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

Jun 2023

Project Reference Number

NIA_CAD0092

Project Registration

Project Title

Customer Safeguarding Virtual Training Platform

Project Reference Number

NIA_CAD0092

Project Licensee(s)

Cadent

Project Start

June 2023

Project Duration

1 year and 11 months

Nominated Project Contact(s)

innovation@cadentgas.com

Project Budget

£233,226.00

Summary

The Customer Safeguarding Virtual Training Platform NIA Project with support from mX Reality, aims to deliver a future solution to better train Field Force and office staff to better manage situations they may encounter when interacting with customers in vulnerable circumstances who may or may not be on the PSR. The solution will utilise virtual environments and scenarios that take place in various customer properties that trainees can 'play' through, receiving personalised feedback on their actions.

Nominated Contact Email Address(es)

Innovation@cadentgas.com

Problem Being Solved

Engineers and their colleagues who work for the Cadent are required to undergo safeguarding training if they have interactions with customers, to ensure the customers' safety. Current online training methods are too simplistic and do not include the full scope of customer safeguarding training required for a holistic understanding of the issues and their solutions. The existing approach is a web-based solution which is led by scenarios, but the content is fixed, meaning it is not dynamic and is too binary.

The problems with this current method are:

· Trainees are given a set of questions identical to each user, regardless of their role and how they will engage with customers

· The questions have pre-determined, single-choice answers

· The method has a fixed pass/fail requirement and does not provide management information on where individuals require additional support

· It is too simplistic, as different scenarios are treated with a singular approach

- It uses a ‘one size fits all style, which doesn’t reflect genuine, complex situations that GDNs come across
- It does not test or report on the use of available systems, customer support avenues, processes, and behaviours

This training is inadequate for an ever-evolving focus on customer safeguarding. The training of safeguarding customers requires a more engaging and immersive way of allowing Cadent Gas engineers to understand the types of vulnerable situations that each customer could be potentially in and how to identify any risk.

It’s currently difficult to train engineers in real-life situations without either spending a lot of time and costs travelling and running the training sessions with real actors. On-the-job training isn’t sufficient as putting in experience engineers in difficult situations could make the problem worse or the vulnerability could be missed if they aren’t correctly trained on how to identify it.

Cadent requires the use of MX Reality’s virtual environment technology so that engineers can be placed in real-life situations where they have to make difficult decisions and learn scenario-based training.

Method(s)

We propose the use of a solution developed by mXreality which is based on Virtual Environments (VE), it is a fully interactive, online, immersive, 3D game-based learning solution. The technology empowers learners to make decisions and choose their routes through the programme, delivering unlimited interactivity to perform tasks and implement actions. The virtual environment solution below is based on Cadent’s requirements for branching scenarios, however, we recommend that the scenarios are developed on a linear basis with an element of randomisation, this will enable us to develop the scenarios quicker and cheaper.

Virtual Environments:

The Virtual Environments solution is based on a highly innovative 3D approach to simulate real-life situations to test a learner’s knowledge and understanding. Learners will be able to put into practice, what they have learned in a safe environment. The whole online training experience is enjoyable and visually rich in its graphical depiction of a real-life situation. It is a flexible, easily adaptable and maintainable solution with a high level of engagement. This innovative training format not only reflects currently accepted best practices in terms of its design, development and production but also represents the next level in cost-effective technology-based learning.

Scenarios:

The 3D virtual environment will be based on a typical customer house and furnishing, we can then create scenarios based on Cadent’s Customer Advent situations.

Each scenario will take around 20 minutes to complete. We propose to create the virtual 3D environment first, then create the first scenario which could cover a vulnerable customer who suffers from dementia and is at risk of carbon monoxide poisoning. Up to 3 additional scenarios can then be developed based on the same environment by working with Cadent’s subject matter experts to define the learning objectives and specification of the scenarios. We would usually aim to ensure each one covers a wide range of topics as follows:

- Communication and behaviours
- Use & disposal of Personal Protective Equipment
- Recording and reporting observations
- Health and Safety
- Observation skills
- Escalation points and briefing information

The scenarios will use the same 3D environment and assets and will be based on a typical customer house. We may require further reference photos/videos from Cadent when the project commences supporting the development of the environment. The 3D environment will be representative of an actual house, but only the interactive elements associated with the scenarios will be developed in detail. Once the 3D environment and first scenario are approved, then the remaining/additional scenarios can be easily developed. These could include:

- Additional vulnerable customer-based scenarios

· Similar scenarios with different variables

· Assessment-based scenarios

· Different properties and environments

The scenarios are based on following a predetermined process on how the learner should deal with a certain situation, they will have to make decisions throughout the scenario and also answer questions which will test their knowledge with informative feedback given after each question as informal learning. Below is an example of a question and the feedback given

At the end of each scenario, the learner will receive feedback on how they have progressed in the scenario. Each task and question is marked and additional learning information is provided which gives further information to the trainee on their strengths and weaknesses so additional learning can be given. Below is an example of how this feedback would be presented.

