Notes on Completion: Please refer to the appropriate NIA Governance Document to assist in the completion of this form. The full completed submission should not exceed 6 pages in total.

NIA Project Registration and PEA Document

Date of Submission

Oct 2021

Project Reference Number

NIA_NGN_300

Project Registration

Project Title

Customer Vulnerability Mapping Tool

Project Reference Number

NIA_NGN_300

Project Licensee(s)

Northern Gas Networks

Project Start

October 2021

Project Duration

1 year and 3 months

Nominated Project Contact(s)

Steve Dacre

Project Budget

£104,666.00

Summary

There is a pressing need to quickly identify and visualise multiple factors impacting priority and vulnerable customers in a way which makes the data seamlessly accessible to teams across the business. The project is to build a collaborative platform which will combine data from across the business with open-source and paid for external data sources to create and interactive visual map which will allow staff to see where their decisions will have the largest impact on customers and where the most vulnerable customers are adversely affected by multiple factors such as poor housing, air quality and access to services.

Nominated Contact Email Address(es)

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Problem Being Solved

In order to make the best business decisions which protect and promote individual customer needs, it is important to be able to capture and understand the needs of the customer. Capturing data without the ability for the entire business to utilise and understand it and without the ability to augment that data with other disparate sources does not produce an accurate, deep picture of the needs of a community.

Because community and customer needs change dynamically and because vulnerability is multi-faceted, with cumulative factors at play, it is important that NGN has access to the most relevant datasets and the ability to overlay this data to clearly demonstrate where people face the most challenges and where NGN's impact could be greatest. On the ground local knowledge will always provide the most insight into a community but being able to capture that knowledge in a consistent format in one place and where it can be augmented with statistical information is key to being able to fully utilise that knowledge across the business.

In addition, there is currently no defacto place which allows third sector organisations and other public utilities to share and access vulnerability data, but such a platform would bring significant benefits to all parties.

Method(s)

The proposed visualisation tool will tackle the following problems:

1. To build on NGNs data best practice it will be key to bring together far more publicly available data than currently possible - this will be key when planning how to target initiatives and responses (the who to reach and how). Being able to overlay multiple datasets and combine open-source data with in house datasets will help NGN to better identify gaps where current activity may be falling short.

2. NGN needs to easily demonstrate why initiatives are important in helping customer services for vulnerable customers. This would also be useful for OFGEM reporting in RIIO-2.

3. Decision making around customer need and vulnerability is complex - this mapping tool will help NGN to understand the layers of need and the cumulative effect that environmental, societal, economic and community factors can have on a customer's resilience. Being able to understand this should help NGN make good planning decisions regarding spend, and where to target resources for the most positive customer impact.

We will build a unique, innovative data analysis and visualisation tool which is able to consume data from a variety of sources and geolocate them into a common standard. The data will be presented through a web application with a navigable map and a mobile app which is able to geolocate the user and navigate to different locations. The aggregated data will be available to the user as filters which are displayed on the map to show where factors compound to create areas of highest need and vulnerability.

This will allow a user to either specify a location and view the specific needs of the community, or query where the highest specific needs are located. This quantitative statistical data can be augmented with other information about communities, such as social media feeds, local radio broadcasts, news, information from local managers, etc.
In addition to statistical data the system can include operational areas for various organisations such as charities to create a unique, holistic view of what an area's needs are and how they can best be met. It could also include live data, such as weather and power outage information.

Scope

This project will focus on:

·Identifying and manipulating multiple sources of public and private data into a common format
·Producing a web application capable of displaying the data
·Producing a mobile application which allows the data to be navigated and used in the field
·A trial period where the applications are used in live environments and in live activities where additional data sources and functionality can be identified and developed.

Objective(s)

Stage 1
· Identify data to be included and sources of that data.
· Agree formats for data, eg postcode level, LSOA level etc.
· Build bespoke processors for data to manipulate them into agreed formats and add them to a secure data store.

