Project Avatar: The Future of Customer Service

Methodology Statement

30 June 2017

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VERSION HISTORY

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APPROVAL

Name	Role	Date
Steve Cox	Engineering & Technical Director	30 June 2017
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GLOSSARY

Abbreviation	Term
CCC	Customer contact centre
CEP	Customer engagement plan
CIE	Chief income earner
DNO	Distribution network operator
DPCR	Distribution price control review
DPS	Data privacy statement
GB	Great Britain
KPI	Key performance indicator
LCT	Low carbon technology
NIA	Network Innovation Allowance
RIIO-ED1	Electricity distribution price control 2015 to 2023
RIIO-ED2	Electricity distribution price control 2023 to 2031
SIC	Standard Industrial Classification of Economic Activities
SME	Small and medium enterprise

DEFINITIONS OF TERMS

Term	Definition
Business sector SIC code	The United Kingdom Standard Industrial Classification of Economic Activities (SIC) will be used to classify businesses by the type of economic activity in which they are engaged for analysis purposes.
Business size	For the purposes of this research, small and medium enterprise (SME) size has been defined in line with the European Commission (Enterprise and Industry) classification as follows: • Micro: 1-10 employees (turnover of less than £2 million per annum) • Small: 11-50 employees (turnover of less than £10 million per annum) • Medium: 51-250 employees (turnover of less than £50 million per annum).
Engaged customer panel	An engaged customer panel is a qualitative research method. It consists of a focus group convened to explore underlying reasons, opinions and motivations regarding products and/or services.

Term	Definition
Geographical classification	The [2011 Rural-Urban Classification of Local Authority Districts and other higher level geographies](#) will be used to classify research participants into geographical categories as follows: • Mainly rural (rural population including hub towns ≥ 80%) • Largely rural (rural population including hub towns 50–79%) • Urban with significant rural (rural population including hub towns 26–49%) • Urban with city and town • Urban with minor conurbation • Urban with major conurbation. This geographical classification will be coded automatically from postcode information collected in the research. These six categories will be aggregated to rural versus urban (the classification used in the London Economics study for Ofgem and the Department for Business, Energy & Industrial Strategy).
ISO 20252	The standard sets out requirements for a quality management system. It requires senior management to be responsible for the quality of client service and the development, interpretation and continual improvement of the system. It also requires the appointment of a quality manager with sufficient authority to be responsible for, and have control over, the entire system.
LCT user	In this study, a current low carbon technology (LCT) user will be someone who owns and/or operates an electric vehicle, a photovoltaic system or an electric heat pump. Hybrid electric vehicles (HEVs) do not form part of the definition; however, HEV owners will be included in the overall research sample.
Monadic concept test	A monadic test means that unique groups of respondents evaluate and provide diagnostics for each prototype service solution, in isolation. This prevents the introduction of bias in the respondent's mind.
Social grade	Social grade is a classification system based on occupation. It enables a household and all its members to be classified according to the occupation of the chief income earner (CIE). A number of questions need to be asked in the interview to assign social grade accurately. The interviewer questions the respondent for information regarding the occupation of the CIE, the type of organisation they work for, the job actually carried out, the job title/rank/grade and whether the CIE is self-employed. Once the interviewer is satisfied that sufficient information has been provided to determine social grade, the respondent's classification is recorded. This is later checked for accuracy by experts in social grading coding at Impact Research, when it can be amended if necessary.
Timeframe	For the purposes of this research, long-term customer service solutions are defined as being ten years or more into the future: 2027 and beyond.
Vulnerable customers	This study references Ofgem's definition of [vulnerability](#), which defines a customer as vulnerable when their personal circumstances and characteristics combine with aspects of the market to create situations where they are: • Significantly less able than a typical consumer to protect or represent

Term	Definition
	their interests in the energy market; and/or
	• Significantly more likely than a typical consumer to suffer detriment.
	These personal circumstances may include, but are not limited to:
	• Disability
	• Chronic sickness (physical or mental illness and dementia)
	• Reliance on essential medical equipment and/or stair lift/hoist
	• Pensionable age
	• Being blind or partially sighted
	• Being deaf or hearing impaired
	• Having difficulty reading or writing
	• Having an unstable income or being unemployed
	• Caring for someone else in the household
	• Experiencing a sudden change in circumstances
	• Having English as a second language or speech difficulties
	• Having an infant in the household.
	Customers classed as vulnerable may or may not be included on a priority service register.

FOREWORD

The customer service landscape is changing. A wide range of political, economic, social, demographic and technological factors are accelerating a shift in customers' needs and expectations, with some sectors adopting radical customer service solutions to match to their customer bases. Customers today are better informed and more empowered than in the past.

Distribution network operators (DNOs) need to understand and predict customers' current and future needs to ensure that they improve upon, or at least maintain the level of customer service they provide. Continuous investment is required to identify and implement the right technologies and approaches to best meet the needs of different customers.

Project Avatar will build on previous studies in this area to deliver a more granular level of understanding that will facilitate greater efficiency in future investment decisions driven by customer need. An understanding of functional and emotional service needs by specific customer group will be key to informing DNO policies and investment plans for the second electricity distribution price control (RIIO-ED2) review and beyond.

Electricity North West and its project partner Impact Research will conduct extensive customer and stakeholder engagement to provide a comprehensive assessment of future customer servicing needs and expectations. Further collaboration with project partner Schneider Electric and project supporter, DXC Technology, will enable a range of innovative solutions to be developed and refined that best meet these expectations.

The project will demonstrate how innovative technological solutions can assist DNOs to better plan their investment strategy. The project will inform a blueprint that will enable DNOs to future-proof their overall customer service strategy, based on extensive customer research and specialist industry insight. This trajectory will be underpinned by investigations into the acceptability of innovative prototype or conceptual customer service solutions, tested across a range of customer segments, encompassing a broad demographic and key DNO touchpoints.

This report documents:

- The method that will be utilised to engage with customers and stakeholders
- The scope and objectives of research and development activities
- Proposed analysis protocols
- The anticipated research learning and outcomes.

The project is funded by the Network Innovation Allowance (NIA), introduced as part of the RIIO-ED1 price control. The NIA provides an allowance for RIIO network licensees to fund research with the potential to improve network operation and maintenance, and to deliver financial benefits to the licensee and its customers.

The project commenced in October 2016 and will be conducted over a 38-month period. It will culminate in the formulation of a customer service blueprint for a fully integrative customer serving model, which incorporates data from network control systems and other information technology and telecommunications (IT&T) platforms. This blueprint will help to bridge current unmet needs and set a trajectory to deliver a service that meets the future expectations of customers generally, and the needs of unique customer groups, specifically. The blueprint will leverage higher customer satisfaction across all of Electricity North West's customer touchpoints and will be transferable, to improve the standards of service provided by other DNOs across Great Britain (GB).

This methodology statement is supported by two accompanying addenda, published on the Project Avatar webpage:

- *Methodology statement addendum A: literature review*
- *Methodology statement addendum B: peer review.*

1   BACKGROUND

1.1   Why measuring the future of customer service is important: the problem

Customer service is the provision of a service to customers before, during and after an interaction or transaction.

In sectors such as utilities, where there is little scope for organisations to differentiate their offerings on features or price, levels of customer satisfaction are primarily based on actual experience from direct interaction. Electricity DNOs are effectively regional monopolies and, in common with other utility companies, historically have had no natural incentive to deliver exceptional customer service. As such, they have tended not to be noted as leaders in customer service.

