical Vision

At the end of the hackathon, \$echo was incomplete due to the stringent 24 hour development timeline.

Going forward Echo will place importance on the following:

- the accuracy of the data
- an impartial view of the hacks

- a robust architecture removing the risk of hackers hijacking our servers
- an open dataset to be used by artists globally

## **Data Points**

Echo depends on the following data points

hacked location	which country is being hacked
hacker location	where the hacker is attacking from
time of hack	when the hack occurred
hack severity	how bad the hack was (to be assessed)
fallen name	name of a victim of a conflict
fallen group	which side the fallen was on e.g. Allies
fallen nationality	where the fallen was from
fallen date	date at which the fallen died
fallen conflict	which conflict took the fallen's life
fallen context	how the fallen died (if available)
audio of the name	the name being read out on the pho

audio of the name	the name being read out on the phone
country reading out the name	the country in which name was read out
when the name was read out	date at which the name was read out

We anticipate further data points will be identified based on further research and development (e.g. whether the name has yet been remembered, whether it has been read out multiple times, etc.)

## API

Echo's data will be made available through an API giving digital artists worldwide access to Echo for their own projects. This as an integral part of the project and will help to extend its reach through independent digital art projects.

## Security / Hacking

Although Echo will host its own servers acting as "honeypots" (targets for hackers), we aim to distribute a hack-reporting toolkit allowing others to set up their own servers to report hacking data back to us. This would would allow partners, e.g. Ai Weiwei's web team or The Guardian, to collaborate directly with Echo, as well as measure attacks on their presence.

## Infrastructure

As a computer security-related project, Echo expects to become the target of attacks. We will need to protect our infrastructure and remove the threat of our systems being hijacked. To do so, the web services will be broken down into three parts:

honeypots	machines that are actively being hacked
reporting and data	servers storing hack and event data
frontend	servers powering our audience's access to Echo

## Speed

Pushing data asynchronously to clients in real time is essential to our narrative, giving them an insight into what is happening right now. This will necessitate a sturdy infrastructure to be able to serve a large user base with large datasets.

# Scalability

Echo will need to be built with scalability as a focus from the outset. Our need to provide our services to a global audience, the massive datasets, and a growing number of inputs from hackers, will all demand careful consideration.

Distributing our infrastructure will allow us to control the costs of scaling the service up and down for the specific uses of our services. We further recommend breaking our architecture into virtual machines across a selection of providers, giving us the flexibility to be mobile.

# Access

To allow maximum access to the project at an affordable price, Echo will need to be a responsive, browser-based project accessible on all modern web enabled devices - it will not be built exclusively as a closed-source application (e.g. an iOS app). The same web build will be accessed by desktop, mobile and interactive devices, with the content and interactions tailored to each. Doing so will necessitate a skilled UI development team.

# **Challenges**

The following challenges have been identified in creating Echo

## Accuracy

Throughout our development of Echo, the need for an accurate portrayal of the data with as few assumptions on our behalf as possible has become key to the project's value.

- The datasets of the fallen and the context of their demise must be accurate, complete, global and where possible, as close to the present as we can make them (e.g. reading news feeds).
- The hacks, the data, and the names of those fallen being read out, need to be as close to real time as our networks allow us to be, no matter how big the loads.
- Some assumptions were made in the project presented at the Hackathon. Our new version will need to move away from assumptions through careful research and programming.

# Impartiality

Throughout the process of developing our artistic vision, the team tried to remain as neutral as possible with regards to specific conflicts. This subtle but important element will ensure our project appeals to all.

# Simplicity

Dealing with complex infrastructures, massive datasets and multiple platforms will challenge our abilities to create narratives that are sufficiently engaging and coherent to attract audiences on a global scale.

This will demand clever design and development across all platforms and necessitate clear copy and support for our API.

# Global

The more frequently each county remembers each other's fallen, the more valuable Echo becomes. It will be vital for Echo to be accessible in as many languages as possible and be displayed in a format which suits local sensibilities and contain a universally understood narrative.

This should be simple in the case of the Battle of the Somme, dealing with a subset of European languages.

## Partnerships

Partnering with institutions to gain access to their resources (e.g. the UN for their datasets) will be pivotal to the success of the project.

Networking, and making our message as clear as possible, will both be essential to accessing these partners.

## Experimental

Echo is a massive undertaking, with many experimental elements. This will require a level of agility in bringing a successful project to fruition.

This will need to be considered in the timelines and resources necessary, and should be piloted to allow for agile development methodologies to inform the progress of the project early on, allowing our team to respond to our audience earlier rather than later.

# **Organisation & Finances**

Going forward, the right infrastructure and dedicated resources will need to be put in place to guarantee the feasibility and timeline of such an ambitious project.