Stage 2
· Identify appropriate user interface for the web application through stakeholder workshops and prototyping.
· Develop of full stack web application including web server and front-end tool.
· Data security and user testing.

Stage 3
· Identify appropriate user interface for the mobile application through stakeholder workshops and prototyping.
· Develop of full stack mobile application including web server and front-end tool.
· Data security and user testing.

Stage 4
· Live trial where NGN are able to use the mobile and web app for live activities.
· Defect and enhancement prioritization and development to fix any bugs in the system and add requested data and functionality.
· Final report delivery outlining user feedback, development and partnership opportunities and recommendations for BAU deployment.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

The anticipated effects of this project on customers in vulnerable situations are expected to be great by allowing effective support to be provided to communities in need. This could be increased communications around Carbon Monoxide if a 'CO Hotspot' is identified. We foresee using the mapping system, we will be able to identify areas of specific need / vulnerability and direct either VCMA project with community partners, or to deploy specific NIA solutions to help alleviate issues in communities. The system will help to identify areas of fuel poverty, potentially allowing the unlocking of additional support though Local Authorities or grants to improve energy efficiency and potentially other energy saving solutions which could be provided to customers most in need. This will also allow community partners to work closely with community groups identified through the system which could be overlooked without this system.
The system will provide the foundation for GDN's and other partners to provide effective support, giving an understanding of the scale of need in communities which have never been fully understood before this project.

Success Criteria

The project will be deemed a success if:

Improves decision making and identify vulnerability

The system needs to be able to give meaningful, reportable results which help in decision making, targeting activities and identifying gaps in current work. Tested using user feedback during the trial period including case studies in the final report.

Accurate data

The data processors need to accurately transform the data and the data sourced must be as up to date as possible. This will vary greatly depending on the type of data used. Tested by benchmarking data outputs against existing tools, such as ONS official maps.

Fast and user friendly

Use of the system be fast and intuitive for the user. Any instructions required must be clear and easy to understand. Tested using user feedback during the trial period including case studies in the final report.

Feedback from customers and staff In order to inform future roll out and development, the system must provide a simple, quick, unobtrusive way for customers to provide feedback on their experience. Tested by collecting quantitative and qualitative user feedback during the trial.

Project Partners and External Funding

This project will be delivered by Egnida and facilitated by EIC.

Potential for New Learning

This project will explore how diverse data sets can be brought together to create a better understanding of need and vulnerability across NGN's operational area. It will help inform what information is most important in creating that data landscape and where it can be readily accessed. It will also inform how statistical data can make best use of existing initiatives within NGN and how existing systems, including GIS systems can be augmented to create a richer understanding of the impact of NGN activities.

Having this tool will ensure that initiatives are properly focussed, and resources are used in the most efficient way to reach the highest number of people with the most need. Not only will this improve customer service delivery to those people, it will save time, money and resource and help NGN identify other groups it can partner with for service delivery.

Using the web app and mobile app to target areas where need is greatest before or during activities will provide financial, environmental and customer benefits. For example, targeting areas where English is not widely spoken for additional bilingual social media adverts saves money by reducing the need for a wider reaching advert and reaches more customers who benefit from the translated text. Users could also use the tool to view areas most affected already or predicted to be affected by climate, such as air quality, flood risks and weather, allowing them to make decisions based on that data.

Scale of Project

The innovation of this project is based on the ability to bring together a large number of big-data sources and visualize them to the user in order to produce a better understanding of communities. It will therefore attempt to cover as many disciplines and types of data as

possible, especially those which traditionally have not been in included when thinking of vulnerability.

Without the large scale and diversity of data we are using, the insights would not be as deep and the ability of the tool to answer questions the business needs to answer when making decisions would be greatly diminished.

Technology Readiness at Start

TRL3 Proof of Concept

Technology Readiness at End

TRL7 Inactive Commissioning

Geographical Area

The project will cover all of NGN's operational areas. Many of the public datasets which will be used in the project are England, England and Wales, GB or UK wide and will be included in their entirety.