During RIIO-ED1, the industry regulator, the Office of Gas and Electricity Markets (Ofgem), oversaw a step change in the customer service performance of DNOs. This involved widening the scope of the customer service incentive scheme and the Broad Measures of Customer Satisfaction that were introduced in the distribution price control review (DPCR5) regulatory framework. DPCR5 was successful in incentivising DNOs to become increasingly customer-focused rather than asset-centric.

In RIIO-ED1, which sets the revenues that DNOs can earn between April 2015 and March 2023; the benchmarking of customer satisfaction across the industry is driving further, significant improvements in customer service. The RIIO model and tighter performance standards have driven strategies, which are now allowing DNOs to better understand the diverse needs of their customers, along with their preferences and behaviours. Crucially, DNO innovation and investment strategies are focusing on how these characteristics are changing and the likely short, medium and long term impact on network performance and resilience. There is now recognition across the energy sector that these evolving needs will necessitate enhanced customer servicing requirements to meet accelerating expectations.

This understanding will become more important as customers increasingly derive their energy needs for heat and transportation from electricity networks. As a direct consequence of this acceleration in the adoption of low carbon technologies, dependence on a reliable electricity supply will become exponentially more critical. These factors are instrumental in driving DNO strategies to respond to evolving and unprecedented changes in customer needs and expectations.

However, evidence from the UK Customer Service Index suggests that significant improvements are still required across the sector, with only one utility provider ranking in the top 50 service organisations and notably, no DNO representation.

During RIIO-ED2 (covering the eight-year period from 1 April 2023 to 31 March 2031), a complex, multi-layered, constantly evolving picture is likely to emerge and it will be more important than ever to recognise customers' diverse needs, preferences and behaviours to keep abreast of their ongoing evolution, in order to deploy appropriate strategies which adapt and respond to these changes.

DNOs recognise that their customers' interactions with other types of organisations are setting intrinsic expectations of 'excellence in customer service' and this requires a step change in existing customer servicing models. As such, the industry is now beginning to consider a broader range of customer characteristics and attributes in their decision-making. Nonetheless, an even more granular understanding is required to exploit the opportunities available from adopting more effective and inclusive customer strategies.

1.2 Measuring the future of customer service: best practice

While no institution can credibly predict the future with certainty, it is possible to explore key factors of change and their likely implications for organisations in specific sectors and their customers.

Project Avatar will explore anticipated changes, challenge existing assumptions, stimulate further debate and disseminate practical recommendations to help DNOs plan for an uncertain, complex future in the rapidly evolving electricity industry.

The methodology detailed herein draws on a mixture of research practices, ranging from scientific, academically peer-reviewed quantitative approaches, to more deliberative, qualitative techniques. The methodology has been developed by market research experts and practitioners, and draws on procedures aligned with International Organisation for Standardisation quality standard ISO 20252.

A holistic but flexible research approach will enable the project to consider the future of customer service in all its complexity. Customer journeys are often complex, varied and are significantly impacted by a range of demographic factors. Consumers' needs, attitudes and behaviours can also change relatively quickly and are influenced by access to, and expectations around, technology and communications channels. They are also subject to the vagaries of unpredictable issues such as weather and the economy. As such, the research solution needs to be both longitudinal[1] and adaptable.

Electricity North West has adopted an 'information systems and digital transformation strategy' which seeks to deliver high quality, cost effective systems that provide a reliable and efficient service to its customers in the short and medium term. The scope of this research is to investigate the developments in innovation, likely to be in production and usage in RIIO ED2 and beyond. This timeframe is beyond the immediate planning horizons of most organisations, but is also sufficiently close to identify tangible opportunities, challenges and risks that need to be taken into account in current long-term planning strategies. The research will draw on evidence from British, European and global sources.

1.3 Project objectives

Facilitating customer interactions in a technologically advanced manner will only benefit customers and impact on the costs and quality of DNOs' operations if customers respond favourably to those interactions. Therefore, the overarching aim of the project is to quantify customers' servicing needs by segment and touchpoint, now and into the future.

The aspiration is to identify acceptable solutions, capable of meeting the unique needs of all customer groups at every point of contact, irrespective of the nature of that contact. These findings will inform a blueprint for fully integrative, multi-functional, multi-channel solution(s) capable of delivering exceptional levels of personal service to all customers, at every step of the customer journey.

The key project objectives are to:

- Broaden the level of understanding concerning customer service needs and future expectations
- Establish a robust measure of anticipated future attitudes, behaviours and needs by customer segment and touchpoint

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[1] A longitudinal study is an observational research method in which data is gathered for the same subjects repeatedly over a period of time.

- 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
- Facilitate the creation of bespoke customer service solutions, targeted at specific customer groups, to meet their unique medium- and long-term future needs
- Develop a blueprint for implementing bespoke fully integrative customer service solutions, utilising standard industry data from all pertinent IT&T and network control systems to deliver appropriate and acceptable solutions for all customer groups across all customer touchpoints.

This will be achieved by addressing the following key research questions:

- What are customers' current attitudes, behaviours and needs, and how do these vary by customer segment and touchpoint?
- How are these attitudes, behaviours and needs expected to change in the future?
- Which bespoke customer service solutions targeted at specific customer groups can meet their unique medium and long-term future needs?
- How can bespoke customer service solutions integrate with existing network control and IT&T systems, in addition to maximising the use of standard customer and system data, which is commonly available to all GB DNOs?

1.4 Project success criteria

The research will deliver the following outputs:

- 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 prototypes/conceptual solutions with mass customer contact functionality and multi-channel 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 blueprint for implementing bespoke, fully integrative customer service solutions, able to utilise standard industry data from pertinent IT&T and network control systems
- Recommendations on how the blueprint can be utilised to deliver acceptable solutions, which best serve unique customer segments across all customer touchpoints and can address currently unmet needs, future expectations and in so doing, leverage higher levels of customer satisfaction
- A demonstration of how innovative technologies and solutions can assist DNOs to better plan their business investment strategy.

1.5 Project partners

Electricity North West has selected two project partners and a project supporter to contribute expert knowledge and expertise in the fields of customer engagement, research and development, energy management and automation, innovation and digital transformation.

1.5.1 Impact Research

Impact Utilities is an independent market research agency specialising in the utilities sector and are experts in customer and stakeholder engagement, research design and advanced analytics.

Impact Research will lead the majority of engagement activities including, but not limited to:

- Development of research methodology to attain robust and credible outputs

- Design of research survey instruments and communication materials
- Recruitment of participants
- Analysis of feedback
- Reporting learning outcomes and dissemination of project findings.

All research will be carried out according to the standards of the Market Research Society code of conduct.

1.5.2 Schneider Electric (project partner)

Schneider Electric is a global specialist in energy management and develops connected technologies and solutions to manage energy and processes in ways that are safe, reliable, efficient and sustainable. Schneider Electric will contribute to the development of a blueprint for integrating bespoke customer service solutions with existing network control and IT&T systems.

1.5.3 DXC Technology (project supporter)

DXC Technology was created by the merger of Computer Sciences Corp (CSC) and the Enterprise Services business of Hewlett Packard Enterprise in 2017. It is currently the world's leading independent, end-to-end IT services company, helping clients harness the power of innovation to accelerate digital transformation.

