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

Nov 2018

Project Reference Number

NIA_NGN 229

Project Registration

Project Title

MyDart - Digital asset records tool

Project Reference Number

NIA_NGN 229

Project Licensee(s)

Northern Gas Networks

Project Start

December 2018

Project Duration

0 years and 8 months

Nominated Project Contact(s)

Glen Baterhan

Project Budget

£408,000.00

Summary

When NGN engineering crews replace distribution pipes site managers are required to:
• Check the replacement job
• Record the pipes that have been replaced
• Record service pipes that connect to distribution mains
• Provide measurements of the as-laid pipes

During this process if any existing assets are incorrectly recorded in the asset register an issue (DR4) is raised to correct the asset register. Updates to the asset register are required to be completed within 30 days.

Field data collected during this process is provided back to office staff. They verify what has been recorded and update other corporate systems such as the asset register in SAP and the asset location in GIS.
If they have any queries they contact the site manager to confirm what has been recorded. This can sometimes result in a site revisit by the site manager.

During field data collection limited validation carried out on data that is recorded in the field by site managers. This leads to an increased backlog of work in checking and querying what is being recorded and an increase in site revisits. In the worst cases this can mean inaccurate data being entered into the asset register. The current process for dealing with DR4's is manual and time consuming slows the process of updates down

Third Party Collaborators

1Spatial

Nominated Contact Email Address(es)

innovation@northerngas.co.uk

Problem Being Solved

When NGN engineering crews replace distribution pipes site managers are required to:
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Method(s)

MyDart Phase 1 – Efficient, Timely and Quality Driven Field Data Capture –
This project is the result of a supplier approach from 1Spatial to address a significant problem associated with accurate recording of NGN assets due to limited validation carried out on data recorded in the field by site managers.
Phase 1 is focused on improving the efficiency, timeliness and quality of the field editing process and minimising slow and costly back office QA/QC tasks. In this phase back office QA/QC processes will be greatly reduced (but not removed completely).
For the first phase, the current process can be greatly improved by utilising 1Spatial's Mobile Editor to focus on the improving the data capture and manual back office QA/QC steps in the existing process. In this first phase, the mobile editor will be focused on:

A. Improving the actual data capture process by providing a simple, easy to use app with built-in data validation and auto-correction.
B. Reducing the time and cost currently involved in back office QA/QC tasks, so that the QA/QC tasks are a very light touch check.

Phase 1 of the project aims to deliver:

Data validation in the app itself – Mobile Editor uses a rules capability to enforce data quality at the point of capture. This ensures when data is uploaded back to NGN, all data has already been through the relevant QA checks to ensure correctness and completeness. If a user enters incorrect data or fails to enter mandatory data, they are immediately notified. This makes the QA process much more efficient as data is of the required quality before it is uploaded, greatly reducing the need for back-office intervention. The QA/QC process becomes a light-touch check to ensure that data submitted back is complete.

Unique Job ID – Mobile Editor can integrate with an existing Job Planning tool that can create the unique Job ID that will flow to the data used within a job. In the future for NGN this can be directly from SAP, but in the shorter term there are some options what would allow planners to create jobs with unique identifiers automatically that can be synchronised with the jobs in the field and data in SAP. This means that data is always tied to a particular job without the user having to enter any unique references, and eliminating the current issues around linking data to jobs.

Snapping of features in the app – Mobile Editor has the ability to snap features automatically. Rules can be by administrators to specify what rules are used by the app. These rules can also automatically create new data, populate attributes and automatically correct data on the device, whether the user is connected to the internet or not. This means that data does not have to be re-entered in the back office, improving efficiency of data collection.

Simple, easy to use app – Mobile Editor can be configured to specifically follow NGN's business process. The user is guided through the right data entry forms for a particular type of job so that they enter the right information at the right time. The user interface is easy to use, simple and intuitive. This can be configured to NGN's needs, but the app will meet the following NGN requirements:

• Big buttons
• The concept of a 'job' to tie metadata together
• Be able to rotate the map
• Mandatory fields, conditional fields
• Consume and push data to/from SAP directly (longer term goal)
• Allow NGN admin staff to configure the app to meet changing processes

Scope

Project will be delivered in a number of phases; each phase will deliver added value and build on the previous.