Revenue Allowed for the RIIO Settlement

N/A

Indicative Total NIA Project Expenditure

External costs: £78,500
Internal costs: £26,166.67
Total NIA expenditure: £104,666.67

Project Eligibility Assessment Part 1

There are slightly differing requirements for RIIO-1 and RIIO-2 NIA projects. This is noted in each case, with the requirement numbers listed for both where they differ (shown as RIIO-2 / RIIO-1).

Requirement 1

Facilitate the energy system transition and/or benefit consumers in vulnerable situations (Please complete sections 3.1.1 and 3.1.2 for RIIO-2 projects only)

Please answer **at least one** of the following:

How the Project has the potential to facilitate the energy system transition:

N/A

How the Project has potential to benefit consumer in vulnerable situations:

This project has enormous potential to benefit all customers in vulnerable situations as it will provide accurate assessment of communities and all interested parties to provide suitable support to the area. This will enable GDN partners such as community groups to specifically target areas with relevant support, this will allow GDN's to accurately provide information which will be bespoke to the specific needs of the area such as Carbon Monoxide awareness, Priority Services Register messaging, increasing awareness and registrations.

It will allow GDN's or other service providers to enlist support for VCMA projects directly addressing the needs of communities, rather than adopting a broad-brush approach which has been the traditional approach. This system will present itself as the very foundation for future years projects and investments, specifically as we progress through the energy system transition which will help address the very real and ever-changing needs of communities and vulnerable customers groups by putting data at the front and centre of future decision making for GDN's and partners.

Requirement 2 / 2b

Has the potential to deliver net benefits to consumers

Project must have the potential to deliver a Solution that delivers a net benefit to consumers of the Gas Transporter and/or Electricity Transmission or Electricity Distribution licensee, as the context requires. This could include delivering a Solution at a lower cost than the most efficient Method currently in use on the GB Gas Transportation System, the Gas Transporter's and/or Electricity Transmission or Electricity Distribution licensee's network, or wider benefits, such as social or environmental.

Please provide an estimate of the saving if the Problem is solved (RIIO-1 projects only)

N/A

Please provide a calculation of the expected benefits the Solution

The benefits for this project are currently qualitative. These include:

Financial – initiatives and activity can be better targeted to meet the needs of vulnerable customers, saving time, money and effort.
Customer - Users will be able to view areas most affected already or predicted to be affected by climate, such as air quality, flood risks and weather allowing them to make decisions based on that data.

The tool focuses on measurements of potential vulnerability, allowing users to target their activities to those customers. Vulnerable customers will be better served and can be offered more holistic engagement thanks to being able to view other organisations' activities and operational areas.
The geographic nature of the data will help users to better understand a community and meet its specific needs better. It also brings otherwise disparate organisations together into one area, such as different charities' operational areas so customers and communities can be the most support available to them.

As the project progresses the benefits and impacts will be measured to determine the full qualitative and quantitative value.

Please provide an estimate of how replicable the Method is across GB

This system is entirely replicable across GB where datasets are available. Scotland and Wales have slightly different ways of reporting certain national statistics which would need to be accommodated and not all data is available for all regions however and so not all functionality
would be available across GB.

Please provide an outline of the costs of rolling out the Method across GB.

The costs to roll the project out are uncertain at this stage and will be defined through the project and is subject to GDN, DNO and utility take-up.

Requirement 3 / 1

Involve Research, Development or Demonstration

A RIIO-1 NIA Project must have the potential to have a Direct Impact on a Network Licensee's network or the operations of the System Operator and involve the Research, Development, or Demonstration of at least one of the following (please tick which applies):

☐ A specific piece of new (i.e. unproven in GB, or where a method has been trialled outside GB the Network Licensee must justify repeating it as part of a project) equipment (including control and communications system software).