Branching

The main research and development innovation will come from the development of the branching of the scenarios. We would envisage that as the learner plays out the situation they are faced with, they will come across decisions they have to make which will affect how the scenarios unfold. In this way, a learner attempting the same scenario multiple times could have very different outcomes depending on the path they choose at the critical decision points as they work their way through the scenario. While branching scenarios can provide great benefit to the learner and tutors, they can also be quite challenging to develop as they are effectively multiple scenarios combined, and as such can become very intricate and complicated and require a lot of information and testing to ensure that all paths can be followed and produce the intended outcome.

With this in mind, we propose that each scenario would include up to 2 levels of branching (allowing for up to 3 branching decision points in total), that allow the learner to affect the eventual outcome of the scenario. Each of the branching decision points will result in up to 2 possible paths, allowing a total of up to 4 possible outcomes. The flow diagram below indicates what this might look like. The detailed features and functionality can be explored during the design phase of the project.

Scope

The solution must:

- Be interactive
- Be a 3-D game-based learning solution
- Utilise a branching decision-making model
- Be a platform with differing environment options, user types, and scenarios
- Be able to add further environments, user types, and scenarios
- Be able to recommend a personalised training plan based on the user's interaction, their
- responses to the main scenario, and their awareness of the topics covered
- Have a virtual training setting which is accessible on company-issued screens and systems, such as
- smartphones Toughbooks
- Offer accessibility tools for the user, such as font size, language, and colour screen options, with
- the ability to remember preferences
- Be compatible with the SCORM training database or learning link, with the option for external
- access e.g., CMO or LDP (third-party service providers contracted on behalf of the Network)
- Have the option to save or pause current progress through a scenario, as field users may not have
- enough time to complete the training in one sitting

The solution should:

- Provide integration of individual scores into team-aligned reports
- Have multiple-choice quizzes or knowledge checks
- Ensure each scenario will last up to 20 minutes

The solution could:

- Offer scenario customisation and basic character customisation
- Provide the possibility for joint training or multiple users in a scenario

The solution won't:

- Use virtual reality headsets

The estimated costs for this programme of work are £174,920 split over nine work packages over an estimated 10 months. The work packages each operate as project stage gates whereby at each stage gate Cadent can decide whether to progress with the next Work Package. This also allows the scope for Work Packages to be modified as required by Cadent as the project progresses.

Objective(s)

The following objectives are expected to be delivered:

- At least one 3D environment to be created that will be based on a typical customer house and furnishings
- The creation of an initial scenario followed by 3 additional training scenarios once successful, based on Cadent's Customer Advent scenarios
- Each scenario will typically last 20 minutes
- Each scenario will feature branched decision-making, with at least 2 levels of branching, allowing for several arcs based on the user's decisions and the order of actions carried out
- The system will need to assess a user's performance in each scenario as well as provide questions to test a user's knowledge throughout
- The solution will provide the ability to track, report and provide MI on choices made in a scenario and these will result in recommendations for further training where required
- Delivery of solution as SCORM 1.2 packages which can be hosted by Cadent in our Learner Management System
- Providing accessibility to colleagues through investigation of adding Recite Me to internal training systems

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

This project has been input into the Consumer Vulnerability Impact Assessment Tool and there are no negative impacts on consumers in vulnerable situations and therefore there is no need to take mitigation measures.

Success Criteria

- A realistic customer household environment must be created that various scenarios can be run within
- A minimum of 4 scenarios developed that deliver on different Customer Safeguarding topics from the Cadent Customer Advent
- The platform can be accessed on standard Cadent devices including laptops and mobiles
- The training scenarios must be more engaging than current linear training modules
- The platform provides personalised training feedback – above and beyond what is currently offered in our training modules
- Training scenarios include realistic branching to cover the various actions that trainees may take within a set scenario

Project Partners and External Funding

The project partner for this project is mX Reality and the project will be wholly funded via NIA

Potential for New Learning

Utility companies will develop a better understanding of requirements for customers in vulnerable situations and how we can better train staff to deal with various scenarios they may come across when attending to a customer's property or talking to a customer on the phone.