DXC Technology will support the project team by deploying proven methods in data discovery, digital transformation and innovation to develop a set of bespoke prototypes, offering potential customer service solutions. Their specialism in digital transformation and innovation will identify customer and organisational needs, which in turn will generate a framework for the set of bespoke prototypes/conceptual customer service solutions. These will be subject to customer evaluation as part of project Avatar and DXC Technology will facilitate the iterative adaption of these solutions to inform the blueprint for future customer service provision.

2 SUMMARY OF THE APPROACH

The method will encompass five discrete phases of customer and stakeholder engagement to attain the best possible insight into the likely customer servicing expectations of DNO customers in the future. These are as follows:

Phase 1: Current trends and expert thinking
Phase 2: Exploratory research with customers
Phase 3: Developing prototypes
Phase 4: Quantifying customers' needs
Phase 5: Meeting customers' needs.

2.1 Phase 1: Current trends and expert thinking

Phase 1 will comprise the following activities:

- **A review of published literature on the future of customer service**
  This will consider a range of initiatives from across different industry sectors and perspectives that have already fundamentally changed or are expected to radically change the provision of customer service, such as online self-serve (financial sector), 'on demand' services (transport, travel and tourism) and remote interactive services. The review will draw upon possible solutions from both Great Britain (GB) and international sources and will be published on the Project Avatar webpage, to support this methodology statement.
- **A peer review of the proposed methodology**

This will be conducted to evaluate the research approach and its ability to provide accurate and robust results.

- **Engagement with a cross-section of Electricity North West personnel**
  DXC Technology will conduct a series of 'design thinking' product development workshops with key colleagues, noted for their expertise and selected to represent a range of customer touchpoints from across the organisation. The workshop format will utilise a number of focused questions and ideation techniques to identify current customer servicing challenges, unmet customer needs and their likely future expectations, based on expert employee knowledge and their experience in service delivery. The sessions are also expected to elicit priority service concepts that could meet these future customer needs. These ideas will be translated into a business plan template that will lead to the development of an initial set of bespoke prototypes or conceptual customer service solutions, which will be subsequently tested with customers in Phase 2.

2.2   Phase 2: Exploratory research with customers

Phase 2 will comprise focus groups and depth interviews with a cross-section of customers. This may include (but should not be limited to) domestic, commercial, urban and rural customers, in addition to those fitting the age demographic commonly referred to as 'millennials' or 'generation Y' (under 25), with a focus on the 18-24 age range, who do not conform to the traditional expectations around customer service and whose views are completely changing the way that organisations interact, engage and address inquires.

Supplementary depth interviews will be conducted with representatives of specific customer segments, such as customers who find themselves in vulnerable circumstances.

This phase of research will assess reactions to potential new services and techniques, proposed to improve standards, efficiency and make the customer journey easier or more enriched. It will explore:

- Customer perceptions about the role and importance of a DNO now and in the future
- Understanding of, and importance placed upon, future factors of change
- Customer service needs, both current and future (with a focus on long-term expectations, more than ten years hence)
- How needs and expectations differ by contact touchpoint (including but not limited to supply interruptions, general enquiries and new connections to the electricity network)
- Ideation of new customer service initiatives that drive improvements in the customer journey/experience and ease/reduce customer effort
- Reactions to bespoke customer service solution(s); these may be prototypes or conceptual solutions and will be measured against predetermined key performance indicators (KPIs) and action standards
- Improvements that could be made to the bespoke customer service solution(s) to enhance its/their acceptability
- Perceptions regarding key partners, activities, resources and channels that could be called upon to deliver the solution(s)
- Hypotheses relating to the customer segments most likely to benefit from the solution(s).

An engaged customer panel (ECP) representing domestic and commercial sectors will be convened. Focus groups have proven to be a suitable platform to explore complex concepts and encourage informed discussions. Each issue will be investigated by engaging with separate groups of customers who are likely to have common experiences, eg millennials.

2.3   Phase 3: Developing prototypes

This phase of the project will utilise a longitudinal and adaptable testing methodology to evaluate bespoke customer service solutions. There are several approaches that could be

adopted at this stage to provide direct customer feedback regarding the solutions developed. These include:

- Field testing (for example, trialling the product or approach with a small group of customers)
- Reconvening the ECP for a further focus group discussion
- In-depth qualitative exploration with a previously unengaged audience
- A combination of these techniques.

The most appropriate approach will be deployed and is expected to be largely dependent on the form of the prototype/conceptual solution, as it evolves via the proposed iterative development model. This will determine the manner in which it can be most effectively presented and how research participants are able to interact with the solution. Potential prototype forms include:

- **Conceptual prototype**: This kind of prototype may be presented in the form of diagrams, pictures and descriptive words, such as an illustration of what the solution might look like, with an explanation of how it would work and the benefits it would bring.
- **Visual prototype**: This type of prototype demonstrates the overall shape and size of the solution, although it does not usually feature any working parts. The materials would not be those used should the solution be mass produced.
- **Proof of concept prototype**: This type of prototype product demonstrates the key functionality and resolves the main technical aspects of the design. It is not intended to look like the final solution, and would make use of existing 'off-the-shelf' components where possible.
- **Presentation prototype**: This kind of prototype demonstrates key functionality and provides a representation of how the mass-produced product would appear. It would largely be built from bespoke parts, although 'off-the-shelf' components would be used where appropriate.

A longitudinal and iterative, incremental approach will be taken to developing the prototype(s). The number of prototypes will be dependent upon the learning generated from the colleague engagement in Phase 1 and informed by reaction to the proposed solutions during customer engagement in Phase 2.

Hypothetically, one prototype service solution may be acceptable to a broad range of customers and score sufficiently well across a range of key performance criteria, to negate the need for others to be developed. The research findings may, however, suggest that multiple prototypes are required to satisfy the needs and expectations of specific customer segments.

This research in Phase 3 will explore:

- Reactions to the bespoke customer service solution(s), measured against predetermined KPIs and action standards
- Further improvements that could be made to the bespoke customer service solution(s) to enhance its/their acceptability and appeal
- Hypotheses as to the customer segments most likely to benefit from the solution(s).

2.4 Phase 4: Quantifying customers' needs (segmentation survey)

A large-scale quantitative survey will be conducted to segment Electricity North West's customer base and provide insight into the following research questions:

- Do future customer service needs and expectations vary by customer segment?
- Do future customer service needs and expectations vary by contact touch point?
- Which customer service needs and expectations most highly correlate with customer satisfaction?

- What expectations drive improved ease and reduced effort across the customer journey?
- How are the bespoke customer service solution(s), developed in Phase 3, rated by customers on a range of success criteria?
- Which customer segments are most likely to benefit from the solution(s)?
- Which psychographic, demographic, geographic and behavioural factors influence the acceptability of the solution(s)?
- What are the drivers and barriers to customers' acceptance of the solution(s)?
- How could the prototype solution(s) be refined to meet unmet needs?

The survey will be statistically robust and representative of the diverse range of customer segments found within Electricity North West's distribution region. The methodology and survey results will be structured in such a way that they can be extrapolated to customers across GB.

The quantitative survey will be piloted and peer reviewed before it is rolled out more widely.

Utilising a large-scale quantitative survey to segment a population of interest is a tried, tested and robust market research practice. It will enable Electricity North West to develop a deeper understanding of its customers and identify their functional, emotional and unmet needs and future expectations.

A statistical segmentation technique will be applied to survey data that will enable customers to be segmented into smaller sub-groups characterised by particular attributes. The benefit of this approach is that it will inform a customer service blueprint, developed by incorporating standard industry data from existing IT&T and network control systems. This will help DNOs to develop appropriate customer strategies to meet existing unmet needs and the future expectations of specific customer groups and leverage higher levels of customer satisfaction generally and by unique customer segment.

