electricity north west

Bringing energy to your door

NIA ENWL018
Project Avatar

Progress Report

31 July 2018

VERSION HISTORY

Version	Date	Author	Status	Comments
V1.0	13 April 2018	Geraldine Paterson / Tracey Kennelly	Final	

REVIEW

Name	Role	Date
Lucy Eyquem	Innovation PMO Manager	19 July 2018
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APPROVAL

Name	Role	Date
Steve Cox	Engineering & Technical Director	31 July 2018

CONTENTS

GLOSSARY

Term	Description
AI	Artificial intelligence
CEP	Customer engagement plan
DNO	Distribution network operator
DPS	Data privacy statement
ECP	Engaged customer panel
GB	Great Britain
IPR	Intellectual property rights
MVP	Minimum viable product

1 PROJECT FUNDAMENTALS

Title	Project Avatar
Project reference	NIA_ENWL018
Funding licensee(s)	Electricity North West Limited
Project start date	October 2016
Project duration	3 years 2 months
Nominated project contact(s)	Geraldine Paterson (innovation@enwl.co.uk) Tracey Kennelly (innovation@enwl.co.uk)

2 PROJECT SCOPE

Engagement with Electricity North West customers, GB suppliers with learning applicable to all licensed operators

Experts: consultation with a range of specialist service organisations and manufacturers of innovative technologies and relevant trade associations.

Customer engagement: research across the full range of Electricity North West customers: domestic and commercial customers with specific quotas on sub-segments including, but not limited to, urban, rural, the young (18-24 years) and customers who have made previous contact with their distribution network operator (DNO).

Employee engagement: frontline Electricity North West customer service teams.

3 OBJECTIVES

Delivering customer interactions in a technologically advanced seamless system manner will only impact on the costs and quality of a system operator's operations if the customer responds positively to that interaction.

- To broaden the level of understanding concerning customer service needs and future expectations
- To have a robust measure of anticipated future attitudes, behaviours and needs by customer segment
- To integrate customer research with existing service provisions and innovative solutions to optimise a customer service approach, enabling a strategy for DNOs to meet the future needs and expectations of its customer base
- To facilitate the creation of bespoke customer service solutions targeted at specific customer groups to meet their unique medium- and long-term future needs
- A blueprint for implementing bespoke customer service solutions incorporating a link to network control systems and data.

4 SUCCESS CRITERIA

The project success criteria are:

- An understanding of current and future customer service needs and how unmet needs might be addressed
- Identification of a range of innovative solutions that best meet customers' increased servicing expectations
- Reactions to mass customer contact capabilities and identification of the optimal strategy in terms of automation and interactivity
- An appreciation of the variations in acceptability and applicability of innovative technologies and solutions across key customer segments and groups
- A customer service blueprint, which incorporates data from existing network control systems, to best meet existing and future needs of specific customer groups and leverage higher levels of customer satisfaction
- A demonstration of how innovative technologies and solutions can assist DNOs to better plan their customer investment strategy.

5 PERFORMANCE COMPARED TO THE ORIGINAL PROJECT AIMS, OBJECTIVES AND SUCCESS CRITERIA

5.1 Phase1: Current trends and expert thinking

Desk research and literature review

A comprehensive desktop/literature review has been completed to gain contextual understanding of the trajectory of the future of customer service from a range of different industry sectors.

Discussions with leading manufacturers

Discussions were held with Schneider Electric (SE) and DXC Technology (formerly Hewlett Packard Enterprise) to understand potential new and future innovations in customer services.

Methodology statement

A methodology statement, which outlines the proposed project approach, was developed and published on 30 June 2017.

Peer review of methodology

A peer review of the Avatar project methodology was conducted by Dr Ariel Bergmann, lecturer of energy economics at the University of Dundee. This was published on the project website on 11 August 2017.

Employee engagement workshops

A series of workshops, facilitated by SE and DXC, were held with colleagues closest to the current issues and needs of customers, to advise the project from 'bottom up'. The workshops comprised four distinct colleague groups representing relevant customer touchpoints and were designed to reflect an appropriate balance of age, seniority, expertise and experience from across the business. These colleague groups were as follows:

- Customer contact centre senior and team managers

- Operational/field based managers and engineers
- Connections services colleagues – middle and senior management
- Millennials – keen and enthusiastic younger colleagues from across the business.

The workshops successfully met the following research objectives:

- To broaden our understanding of current and likely future customer needs and how unmet needs and expectations might be addressed.