A limited liability company will need to be registered to manage the resources effectively and protect the parties involved.

# Timelines

Having Echo ready for the commemoration of the Battle of the Somme means having a complete project operational by the 1<sup>st</sup> of July 2016.

# Research

Basic research has taken place to understand the issues behind sourcing the data necessary to commemorate those fallen during the Somme. This has led to the following:

- The fallen on the British side are well documented and can be accessed for a price. This may lead to issues with us making the dataset available publicly over our API.
- The fallen on the German side are hard to find, and may need to be built in house. This will require further research.

• Other fallen (French, Belgian...) would also need to be researched further.

#### Development

Echo is a complex project to bring to fruition due to the following elements:

- the real-time delivery of data
- the size of the datasets
- the breadth of platforms to be tested (mobile, tablet, PC)
- solid security to bait hackers but protect others

## Infrastructure

Hosting Echo will require a highly scalable infrastructure allowing for peak flows during key dates.

This means hosting our service on distributed cloud networks such as Amazon's EC2 or Google App Engine, allowing for little to no investment in the infrastructure but necessitating further research into the cost of hosting, since pricing is based on consumption.

## Team

Since the timeline is immovable, the project must be designed, developed, tested and deployed before the 1<sup>st</sup> of July 2016. This will require a quick ramp-up on resources and the need for an experienced team.

The following roles have been identified as key in deploying Echo on time

Project Manager	Keep track of overall progress, accounts, HR
Creative Director	Guide and represent Echo's creative vision
Senior Developer	Tech-team lead for the project's duration
Junior Developers (x2)	Tech work force, could be swapped out for different skills throughout the project to allow access to experience for the various formats
Senior Systems Administrator	Managing all the project's infrastructure and hosting of 'honey-pot' servers

Sound Designer	Managing Echo's auditory elements on all formats
Senior UX Designer	Managing Echo's visual elements on all formats
Data Researcher	Researching the data sets necessary for the Battle of the Somme (the British side is well documented, but we will need the German names too)
Paid Intern	Office management, social media and help across departments

Some resources are also be set aside for recruitment to enable the quick ramp-up time necessary to maximise the time available to us to develop Echo.

#### Marketing

Little to no resources have been set aside for marketing. This is as Echo intends to save money by instead leveraging partners' existing networks and PR companies to generate exposure.

#### Costs

Due to the stringent timelines and the need for an experienced workforce over a development period of a year and a half, with a further six months of maintenance and operations, the total costs for Echo come to **<u>£981,000</u>**.

This is largely attributed to the salaries (based on the average pay within London for specific roles) modelled over 2 years (ending December 2016).

85%	Salaries and NIC's
7%	<b>Rents and Rates</b>
7%	Hosting Costs
1%	Professional Fees

A complete breakdown of the costs is provided alongside this document.

## **Cost Containment**

Some cost containment has already been taken into consideration (e.g. using partners' resources for marketing).

Further costs could be saved through:

- Access to a physical space within The Space's offices, or other government offices available (remove the need for rent)
- A partnership with Google or Amazon footing the costs of any hosting
- Leveraging The Space's legal and accounting departments and working off their payroll.
- Gaining access to all necessary datasets for the Battle of the Somme freely would minimise our need for a Data Researcher.
- Finding a cheaper workforce, which could lead to quality and timeline issues.

# <u>Legacy</u>

With the infrastructure in place, and with publicity by way of a successful campaign for the Somme version of the project, Echo would seek to go beyond remembering those fallen at this Battle, and to extend the project to include the remembrance of the fallen of any conflict. This would allow the project to become more relevant to a wider audience globally and push the artistic vision to include recent conflicts which would challenge people's view of the world we live in now (e.g. an Israeli remembering the names of fallen Palestinians would be a powerful message).

Furthermore partners should be sought to archive the project and any data created from it, to allow for future generations access to the Echo's history.

# **Further Artistic Applications**

Although this is beyond the scope of the project, and based on the success of the poppies at the Tower of London, we believe it would be beneficial for the project to have its own physical incarnation to increase awareness of its digital offering. This would also allow us to recover some of our costs through the selling of self-generated elements to those visiting the installation.

Here are a few of the ideas which have been discussed:

Grow	'Embroidered' names (using the telegraph motif) that are actually the viable seeds of flowers or other plants.
Wall of Remembrance	3D-print the names of the fallen into blocks to be assembled into a wall of remembrance. These could also

	be assembled into other shapes, such as a bridge to identify "building bridges" across nations.
Telegraphs	"Rain" telegraphs of the fallens' names - printed in real time as they are remembered - from the top of the turbine hall. Recuperate costs by allowing visitors to buy the telegraphs.
Postage	Allow audiences to have an old style telegraph sent to their house, remembering the name of a fallen soldier.