The key findings from Phase 4 will inform the final refinements of the prototype solution(s) and will provide a comprehensive review of the likely reach, relevance, appeal, credibility, acceptability, benefits and potential barriers of each one. The breadth and depth of data collected will deliver a high level of granularity, which will enable the feasibility of the prototype solution(s) to be analysed across a broad spectrum of customer segments. It is envisaged that the key findings from this analysis will be utilised to make additional, tactical changes in preparation for final evaluation in Phase 5.

2.5   Phase 5: Meeting customers' needs (proof of concept survey)

Insight generated during Phases 1 to 4 will be utilised to incrementally refine and enhance the prototype solution(s) in a dynamic manner. Evidence will be collected throughout each discreet phase of engagement with customers, allowing iterative amendments to be made to the prototypes solution(s) to materially improve the final solution(s).

A final quantitative survey will be administered in Phase 5 to measure proof of concept and demonstrate that the prototype solution is feasible when evaluated against a set of predefined action standards.

The methodology for this phase of research will be dependent on the nature of the prototype solution(s); however, it is anticipated that either one of two sample frames[2] will be drawn. Should there be one predominant, generic solution, then the survey will canvass the opinion of a representative sample of customers located within Electricity North West's operating region. Alternatively, if multiple solutions require evaluation, a more targeted subpopulation of customers will be invited to give feedback on the specific solution tailored to their needs.

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[2] The source material, device, items or people from which a sample is drawn.

The survey will also identify the likely level of support and behaviour change required by DNOs to facilitate implementation.

The quantitative survey will be piloted and peer reviewed before being rolled out more widely.

Following completion of the main survey and analysis, the original ECP may be reconvened or customers may be engaged via other means to evaluate the findings. The role of the ECP in Phase 5 will include a comprehensive evaluation of the customer engagement outcomes and their implications for Project Avatar.

3   PHASE 1: CURRENT TRENDS AND EXPERT THINKING

3.1   Literature review

The initial phase of this project will involve a comprehensive literature review covering published work relating to the future of customer service. This will be published on the Project Avatar webpage, as an addendum to this methodology statement.

A literature review typically covers current knowledge including substantive findings, in addition to theoretical and methodological contributions to a particular topic.

The literature will draw on a broad range of sources covering existing data and future predictions, from GB and international leaders in the field of customer service and digital transformation. The findings will be reported to contextualise current understanding of the likely future of customer service from the perspective of a range of different industry sectors and will be referenced throughout the project. These findings will help to guide engagement with customers, particularly around the exploration of their needs. Any prototypes/conceptual solutions developed during the subsequent phases of the project will be cross-referenced with the societal changes and technological developments described therein, ensuring consistency in approach.

3.2   Peer review

Peer reviews, conducted by academic experts in the same field of research are intended to maintain standards of quality, improve performance and provide credibility. As such, a peer review of the research methodology will be undertaken to evaluate its ability to provide accurate and robust results and to achieve the requisite research objectives.

3.3   Colleague engagement

In an environment of competing pressures – demand for profitable growth, a challenging economic climate, political uncertainty, global shifts in workforce demographics and rapidly changing technology – colleague engagement is a means of harnessing the knowledge of the people closest to the delivery of customer service. Engaging experts from within Electricity North West, early in the project, will provide the benefit of idea generation based on real industry insight of current and perceived future challenges, based on extensive experience of customer interaction across the wider business. This will inform solutions using a 'from the bottom up' approach that will be evaluated in subsequent phases. These solutions will underpin the blueprint that will enable Electricity North West and other DNOs to better adapt to a changing climate.

Project partner DXC Technology will conduct a series of 'design thinking' workshops involving key personnel from Electricity North West with diversity in strategic focus and expertise in service delivery or direct customer facing activities. Participants will be drawn from across a range of relevant customer touchpoints, with specialisms in areas including (but not limited to) planned and unplanned supply interruptions, electricity connection-related

issues, operational delivery and general enquiries. These workshops will include representatives from the following business areas/colleague segments:

- Customer
- Operations
- Millennials
- Energy Solutions.

A mixture of representatives will be recruited to reflect an appropriate balance of seniority, expertise, experience, longevity of service and age as illustrated in Figure 3.1.

Figure 3.1: Workshop attendance

Workshop	Intended audience
Customer	Head of customer experience, various customer contact centre (CCC) section/team managers and customer facing CCC employees
Operations	A mix of managerial and field-based operational/delivery personnel
Millennials	Younger colleagues from across the organisation, including the CCC and colleagues specialising in IT&T systems and graduate trainees involved in the delivery of new network management system
Energy Solutions	A mix of middle and senior managerial colleagues, managing a range of connection-related issues, including diversions and disconnections. This session will also be represented by planners who liaise directly with large demand and generation 'new connections' customers and their agents

Each group will meet face-to-face at a convenient location, and a range of questions and deliberative research techniques will be utilised to identify current issues and unmet needs. This approach is intended to elicit a range of service concepts from the various perspectives of colleagues closest to the customer journey who are therefore best placed to advise the project 'from the ground up' This 'ideation[3]' platform is expected to identify common themes, which will subsequently be prioritised to generate solutions that will be most effective in meeting future customer needs:

- **Scope – focused question(s)**: The needs of different archetypal customer personas will be considered in the context of either supply interruptions or obtaining an electricity connection-related service. Customer needs, expectations and relative pain points (real or perceived problems) both now and in the future will be explored.
- **Point of view**: DXC Technology will share information that maps innovation across a typical lifecycle and will disseminate current, emerging and future trends in technology across a range of sectors. This information is expected to enable participants to more easily focus their ideation to a future scenario, unconstrained by current business challenges and limitations ie 'what is attainable in the art of the possible' relative to potential future applications of technology in the context of a DNO's delivery of excellent customer service.
- **Ideation**: Participants will be asked to consider how new technologies have been adopted in the transformation of other organisations, that are currently leading the way in innovation and how existing and emerging innovations might synthesise with these

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[3] The formulation of ideas or concepts

products and customer service ideas to address unmet needs and meet future expectations of archetypal customer personas.

The intended outcome of the colleague engagement workshops will be to:

- Identify the current key challenges in customer service delivery across all touchpoints
- Prioritise present areas of unmet need and establish likely future expectations by customer type, based on an industry understanding of the social, economic, regulatory and technical drivers
- Prioritise a shortlist of feasible ideas that can be taken forward for prototype/concept development to deliver a solution.

The ideas produced will be translated into a business model canvas that considers the merits of each idea based on a range of criteria:

- **Value proposition**: What value is delivered to the customer, which problems are being solved and which needs are being satisfied?
- **Customer relationships**: What type of relationship does each customer segment expect Electricity North West to establish and maintain with them?
- **Customer segments**: For whom is the idea creating value?
- **Key resources**: What key resources are required by the value proposition?
- **Channels**: Through which channels do customer segments want to be reached?
- **Cost structure**: What are the most important costs inherent in the value proposition?

4 PHASE 2: EXPLORATORY RESEARCH WITH CUSTOMERS

Exploratory research with customers will be facilitated through an ECP methodology.

The ECP will comprise a number of focus groups each representing a key customer segment. Segments may include (but should not be limited to) domestic, commercial, urban, rural and millennials.