Customer engagement plan and data privacy statement

A customer engagement plan (CEP) and data privacy statement (DPS) were drafted and submitted to Ofgem for approval

Co-creation workshop

A co-creation (envision) workshop was held with SE and DXC to disseminate findings from the colleague engagement workshops and develop common themes into conceptual solutions. It was also an opportunity to showcase new techniques which hybridise commercial considerations with customers' service expectations, applicability and acceptability. The workshop was successful in helping to identify bespoke innovative solutions which best meet customers' increasing servicing expectations.

Development of prototype

DXC as the technology provider took the outputs of the colleague engagement workshops to inform the design of three prototypes which, could be used collectively to demonstrate the DNO's future customer service capability, from a customer's perspective.

DXC used a process called minimum viable product (MVP) which provides a scientific approach to developing new products and services, and ensures inclusion of only those features that customers value. MVP is centred on understanding likely customer uptake and the features that a customer will value and is focused on embedding learning. MVP aims to provide the minimum product or service features that can be validated by real customers using that product and it will test the fundamental business proposition as well as product features, design and technical questions.

Using the MVP process DXC constructed three prototypes, which allowed customers to experience the conceptual network of 2027. Each prototype represents the same parties but from different viewpoints.

Prototype 1

The objective of the prototypes was to provide basic visual, interactive tools for customers to gauge reaction to the vision of customer servicing for DNOs in 2027. The prototypes were designed to provide an aid for customers, initially convened in an engaged customer panel (ECP) in visualising their interaction with network operators in the future.

Prototype 1 provides a means to visually demonstrate (to customers) how they are consuming electricity, and shows the monetary value of electricity used by specific appliances and areas of the home, in real time. It also shows when and what capacity is available in terms of generation and storage. This allowed customers to visualise how they might self-manage their own electricity in the future and sets a picture where independence from the grid can be achieved with relatively low cost or impact to the householders.

This prototype allowed the project team to investigate perceptions around whether the extensive adoption of smart home technologies is regarded as credible (via distinct customer segment) and explore customers' views about whether the changing demand and generation of customers, as envisioned, will materialise to facilitate more manageable energy networks.

Prototype 1 also introduced the concept of data sharing with the DNO, allowing the project team to test customers' acceptability to sharing data (such as energy consumption) with the DNO to inform better management of the distribution network.

Prototype 2

This prototype was designed to act as an intermediary communication platform between customers and DNOs. It demonstrates the potential for automated responses to customer enquiries managed via service desk knowledge repositories and learning machine technologies.

It provides the communication channel through which either party can relay a predefined narrative for reacting to certain events. For example, from a DNO's perspective: 'When there is an unplanned outage the communication channel does this…' or from the customer's perspective: 'When my local generation fails please revert to grid reliance'.

Given that the technologies involved will be digital and managed by operating systems, the prototypes demonstrates how Artificial Intelligence (AI) will be used to control the response to a given event, to ensure consistent performance. The prototype also provided a catalyst to discuss how AI will continually refine automated response, to continuously improve customer ease and satisfaction.

Prototype 2 demonstrates how the fully automated service desk will capitalise on the level of customer profiling, facilitated by engaging with device services and home system insights supplied by prototype 1.

Prototype 3

This prototype demonstrates a platform that the DNO might use to visualise event-driven network communications. It shows how such a system would be capable of integrating multiple data sources to facilitate real-time event mapping, through on-boarding 'edge of the network devices', which have the potential to extend the traditional grid boundaries. The prototype was designed to help customers see geo-visual data representations of system events.

Prototype 3 provides a vision for centralised communication and control for network management. It exhibits the in-depth data analysis that will be possible as smart devices begin to share their data profile to the energy network. It also provides a tool which helped to demonstrate how DNOs could capitalise on the level of data now being supplied for analysis, pattern and fault detection.

This prototype leverages the data generated from prototypes 1 and 2 and it was explained to customers that this would provide every Electricity North West employee with real time visibility of all network events (or access to authorised levels of information).

The documents produced in phase 1 are published on our webpage.

5.2 Phase 2: Exploratory research with customers

Phase 2 of the research comprised a series of focus groups and depth interviews with a cross-section of customers which explored current and future customer servicing needs and reactions to specific customer service concepts and techniques.

Engaged customer panels

Impact Research recruited 40 customers spread across different demographics: urban, rural, SMEs and millennials. This gave a cross-section of customers who are likely to interface with Electricity North West. The selection criteria ensured that the research was represented by different age groups to understand whether there are generational differences in attitudes to data sharing and use of new innovative solutions to help their customer experience.