The high-level phases are described below:

Phase one: Creation of a rules based mobile app with the ability to work in areas of no mobile phone signal

Not in scope for this NIA project

Phase two and three: Integration of external data into the mobile app and communication with existing systems

Objective(s)

Phase1 will focus on:

• An app designed for and by the end users themselves
• 'Right First Time' field data capture: Collect, Correct & Confirm
• Automated data validation, correction and creation
• Connected and disconnected data capture
• Integration with existing GIS platforms (e.g. Esri)
• Simple, easy to use application
• Integration with GNSS devices for accurate location
• 3D enabled (for future 3D requirements)

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

Phase one of this project will be judged a success if the project results in:
• Reduction in data entry errors in field data collection
• Reduction in site revisits to check data has been collected correctly.
• Reduced manual checking of data.
• A measurable increase in data quality
• Creation of an app which is intuitive and usable by site managers

Project Partners and External Funding

1Spatial

Potential for New Learning

The solution will provide a user-friendly field-based application, allowing rules-based data capture / validation to ensure the accurate recording of NGN assets
Phase one will deliver: A functioning field-based application that Allows fast and effective quality-driven spatial data editing of real world data online and offline that greatly reduces the need for back-office QA/QC processes

Scale of Project

In this first phase, the mobile editor will be focused on:

A. Improving the actual data capture process by providing a simple, easy to use app with built-in data validation and auto-correction.
B. Reducing the time and cost currently involved in back office QA/QC tasks, so that the QA/QC tasks are a very light touch check.

Technology Readiness at Start

TRL4 Bench Scale Research

Technology Readiness at End

TRL7 Inactive Commissioning

Geographical Area

NGN area

Revenue Allowed for the RIIO Settlement

None

Indicative Total NIA Project Expenditure

External Costs £306,000
Internal Costs £102,000
Total Cost £408,000

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:

n/a

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)

This is a development and demonstration project that will focus on improving the efficiency, timeliness and quality of the field editing process and minimising slow and costly back office QA/QC tasks. In this phase back office QA/QC processes will be greatly reduced (but not removed completely).

The forecasted future project benefits are primarily qualitative. Whilst there will be some immediate quantitative financial benefits, the quantifiable benefits will need to be proven over time to allow assessment relating to improvement over the existing manual process
.
This project will assist Site Manager and the validation team to complete work with greater efficiency by utilising the benefits of robust data validations with a financial benefit of c.£160,000 per annum

Please provide a calculation of the expected benefits the Solution

Forecasted workload is 5000 tasks per annum at a saving of £32 per task

5000 x £32 = £160,000 per annum

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

This application and method is replicable across all GDN's as is specifically linked to the digitisation and recording of assets.

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

Costs to be confirmed upon completion of the project. Implementation costs not yet know and are subject to development options.

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

All networks are required to undertake street works as part of operational deliver and this solution could therefore be transferable.

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

The challenge identified for improvement in this instance relates to Customer Service and also Asset and Network management, this project has the potential for network Licensee's to undertake street works impact assessments, produce automated traffic management plans and understand customer impact zones via an automated function to deliver a more efficient and high-quality service.

☑ Has the Potential to Develop Learning That Can be Applied by all Relevant Network Licensees

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.

n/a

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

The project is innovative and has become possible as a result in emerging technology and the advancement of computer coding programs and subsequent rules engines to deliver evidenced based, automated validation.

Relevant Foreground IPR

n/a

Data Access Details

n/a

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

The benefits from this project are primarily qualitative. Whilst there are some immediate quantitative financial benefits, these benefits will need to be proven over time to allow assessment relating to improvement over the existing manual process.

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

The benefits from this project are primarily qualitative and are the key drivers that make this project suitable for NIA funding. The improvement in this instance relates to efficiencies in both Customer Service and also Asset and Network management.

This project has been approved by a senior member of staff

☑ Yes