Participants are likely to be geographically clustered to enable easy access to a range of meeting venues that represent both urban and rural areas.

Approximately ten customers, representative of each segment, will be recruited to reflect an appropriate balance of demographics such as age and gender. Each group will meet at least three times.

The ECP will be convened once prototype solutions have been developed as a result of Phase 1 colleague engagement and ideation. Members of the ECP will be educated about the research objectives to enable them to provide informed responses. This will involve a range of communication materials that will provide context and clarity regarding the intended learning outcomes. It is envisaged that the ECP will be asked to evaluate the prototype solutions developed in Phase 1 during their third meeting.

To achieve this, a professional, independent moderator will ask the ECP semi-structured questions relating to a predefined list of topics. This will provide the moderator with the flexibility to question participants further on issues arising through open discussion and encourage the natural evolution of the ECP's understanding and engagement. This approach is consistent with that used for previous engagement with customers, for example in the NIA-funded project Value of Lost Load.

The ECP will explore the key objectives as outlined in Section 2.2.

The scope of the ECP meetings will be designed to explore these considerations and meet the research objectives shown in Figure 4.1.

Figure 4.1: Phase 2 ECP meetings

ECP meeting	Research objective
Meeting 1	• Introduce Electricity North West, its role as a DNO in the electricity industry and its relationship to National Grid and suppliers • Ascertain perceptions regarding the role and importance of a DNO now and in the future • Ascertain the importance placed upon future factors of change • Explore customers' current needs and expectations and how these may change in the future
Meeting 2	• Explore emerging technologies and trends • Ideation of new customer service initiatives that drive improvements in the customer journey/experience and ease/reduce customer effort
Meeting 3	• Establish reactions to the bespoke customer service solution(s) • Discover improvements that could be made to the bespoke customer service solution(s) to enhance its/their acceptability and appeal • Determine perceptions regarding key partners, activities, resources and channels that could be called upon to deliver the solution(s) • Test hypotheses in relation to the customer segments most likely to benefit from the solution(s)

4.1   Customer and stakeholder depth interviews

In addition to the ECP, up to ten depth interviews will be conducted with difficult-to-reach customers and relevant stakeholders. These may include customers who find themselves in vulnerable circumstances.

The topics covered in the depth interviews will be similar to those discussed in ECP meetings. Individual interviews will be conducted by phone or face-to-face depending on participants' preferences. These one-to-one interviews are likely to be more convenient for vulnerable customers, who may be unable to travel long distances or be too geographically dispersed to attend a focus group meeting.

The scope and diversity of the customer and stakeholder segments engaged during this phase of research is also likely to be informed by the hypotheses formulated during the third ECP meeting. If the ECP hypothesises that a prototype/conceptual solution might be beneficial to a specific niche segment, depth interviews would provide a suitable platform to engage representatives of that particular segment, to evaluate the idea in question.

5   PHASE 3: DEVELOPING PROTOTYPES

In accordance with the approach summarised in Section 2.3, an iterative and dynamic approach will be taken to developing and testing prototype solutions that meet customers' unique medium- and long-term future needs.

A mixture of qualitative and quantitative research methods will be utilised to evaluate the acceptability/performance of the prototype solution and produce the evidence required for refinement throughout the project. Qualitative research methods will be utilised primarily in Phases 1 to 3 and quantitative methods will be introduced during Phase 4.

Qualitative research is primarily exploratory by nature and employed to acquire an understanding of underlying reasons, opinions and motivations. It provides insights into a

problem or helps to develop ideas or hypotheses for potential quantitative research. Quantitative research is a more logical and data-led approach that provides a measure of customers' perceptions from a statistical and numerical point of view.

Customer engagement will be utilised to gauge reactions to prototype customer servicing solutions, measured against KPIs and action standards.

KPIs are quantifiable metrics or measurements that can be used, relative to specific success attributes, to evaluate the performance of a concept, product or service. Therefore, the selection of specific KPIs used in evaluations of this type can differ significantly, from one product to another. In order for a KPI to have maximum value it must be clearly defined, quantifiable and relatively easy to measure. Metrics that are vague in definition, qualitative or subjective in nature or are difficult to collect, interpret or analyse, do not serve as good bases for KPIs.

Project partner Impact Research has extensive market research expertise and experience in designing appropriate KPIs. A range of performance criteria may be utilised to evaluate the suitability of the prototype solution such as:

- Overall satisfaction
- Acceptability
- Appeal
- Credibility
- Relevance
- Uniqueness
- Trust.

It is expected that participants will be asked to qualify their perceptions of/reaction to the prototype/conceptual solution(s) in Phase 3 through KPIs. Prompted questions can be used as the basis for eliciting feedback about how the prototype could be enhanced to improve perceptions around appeal and other key metrics.

Section 6 discusses how quantitative research will be utilised to measure the performance of prototype solutions using KPIs in a more scientific manner.

The prototype(s) that customers will be asked to evaluate may take a number of forms (refer to Section 2.3) throughout the different stages of the project. Analysis will separate the effectiveness of the prototype(s) and any associated communication materials produced to describe its/their functionality, from the benefits of the idea itself (conceptualising a fully working prototype solution).

The type of prototype solution(s) and the form in which it/they can be developed for evaluation will influence the methodology adopted for testing and obtaining customer feedback.

It is envisaged that the ECP previously engaged in Phase 2 will provide a useful platform for testing refined prototype solutions given its previous education and level of engagement in the project. The scope of the ECP meeting would be to explore the research objectives shown in Figure 5.1.

Figure 5.1: ECP meetings

ECP meeting	Research objective
Meeting 4	• Gauge reactions to the refined prototype customer service solution(s), explored through the use of KPIs • Determine if refinements have changed perceptions of the prototype solution(s) and if so, why • Explore whether further improvements could be made to enhance the acceptability and appeal of the solution(s)

6 PHASE 4: QUANTIFYING CUSTOMERS' NEEDS (SEGMENTATION SURVEY)

6.1 Customer survey instrument design

The main customer survey will be conducted using a combination of research methods including face-to-face, online and online with telephone support. This approach will maximise response numbers, particularly from difficult-to-reach groups such as vulnerable customers. The survey instrument will be tailored to fit the response method; however, the content will be similar for all methods of engagement.

The survey instrument will be designed by Impact Research in conjunction with Electricity North West to ensure that it is able to robustly address the objectives of the research set out in Section 2.4.

To maximise potential participation among all customer segments, it is important to ensure that the survey is not too onerous to complete. As such, careful design of the survey instrument will ensure that it is as engaging and as short as practicable, to maintain interest throughout its administration, while delivering the most robust outputs possible.

The survey will include questions to elicit specific types of information:

• Demographic and firmographic information such as age and gender, life stage, vulnerability, business type, business size, industry sector and home working
• Socio-economic information such as social grade
• Geographical classification information such as urban and rural
• Psychographic information such as values, opinions, interests and lifestyles
• Behavioural questions such as electricity consumption, media consumption and use of technology (including adoption of low carbon technologies [LCTs]) in and outside the home
• Contextual information such as previous awareness and interaction with Electricity North West through existing touchpoints such as experience of electricity supply interruption(s) and preferred methods of communication
• Attitudinal information such as outlook towards customer service, environment, technology, media, internet, lifestyle and social responsibility
• Satisfaction with customer service and future needs and expectations
• Evaluation of prototype customer service solutions measured through a range of KPIs
• Drivers and barriers to customers' acceptance of the prototype solution(s).