Four groups of customers were asked to attend three panel sessions over a six-week period with each session lasting 90 minutes. The sessions were run by an independent professional moderator who asked participants semi-structured questions relating to a predefined list of topics. This customer engagement approach follows the successful deployment of similar techniques by Electricity North West in its previous innovation projects.

During these meetings, information was shared and evaluated by the participants who were encouraged to provide feedback and share their unique experience in relation to the discussion topics. This format allowed the moderator the flexibility to question participants further on issues arising through open discussion.

The first session introduced Electricity North West and its role in the electricity supply chain. The role of the DNO was explained in a simple manner through a mixture of audio and visual methods that had been effective in previous projects (FAQs, showcards and video). It was apparent from this session that the relationship between the DNO and electricity suppliers remains confusing for the majority of customers. It is only when the distinct roles and responsibilities are explained and understood that it was possible for customers to contextualise the aims and objectives of the project. This first iterative stage of education provided an appreciation of how a DNO's role will change in a low carbon future and, as a consequence, how this will impact customer servicing requirements.

The second session focused on embedding an understanding of the evolving role of a DNO and sought opinions about the changing face of customer service across all business sectors and, specifically, opinions on what constitutes good and poor customer service. This session introduced examples of emerging technologies; introduced the idea of the 'smart home'; and presented scenarios around which to gauge opinions concerning data sharing. This meeting was successful in providing the foundations for introducing the prototypes in meeting three.

The third meeting built on the education delivered in the previous two sessions to introduce the prototypes developed by DXC. Prototypes 1 and 2 are interactive and accessible via iPads; consequently, the panel each had the opportunity of working through scenarios designed to demonstrate these prototypes in turn. Prototype 3 is intended to demonstrate how the DNO can use data collected from prototypes 1 and 2 to visualise events occurring on the network, interact with other operating systems and use this information to generate customer communications. To assist customers in differentiating systems intended to be used or seen by them from those that would be visible only to the DNO, prototype 3 was demonstrated by the moderator on a large screen. This demonstration was also supported by a suitable narrative and a video which helped to convey how the technology could enhance existing network management systems.

The demonstration of each prototype was supported by suitable narrative, contextualising the circumstances in which they would be deployed and how they would interface with each other to provide a seamless fully autonomous platform to deliver exceptional levels of customer service. The ECP's reaction was noted and the panel was asked to provide their overall opinions, specifically if the prototypes were regarded as acceptable, relevant and credible. The session elicited important learning about perceptions relating to the general trajectory of customer servicing associated with AI and opinions around data sharing and where this is acceptable to facilitate autonomous customer servicing capabilities.

The panel attendees were well engaged and provided constructive comment and opinion which has enabled Electricity North West to start to form views on what customer service may look like in the future.

The key findings arising from the development of the prototype solutions and learning from testing these with customers will be published in two separate reports.

6 REQUIRED MODIFICATIONS TO THE PLANNED APPROACH DURING THE COURSE OF THE PROJECT

6.1 Phase 1: Current trends and expert thinking

It was originally planned to undertake exploratory research with customers to evaluate and quantify their customer service requirements in the early phase of the project, before testing new innovative solutions using delivery technologies developed later in the project.

However, it was felt that greater insight and more in-depth responses would be achieved if a prototype could be shared with customers earlier in the project. On advice from SE and DXC who have significant experience in this field of research, the early prototypes development was brought forward using feedback from the colleague engagement workshops. The rationale for this revised approach was on the basis that these colleagues are experts in their respective fields, they engage with customers on a regular basis and their breadth of knowledge and understanding of customer challenges means that they were best placed to advise the project.

As a consequence of this modification, the prototypes were tested on customers earlier in the project. This allowed scope for re-evaluation and further iterative refinement of the prototypes, based on customer feedback.

6.2 Phase 2: Exploratory research with customers

The modification in phase one allowed for further re-evaluation and enhancement of the prototypes, based on customer feedback. However, prior to presenting the prototypes to customers in a focus group setting, they were first subject to a robust phase of user acceptance testing by the project team. They were subsequently evaluated by a sample of previously engaged Electricity North West colleagues. This exercise ensured that the prototypes were suitably interactive and accessible via a number of devices. It also highlighted potential difficulties in communicating certain elements of the applications to customers and where this was the case, a detailed narrative was constructed to contextualise the prototypes around a series of scenarios. This approach was extremely successful in conceptually demonstrating the potential application of the technologies to customers, who were able to appreciate such technologies being used to benefit DNOs and customers in the future.