☐ A specific novel arrangement or application of existing licensee equipment (including control and/or communications systems and/or software)

☐ A specific novel operational practice directly related to the operation of the Network Licensees system

☐ A specific novel commercial arrangement

RIIO-2 Projects

☐ A specific piece of new equipment (including monitoring, control and communications systems and software)

☐ A specific piece of new technology (including analysis and modelling systems or software), in relation to which the Method is unproven

☑ A new methodology (including the identification of specific new procedures or techniques used to identify, select, process, and analyse information)

☐ A specific novel arrangement or application of existing gas transportation, electricity transmission or electricity distribution equipment, technology or methodology

☐ A specific novel operational practice directly related to the operation of the GB Gas Transportation System, electricity transmission or electricity distribution

☐ A specific novel commercial arrangement

Specific Requirements 4 / 2a

Please explain how the learning that will be generated could be used by the relevant Network Licensees

The factors which create customer vulnerability are common across all GDN's and broader sectors. The learning from this project can be applied directly to other Licenses given the ability of similar data sources.

Or, please describe what specific challenge identified in the Network Licensee's innovation strategy that is being addressed by the project (RIIO-1 only)

N/A

Is the default IPR position being applied?

☑ Yes

Project Eligibility Assessment Part 2

Not lead to unnecessary duplication

A Project must not lead to unnecessary duplication of any other Project, including but not limited to IFI, LCNF, NIA, NIC or SIF projects already registered, being carried out or completed.

Please demonstrate below that no unnecessary duplication will occur as a result of the Project.

The project detail has been shared with other network licensees in line with ENIP requirements.

Whilst there is already very good data and mapping capability within the industry, there isn't a platform which can bring disparate groups of data into an easily accessible, user friendly environment which can solve complicated queries about the specific needs of an area. Data is often hard for non-technical staff to decipher or utilise effectively when presented in its raw form and without other data to provide greater context or depth.

Many organisations are developing systems which map or visualize where their vulnerable customers are. This project however goes further by augmenting existing customer data with a large number of external innovative datasets to produce a clearer, richer picture of vulnerability, allowing the Licensee to not only see where their activities are having an impact, but see gaps and opportunities in their activities and make better decisions before any activity takes place.

Feedback from external stakeholders including charities and Local Authorities on the potential of a tool which is able to provide this kind of insight, rather than simply showing where known vulnerability is, has been extremely positive and highlight a genuine need in the space for this capability.

If applicable, justify why you are undertaking a Project similar to those being carried out by any other Network Licensees.

N/A

Additional Governance And Document Upload

Please identify why the project is innovative and has not been tried before

This project is innovative as it will use many data sources and provide visualisations allowing the user to quickly identify needs of communities. Data is traditionally displayed as spreadsheets which to analyse and understand can be time consuming often requiring data analysts to provide interpretations of the data. This tool will be immersive and provide accurate and real time data to allow speedy analysis for everyone in a visual format which is accessible and understandable.

Relevant Foreground IPR

This project and the resultant outcomes/deliverables will conform to the default treatment of IPR as set out under the agreed NIA Governance (where the default requirements address two types of IPR: Background IPR and Foreground IPR).

Data Access Details

For all data access requests, please follow the guidance set out in Northern Gas Networks Innovation Data Sharing Policy. https://www.northerngasnetworks.co.uk/ngn-you/the-future/our-funding/

Please identify why the Network Licensees will not fund the project as apart of it's business and usual activities

This project is innovative and new, using data sources to provide immersive user experience for the benefit of our customers in vulnerable circumstances and the public who may require additional support or local project funding directly addressing the needs of local or wider community groups. This solution will allow the 'levelling up' of service provision across the UK.

Please identify why the project can only be undertaken with the support of the NIA, including reference to the specific risks(e.g. commercial, technical, operational or regulatory) associated with the project

This can only be undertaken with the support of NIA as it is a novel concept which needs further development is is not factored into current business as usual allowances. This cannot be completed as part of NGN's BAU activities as there is still an element of risk involved as it has never been done before.

Using NIA will open the project outputs up to be shared with other GDN's.

This project has been approved by a senior member of staff

☑ Yes