6.2 Customer survey peer review

A peer review of the survey instrument will be undertaken to evaluate its ability to provide accurate quantitative research and to achieve the research objectives. The peer review of the survey is intended to maintain quality standards, improve performance and provide credibility.

6.3   Customer survey pilot

Efficiency is a key element in conducting surveys and other data-gathering methods. It is important to utilise financial investment, monetary incentives, time and effort in the most efficient way possible to achieve success in performing surveys, especially those that require a large number of participants. One of the main methods of promoting efficiency when conducting surveys is to perform a pilot survey.

A pilot survey tests the questionnaire using a smaller sample compared to the planned sample size. In this final evaluation phase of the survey instrument, the questionnaire is administered to a percentage of the total sample population, or in more informal cases just to a convenient sample.

The benefits of conducting a robust pilot survey include but are not limited to:

- Developing and testing the adequacy of research instruments
- Assessing the feasibility of a (full-scale) study/survey
- Designing a research protocol
- Assessing whether the research protocol is realistic and workable
- Establishing whether the sampling frame and technique are effective
- Assessing the likely success of proposed recruitment approaches
- Identifying logistical problems that might occur using proposed methods
- Estimating variability in outcomes to help determine sample size
- Collecting preliminary data
- Determining what resources (finance, colleagues) are needed for a planned study
- Assessing the proposed data analysis techniques to uncover potential problems
- Developing a research question and research plan
- Training a researcher in as many elements of the research process as possible
- Convincing stakeholders that the main study is worth supporting.

A pilot will be conducted with the ECP and a statistically robust, previously unengaged percentage of the total sample population before the main survey phase (refer to Section 6.4). The pilot is not intended to yield a statistically robust sample size for every customer segment, rather a broad representation of customers overall. The pilot survey population will review the survey instrument and any supporting materials before it is rolled out more widely. Any required adjustments highlighted at this pilot stage will ensure that the survey instrument is thoroughly optimised before the actual customer survey takes place. This is a direct learning from customer engagement of this type in Electricity North West's previous innovation projects, which has consistently demonstrated the value of this approach, most recently during its NIA-funded Value of Lost Load (VoLL) project. Applying this methodology will cost-effectively ensure that the final survey instrument can be correctly understood and will provide accurate and relevant data.

6.3.1 Pilot sample size and method

All ECP members (approximately 40 customers) will be approached to participate in the pilot, and their feedback will be utilised to further refine the key components of the survey.

As the ECP will have been previously educated about the project's background and context, along with its aims and objective, the members are likely to give more considered responses than typical customers. Therefore, it is proposed that approximately 250 further pilot interviews will be conducted with previously unengaged customers to thoroughly test the survey instrument. The previously unengaged pilot sample will comprise a random selection of customers from across Electricity North West's region.

The administration of the quantitative pilot will reflect the manner in which the final survey is to be conducted. The majority of interviews are likely to be completed by a panel of online respondents who are familiar with, and regularly participate in, self-completion surveys of this

nature. A proportion of participants may be guided through the survey with the assistance of a professional interviewer. In these instances, assistance will either be provided over the telephone or face-to-face. Surveys will be specifically offered in this manner when targeting vulnerable and fuel-poor customers.

6.3.2 Actions from the pilot

The final survey instrument will be reviewed and refined following feedback from the pilot before it is launched. It is not envisaged that major amendments will be required following the pilot. However, should this be the case, a further pilot will be conducted to test the updated instrument prior to launching the full survey.

6.4   Main quantitative survey approach

6.4.1 Main survey sample size and method

A total of 5,000 surveys will be completed among a representative, statistically robust sample of customers from Electricity North West's distribution operating region.

In the same manner as the pilot, customers are expected to take part online through a self-completion method or where appropriate, they can be guided through the survey with the assistance of a professional interviewer.

A tailored survey approach will enable the best responses from the key customer groups being interviewed.

The online survey will include a regionally representative sample of domestic and commercial customers covering a variety of rural and urban locations. Demographic quotas will be set in relation to age, gender and social grade to ensure results are representative of the total population. This cost-effective approach provides for the targeted selection of customers. Other benefits of the online approach are that educational materials can be viewed on screen; the delivery of these materials is consistent and not influenced by the approach/style of individual interviewers or their understanding/explanation of the subject matter and importantly; and the survey can be completed at a time and place convenient to the participant.

It is anticipated that customers will be approached by phone or face-to-face and offered an incentive to participate in the survey. Previous research has demonstrated that an incentive to the value of £15 is normally sufficient to secure sufficient survey participation from a domestic customer sample, subject to the instrument's length and its complexity. Therefore, it is proposed to offer a similar incentive for Project Avatar surveys. Higher incentives may be required to encourage participation from SME customers and representatives of industrial and commercial organisations.

The combination of an appropriate and flexible administration strategy along with a suitable incentive structure have consistently been proven to obtain a higher response rate than online recruitment alone and will ensure the samples are statistically robust for the required analysis. Additionally, the presence of an interviewer enables customers to ask questions or clarify survey content as necessary.

The interviews will be conducted in one phase during autumn 2018.

An understanding of customers' acceptance of bespoke customer service solutions will primarily inform the development of potential solutions. Segmentation analysis will identify how needs and expectations vary across different customer segments to inform the development of a blueprint for future customer service provision. A statistically robust and reliable segmentation model will be developed to guide investment decisions that facilitate more relevant customer service solutions. The analysis protocols that will be utilised to

develop the segmentation are detailed in Section 9. The approach will also be subject to the peer review of the survey instrument.

To guarantee sufficient data from key customer groups and to permit detailed sub-analysis, a statistically robust sample size will be achieved for a number of subgroups in the Electricity North West region. These may include, but are not limited to:

- Domestic customers
- Commercial customers in a range of sectors and of various sizes
- Vulnerable customers (these may be further sub-segmented into low-, medium- and high-dependency customers)
- Customers in fuel poverty
- LCT users
- Millennials
- Geographical rural and urban classifications
- Low, medium and high users of electricity
- Home workers.

The Standard Industrial Classification of Economic Activities (SIC) will be used to classify businesses by the type of economic activity in which they are engaged, for recruitment and analysis purposes. Stratified random sampling will be used to ensure that a cross-section of business sectors is represented within the SME sample.

6.4.2 Actions from the main survey

The key findings from the main, quantitative segmentation survey will provide a comprehensive review of the likely reach, relevance, appeal, credibility, acceptability, benefits and potential barriers of each solution among a broad spectrum of customer segments. It is envisaged that the key findings from this analysis will enable additional tactical changes be made in preparation for final evaluation in Phase 5.

7 PHASE 5: MEETING CUSTOMERS' NEEDS (PROOF OF CONCEPT SURVEY)

7.1 Customer survey instrument design

It is anticipated that the insight drawn from Phase 4 will enable a robust understanding of the customer segments most likely to benefit from the solution(s), the drivers and barriers to customers' acceptance, and how the prototype solutions could be optimised further to meet unmet needs. This evidence will be utilised to make final amendments to the prototype solutions where the objective will be to increase their acceptability and appeal.

A concluding quantitative survey will be administered in Phase 5 to measure proof of concept. The survey will seek evidence to demonstrate that prototype solutions shortlisted as a result of customers' acceptance are feasible against a range of key action standards.

The customer survey will follow the protocols utilised in Phase 4 and will be conducted using a combination of research methods, including face-to-face, online and online with telephone support.

The survey instrument will be designed by Impact Research in conjunction with Electricity North West to ensure it is able to robustly address the objectives of the research set out in Section 2.5.