All reports will be published on the ENA Smarter Networks Portal.

Scale of Project

The project will be delivered as detailed and will bring significant advances relating to our staff in various roles working with consumers in vulnerable situations. The scale of the project provides the minimum proof of the training concept and If the scale was lessened, it would likely reduce the benefit received from the project.

Technology Readiness at Start

TRL5 Pilot Scale

Technology Readiness at End

TRL8 Active Commissioning

Geographical Area

The project will be developed and trialled in Cadent's West Midlands Network. However, due to its online nature, it has no geographical restriction and therefore will be applicable to all of Cadent's networks.

Revenue Allowed for the RIIO Settlement

N/A

Indicative Total NIA Project Expenditure

Total external costs: £174,920

Total internal costs: £58,306

Total NIA expenditure: £233,226

Total contingency: £17,492

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:

Cadent is committed to ensuring that all colleagues take responsibility for supporting our customers by keeping them safe, warm and independent in their homes. Including recognising when a customer is in a vulnerable situation and then acting in their best interests.

This project helps us all deliver our RIIO-2 commitment - to train all customer-facing colleagues annually on customer safeguarding by aiming to develop an improved and more engaging method of training our staff and field force around the various scenarios related to customer safeguarding that they may come across in their day-to-day role.

The training will help staff to communicate with customers in vulnerable situations, whether in person or on the phone and how to identify how best to support that customer depending on the needs of the customer that are identified. The training will cover a range of tools and techniques that can be utilised in supporting our customers. By developing more engaging and personalised training, staff will all be in a better position to make a real difference together within the community

In total, we have approximately 4.5 million customers registered on the Priority Services Register across our operating footprint. It is estimated that in addition to this 30-50% of all UK households would benefit from being on the PSR, meaning an additional 5.5 million customers across our footprint may have additional specific needs. This training will have a direct impact on any of these customers that interact in any form with Cadent.

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

This project does not aim to see direct financial benefits; but to improve the experience of customers in vulnerable situations who are registered on the PSR and the wider public who may find themselves in vulnerable situations. In addition, the project is expected to provide the below benefits:

- More engaging training that is personalised to each individual undertaking the training
- Training that can fit around life/work and can be accessed 24/7 requiring less employee time than classroom learning with an expectation of a higher knowledge retention rate of 25-60%
- Improved communication and support of customers in vulnerable situations by allowing staff to practice real-life scenarios in a virtual environment before interacting with customers

- Online courses also use 90% less energy, produce 85% fewer CO2 emissions and are more cost-effective than face-to-face training

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

Project reporting will quantify the scale and cost of the opportunity of implementation taken from this project. It is however envisioned that if successful, this form of virtual training could easily be applied across all utilities that interact with customers on the PSR or who are in a vulnerable situation.

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

The cost of implementation of this platform will be dependent on several areas including the following:

- The learning platform in use and the integration requirements
- The complexity of scenarios required
- The requirement for any unique assets within the training environment

From the initial project costs it is estimated the development of each scenario £10,000-£15,000 however this will be detailed further in project reporting in the life cycle of this project.

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 learning and examples of training scenarios will be available to share with relevant Network Licenses. Data will also be shared on the effectiveness of training in virtual environments so that Network Licenses can implement a similar platform to address specific learning challenges.

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.

A thorough check has been completed and no similar projects have been identified. All networks were informed of the project via a project notification form on huddle and no issues of duplication have arisen. Project learnings and outcomes will be shared throughout the project to ensure no future duplication occurs.

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

No previous projects have been identified across all GDNs that involve virtual training environments that focus on interactions in person or on the phone with customers including those that are in vulnerable situations. No solutions have been found that provide personalised training based on a trainee's interactions and order of actions in a set training scenario that is not a linear training module.

Relevant Foreground IPR

The 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

Any consumer data gathered throughout this project will be anonymised and will be compliant with General Data Protection Regulations (GDPR) and the UK Data Protection Act. Any compliant data can be made available for review upon request.

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

This type of training has yet to be developed and used within the industry and therefore there is a high level of uncertainty associated with the project which would be beyond the network licensees' risk appetites. This piece of work is to better understand the effectiveness of virtual training environments related to interactions with customers. Branching specifically is unproven with regard to the potential complexity this may add to scenario development and will require a period of trials with office staff and field force.

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 high-level risk associated with the project is beyond the current risk appetites of networks. NIA will allow us to complete

this project to better inform future decisions and opportunities, as well as provide an indication of the benefits of virtual customer safeguarding training to the wider GDN community.

This project has been approved by a senior member of staff

☑ Yes