Consequently, by the end of the third focus group meeting, all members of the panel felt they had a good understanding of the problem the project was seeking to address, and were satisfied that the conceptual solutions demonstrated by the suite of three prototypes provided a blueprint for a future customer services model. As such, it was not necessary to conduct further modification to the prototypes or reconvene the ECP to evaluate refinements.

7 LESSONS LEARNED FOR FUTURE PROJECTS

7.1 Phase 1: Current trends and expert thinking

Discussions with leading manufacturers

Consultation with specialist organisations was extremely valuable and this expert thinking has helped to develop and shape the concepts and techniques which will be explored with customers in future phases of the project.

Colleague engagement workshops

This phase of research represented the first time that Electricity North West had facilitated colleague engagement workshops, specifically to elicit insight from colleagues across the wider business, during innovation projects. Engaging with colleagues proved to be extremely effective and the learning elicited from their breadth of knowledge and their wealth of

experience highlighted common themes. This helped inform the development and refinement of ideas and shape the conceptual solutions that will be taken forward, based on real customer experience.

7.2 Phase 2: Exploratory research with customers

Bringing forward the prototype development and introducing these to customers at the panel sessions instigated more meaningful discussions rather than just asking customers to come up with ideas.

7.3 Challenges arising from different methodological approaches

Schneider Electric (SE) was appointed an Avatar project partner, as a global specialist in energy management and automation, and the provider of Electricity North West's new network management system (NMS).

SE appointed DXC Technologies as a subcontracted project supporter because of their expertise in digital transformation. DXC's role was to develop transformation roadmaps and to generate prototypes/conceptual solutions to meet customers' future needs.

The Electricity North West project team was aware that DXC favoured an iterative, agile approach and based on its specialism in this field, believed this would deliver the best outcome, allowing prototypes to be developed and modified in response to ongoing feedback and recommendations. However, the extent and flexibility of the Electricity North West resource required to accommodate this agile methodology was not defined by DXC and as a new methodology was not apparent to Electricity North West.

The project team and wider business support could only commit a limited amount of time to the prototype development due to commitments from other projects. It became apparent, early in the process, that there was a disjoint in the resource required by DXC and that which Electricity North West was able to accommodate at extremely short notice.

There was also a disjoint in DXC's interpretation of the reporting requirements to meet Electricity North West's project dissemination commitments.

The Electricity North West project team had to manage a number of changes in the methodology recommended by DXC to achieve the optimum output and accommodate the non-prescriptive agile approach. This was a challenging phase of the project which was exacerbated by the short-term fixed contract appointment of the DXC delivery team, which resulted in key members being replaced at critical stages of the development process.

A series of meetings, represented by all parties, were held and a compromise agreed to ensure further slippage in prototype development was avoided. A number of measures were instigated to ensure the direction of the project was appropriately managed going forward. This was facilitated via weekly WebEx/Skype meetings attended by all relevant parties, where ongoing prototype development was communicated and interdependencies, requiring Electricity North West colleagues, were identified and mapped. This allowed colleagues to schedule their time and diaries accordingly, or delegate certain activities to other appropriate colleagues.

This represented a divergence from DXC's proposed methodology but ensured sufficient time was incorporated into the programme to provide an Electricity North West resource, at key stages of prototype development. This ensured conceptual solutions were appropriately evaluated by key colleagues, to assess overall feasibility and suitability of various components of a final suite of prototypes. This process also ensured that the final prototypes were appropriate to present to customers.

Enhancements to the written reporting requirements (to document the methodology adopted by DXC) were also agreed during this period, ensuring that all stages of prototype

development were appropriately documented and transparent. This learning, along with the opinions of key colleagues and customers will be incorporated into the final blueprint.

This project has highlighted the benefit of entering a bilateral agreement with the organisation ultimately responsible for the delivery of goods or services, because of the challenges that can arise from a subcontracted arrangement. Future technology-based innovation projects involving the delivery of either a conceptual solution, physical prototypes or a final product should consider the responsibilities of all parties and ensure these are fully defined prior to entering the contractual arrangement.

8 THE OUTCOME OF THE PROJECT

Not applicable.

9 DATA ACCESS

Electricity North West's innovation data sharing policy can be found on our website.

There has been no data gathered during the course of this project. The project is purely gathering customers' opinions on the future of customer service.

10 FOREGROUND IPR

There is no foreground IPR associated with this project.

11 PLANNED IMPLEMENTATION

Not applicable.

12 OTHER COMMENTS

Not applicable.