As with the customer survey conducted in Phase 4, the length of the survey will be limited to maximise potential participation across all customer segments. This survey is expected to take no more than 20 minutes to complete.

The survey instrument will include questions that elicit specific types of information:

- Demographic and firmographic information such as age and gender, life stage, vulnerability, business type, business size, industry sector and home working
- Socio-economic information such as social grade
- Geographical classification information such as urban and rural
- Key psychographic, behavioural and attitudinal questions that form the basis of the segmentation model developed in Phase 4
- Evaluation of prototype customer service solutions measured through a range of KPIs such as overall satisfaction, acceptability, appeal, credibility, relevance, uniqueness and trust
- Verbatim commentary that identifies specific components of the prototype solutions that drive customers' acceptance
- Perception-based questions that identify the likely level of support and behaviour change required by DNOs to facilitate implementation.

A peer review of the research instrument will be undertaken to evaluate its ability to provide accurate and robust results and to achieve the requisite research objectives.

The outcome of this phase of research will be a blueprint that provides solutions tailored to, and accepted by, specific customer groups, which can be implemented by all DNOs as a business-as-usual model, provided the approach is easily applicable and affordable.

7.1.1 Pilot sample size and method

The cumulative learning from Project Avatar and those transferred from previous Electricity North West innovation projects are expected to increase the efficiency with which materials are produced in Phase 5.

The customer survey in Phase 5 is not intended to provide a market segmentation model nor the level of complexity or granularity observed in the quantification of customers' needs in Phase 4. However, best practice will be adopted by piloting the survey instrument for the reasons set out in Section 6.3.

A pilot sample frame of 100 relevant customers should be sufficient to test the suitability of the survey instrument. Relevance will be determined by the intended audience for bespoke customer service solutions.

The composition and administration of the pilot will reflect those of the final survey. The majority of quantitative interviews will be conducted online by a panel of online respondents who are familiar with and regularly participate in surveys of a self-completion nature. Alternatively, participants can be guided through the survey with the assistance of a professional interviewer. This assistance will be provided either over the telephone or face-to-face. Surveys will be specifically offered in this manner when targeting vulnerable and fuel-poor customers.

7.1.2 Actions from the pilot

The final survey instrument will be reviewed and refined following feedback from the pilot before launching the customer survey. It is not envisaged that major amendments will be required following the pilot. However, should this be the case, a further pilot will be conducted to test the updated instrument prior to launching the full survey.

7.2   Main survey sample size and method

Depending on the nature of the prototype solution, one of two sample frames will be drawn. Should there be one predominant generic solution, the survey will canvass the opinion of a representative sample of customers located within the Electricity North West region.

Alternatively, if there are multiple solutions to test, a more targeted subpopulation of customers will be invited to give feedback on the specific solution tailored to their needs.

The sample size will also be determined by the number of prototype solutions to be tested. It is anticipated that each prototype solution will be tested utilising a 'monadic' methodology in which approximately 150 customers are expected to each evaluate a single solution in isolation.

Monadic testing provides the most accurate and actionable diagnostic information because it simulates real life by presenting the respondent with only one concept. The monadic test is the optimal method for concept evaluation as there is no interaction between concepts (which occurs in paired-comparison tests). Additionally, results from monadic tests can be compared with normative (reference) data to develop norms and action standards.

Where multiple prototype solutions are tested, each monadic sample of customers will be matched on key demographic and profiling data to ensure the results can be reliably compared across all the prototype solutions evaluated.

It is highly likely that the multi-mode survey methodology outlined in Section 6.4 will be adopted for this survey. However, any incentive utilised to encourage participation will be revised to reflect the duration and complexity of the survey.

7.2.1 Actions from the main survey

Analysis of the data collected in the main proof of concept survey will assist in the production of a customer service blueprint that incorporates data from existing IT&T and network control systems, using standard industry data, which is accessible to DNOs. This blueprint is expected to assist DNOs to meet existing and future customer servicing needs, relative to specific customer groups and touchpoints, to leverage higher levels of customer satisfaction.

The blueprint will also demonstrate how innovative technologies and solutions can assist DNOs to better plan their customer investment strategy.

Following completion of the main survey and its analysis, the original ECP may be reconvened or engaged via other means to evaluate the blueprint and its implications for DNOs.

8   CUSTOMER ENGAGEMENT PLAN

In accordance with Sections 4.6 to 4.10 of the Electricity Network Innovation Allowance Governance Document, a customer engagement plan (CEP) and data privacy statement (DPS) will be submitted to Ofgem prior to any type of engagement with any 'relevant customer'.

This will be produced as a single document, which specifies how Electricity North West and its project partners/supporters will interact with, or impact upon, relevant customers where any form of engagement is undertaken as part of the project. It will also specify how personal and sensitive data will be collected and utilised over the life of the project. This document is due to be published on the Project Avatar webpage in August 2017.

9   ANALYSIS

Segmentation analysis techniques will be applied to the quantitative measures of customers' needs and preferences taken in Phase 4.

In Phase 5, the performance of the bespoke customer service solution(s) will be quantified through a range of rating scales and action standards and will be compared to available normative data.

9.1 Segmentation analysis

Segmentation analysis involves identifying groups of customers with common needs and preferences and creating products and services that target these different groups.

There are four traditional methods of segmenting a market:

- **A priori (pre-existing) segmentation**: The population of interest is split according to pre-existing demographic criteria such as age, gender or socio-economic status.
- **Usage segmentation**: The population of interest is split according to weight of usage, such as heavy users/buyers.
- **Attitudinal research and cluster analysis**: The population of interest is split (or 'clustered') by commonalities in opinion.
- **Needs-based segmentation**: A concept is split into different levels of functional performance and the population of interest is split by elements that are key drivers, specific needs and requirements.

The survey instrument and data collected to quantify customers' needs in Phase 4 will enable all four segmentation methods to be applied. The segments developed will be evaluated against the following criteria:

- **Identifiable**: The differentiating attributes of the segments must be measurable to enable them to be identified.
- **Accessible**: The segments must be reachable through communication and distribution channels.
- **Substantial**: The segments should be large enough to justify the resources required to target them.
- **Unique needs**: The segments must respond differently to the various communication materials and service provision to justify separate offerings.
- **Durable**: The segments should be relatively stable to minimise the cost of frequent changes.

This data-led approach will support the development of a best-fit solution, which could mean that a hybrid of techniques is adopted.

9.2 Rating scales

A rating scale is a set of categories designed to elicit information about a quantitative or qualitative attribute. There are a number of factors to consider when deciding which scales to incorporate in a questionnaire, such as:

- The type of data that is required from the respondent – ratio, interval, ordinal or nominal
- How the information will be used once it is acquired
- The number of divisions in the scale – odd or even
- The types of statistical analysis methods to be used after data is acquired
- The physical form of the scale – vertical, linear, horizontal
- Details to be provided in the rating scale such as descriptive labels
- Whether or not a response to a question is mandatory.

Comparative scaling techniques are easier and simpler to understand, and in the social sciences, particularly psychology, a common example is the Likert response scale.

Likert scales typically have from two to ten data points, with five or seven being the most common. Figure 9.1 depicts a seven-point Likert scale:

Figure 9.1: Seven-point Likert rating scale

Completely unacceptable						Completely acceptable
1	2	3	4	5	6	7

The progressive structure of a rating scale is such that each successive Likert item is treated as indicating a 'better' response than the preceding value.

The *Handbook of Survey Research*[4] suggests that some rating scale lengths are preferable to maximise reliability and validity. This empirical study concluded that four key theoretical issues must be addressed to safeguard data quality:

1. The points offered on a rating scale should cover the entire measurement continuum with no regions left out.
2. The points must appear to be ordinal, progressing from one end of a continuum to the other, and the meanings of adjacent points should not overlap.
3. Each respondent must have a relatively precise and stable understanding of the meaning of each point on the scale.
4. Most or all respondents must agree in their interpretations of the meanings of each scale point.

To mitigate the potential for bias in the analysis, Project Avatar will adopt rating scales with symmetrical, equidistant presentations. For example, in a five-point Likert scale of 'very poor', 'poor', 'average', 'good' and 'very good', the difference between 'average' and 'very poor' is the same as that between 'average and 'very good', so there is no bias towards either a negative or a positive outcome.

The length of rating scales can impact the accuracy with which respondents map their attitudes onto the response alternatives. For example, although a five-point scale might be statistically adequate, if people routinely make finer distinctions, they could be inconsistent in how they translate those judgements to just five points. Conversely, the value of including a greater number of points on a rating scale may depend upon whether a respondent's mental representation of the construct are similarly refined.

Intended meanings of points can be specified with words, as Figure 9.2 demonstrates for a rating scale of seven points. However, once the number of scale points increases above seven, this becomes harder to achieve and point meanings may become considerably less clear.

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[4] Jon A. Krosnick and Stanley Presser, 'Question and Questionnaire Design', *Handbook of Survey Research*, 2nd Edn (Emerald, 2010), pp. 263–313.

Figure 9.2: Seven-point Likert rating scale with all data points labelled

Dislike a great deal	Dislike a moderate amount	Dislike a little	Neither like nor dislike	Like a little	Like a moderate amount	Like a great deal
1	2	3	4	5	6	7

The patterns yielded by the studies reported in the *Handbook of Survey Research* generally indicate that reliability is lower for scales with only two or three points compared with those possessing more points, but suggest that the gain in reliability levels off after about seven points.

Project Avatar will therefore utilise seven-point Likert rating scales with the meaning of each point on the scale specified. Rating scales will be piloted to ensure that all respondents agree in their interpretations of the meanings of each scale point.

9.3   Action standards

Action standards are utilised to determine the criteria that will decide whether a prototype solution will be adopted or rejected. They will also serve as benchmarks for performance and, as such, are particularly useful when products or prototype solutions are to be reformulated through an iterative process of refinement and reassessment.

Two concepts are important in action standards:

1.   **Superiority**: The prototype solution must perform significantly better on a number of parameters than the current version.
2.   **Parity**: The prototype solution must perform in addition to the current version.

In Phases 4 and 5 of Project Avatar, reformulated prototype solutions will be quantitatively evaluated by customers utilising the KPIs discussed in Section 5, whereby the action standard will be defined by:

- A minimum of parity performance with the current version
- A target of superior performance on the overall acceptability of the prototype solution.

Statistical significance tests will be used to determine whether a prototype solution is rated superior, at par or inferior by customers. A 95% statistical confidence level will be applied in the analysis.

9.4   Normative data

The relative performance of Project Avatar prototype solutions can be contextualised through the comparison of quantitative survey results to norms or average scores taken from standardised data points, typically drawn from studies or questions of a similar type or within the same industry.

Impact Research has extensive experience in conducting similar research exercises and will utilise the significant depth and breadth of normative data it has available to aid the interpretation of data analysis outcomes. In doing so, it will take appropriate care to ensure that comparisons between data collected during Project Avatar customer engagement activities and normative data will only be made when:

- The survey instruments utilised to collect data are very similar
- The sample frame used in the studies of interest is also very similar
- There is adherence to strict integrity in the wording of questions across the surveys
- The methodology used for collection and synthesis of normative data is clear.

10 IMPLEMENTATION OF FINDINGS

The following new learning is anticipated from Project Avatar:

- An understanding of how customer service needs vary by different customer segments and touchpoints
- Quantification of how needs and expectations are likely to change in RIIO-ED2 and beyond.

The learning and key findings will be utilised to deliver the following outputs:

- A customer service blueprint that incorporates data from existing IT&T and network control systems, for best meeting existing and future needs of customers generally, and the needs of unique customer groups specifically, to leveraging higher levels of customer satisfaction
- A demonstration of how innovative technologies and solutions can assist DNOs to better plan their customer investment strategy.

It is anticipated that the outputs from this research will guide investment decisions for Electricity North West and inform optimal communication with customers.

The outputs will also include wider implications for Ofgem and GB DNOs preparing long-term customer strategies and investment plans. If the approach is easily applicable and affordable and provides solutions that can be tailored to, and accepted by, specific customer groups, it could be implemented by all DNOs as a business-as-usual model.

The new method and learning developed will be applicable to every DNO. By using new technologies to collate and present information to a varied customer base, anticipated benefits to DNOs include more effective service delivery and higher customer satisfaction delivered at a much reduced cost. The learning will also be beneficial to licensed operators in other industries.

11 DISSEMINATION OF FINDINGS AND LESSONS LEARNED

The results of this research will be published and disseminated through appropriate channels to key stakeholders.

Following successful completion of this project, the fundamental driver in the adoption of a revised investment model will be the dissemination of findings to all key electricity industry stakeholders in an appropriate manner that achieves the following success criteria:

- 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 prototypes/conceptual solutions with mass customer contact functionality and multi-channel 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 blueprint for implementing bespoke, fully integrative customer service solutions, able to utilise standard industry data from pertinent IT&T and network control systems
- Recommendations on how the blueprint can be utilised to deliver acceptable solutions, which best serve unique customer segments across all customer touchpoints and can address currently unmet needs, future expectations and in so doing, leverage higher levels of customer satisfaction

- A demonstration of how this blueprint would help Electricity North West and other DNOs to better plan network investment strategies.

The project findings, lessons learned and implementation recommendations will be shared as follows:

When	Criterion	Required evidence
Phase 1	Literature review and research approach	Publish the literature review and methodology statement by June 2017
	Peer review of the proposed methodology	Publish peer review of methodology by August 2017
	Produce a customer engagement plan (CEP) and data privacy statement (DPS)	Send the CEP/DPS to Ofgem by August 2017
	Colleague engagement outcomes	Publish key findings and lessons learned by September 2017
Phase 2	Executive summary of ECP and key customer depth interviews	Publish executive summary of ECP and key customer depth interviews by April 2018
Phase 3	Executive summary of key findings: developing the prototype solution	Publish key findings and lessons learned by end June 2018
	Annual NIA progress report	Submitted to Ofgem annually each July across the life of the project
Phase 4	Interim summary (PowerPoint presentation) of customer survey and segmentation model analysis	Publish interim analysis from model by end December 2018
	Final survey report including lessons learned and peer review	Publish key findings and lessons learned by end January 2019
Phase 5	Interim summary (PowerPoint presentation) of customer survey	Publish interim analysis from model by end July 2019
	Final survey report including lessons learned and peer review	Submit the final report to Ofgem for publication on the Electricity Networks Association learning portal by December 2019
	Customer service blueprint	
Stakeholder updates	Update reports to key stakeholders	Quarterly email updates sent directly to stakeholders throughout project at key project milestones Dissemination events held for key stakeholders, as appropriate

All key learning documents will be published on the Project Avatar webpage.