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NIA Project Registration and PEA Document

Date of Submission

Dec 2021

Project Reference Number

NIA_SPEN_0065

Project Registration

Project Title

Introduction of Process mining enabler into SP Energy Networks

Project Reference Number

NIA_SPEN_0065

Project Licensee(s)

SP Energy Networks Distribution

Project Start

October 2021

Project Duration

1 year and 3 months

Nominated Project Contact(s)

Stephen Park

Project Budget

£243,850.00

Summary

Like other licenced network operators (LNOs), SP Energy Networks (SPEN) are entering into new price control periods for Transmission (T2) and Distribution (ED2) and are looking forward to the challenges of meeting the increase of Flexible electricity demand (DSO), reducing of Carbon emissions, supporting the Environment and accommodating changes to our Customer behaviours i.e. Customer generation, Electrical storage, increased demand in electricity supply.

To support and maintain the delivery of this future model there will be an increased requirement for Management Information (MI) i.e. Data, Performance, Efficiency, Trends, Behaviours) and also the need to become more efficient in what we deliver to accommodate the forecasted increase in resources.

Nominated Contact Email Address(es)

innovate@spenergynetworks.co.uk

Problem Being Solved

Most DNO's work with similar system infrastructures to deliver services i.e. NMS, GIS, ADQM, CRM etc and have a portfolio of 5 plus system applications.

Providing combined 'MI insights' from these systems is a common challenge with data extraction methodology being costly and time consuming to deliver, inflexible to change to our reactive energy market demands and a struggle to provide a platform on which to manage this information.

Method(s)

As part of SP Energy Networks looking to identify new innovative solutions across the overall business model, for 'Management

Information' a Process Mining product has been identified called 'Execution Management System (EMS)' which is supplied by a company called Celonis.

Process mining is a family of techniques relating the fields of data science and process management to support the analysis of operational processes based on event logs. The goal of process mining is to turn event data into insights and actions.

Scope

A 12-month trial of the Celonis 'Execution Management System' product which performs process mining to turn event data into insights and actions is proposed. This will be linked into our portfolio of Systems, Applications and Products (SAP) modules and the ATHOS application with a primary focus on Identifying poor execution, waste and data issues across the Minor Connections process.

Objective(s)

This project will provide the enabler to prioritise the system, process and people changes that are required to support the forecasted increase on Connections activity whilst trialling the effectiveness of an innovative Process mining product

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

N/A

Success Criteria

Preventative costs of £2.3M based on process efficiency, time saved and reduction in duplicated manual effort. Process mining will deliver these efficiencies through highlighting areas using real data of improvement and automation benefits expected in Connections, Small Capital and Major Project Golden Threads

Project Partners and External Funding

N/A

Potential for New Learning

Improve how we measure real time processes by:

- Running across IT systems and departments
- Link processes to performance indicators
- Explore and benchmark process variation

Learn how to apply simplification and automation by:

- Identify poor execution, waste and data issues
- Prioritise actions based on impact to KPI
- Build solutions that resolve execution gaps

Increase ability to monitor and optimise:

- Process executions and act in real time
- Align people and actions on common goals
- Send alerts, assign tasks and automate tasks

Scale of Project

This 'Proof of concept' project phase will last 12 months with costs of £243,850. After this phase a Management Information strategy decision will be made to see if the model can be implemented as BAU (Business As Usual)

Technology Readiness at Start

Technology Readiness at End

TRL3 Proof of Concept

TRL8 Active Commissioning

Geographical Area

SP Licence areas

Revenue Allowed for the RII Settlement

N/A

Indicative Total NIA Project Expenditure

£243,850

Project Eligibility Assessment Part 1

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

Requirement 1

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

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

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

As part of the proof of concept, we will be looking to understand methods to capture and cross refer data to support our environmental targets.

We need to have more environmental data represented in ESRI (Layers) and as we are capturing data from the field, we are looking to build up a picture of the species distribution, biodiversity and natural capital around our assets. The Process mining would enable us to include environmental impact analyses undertaken by consultants working for us (data needs to be timestamped), other ecology sources, satellite imagery, wildlife surveys, etc.

There may also be other sources for environmental data (eg RSPB), etc that we could link via the Execution Management functionality

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

Presently SP Energy Networks rely on external sources to convert the various sources of customer vulnerable data into meaningful insights against our customer portfolio.

The Execution Management System has the capacity to allow SP Energy Networks to gain overall control on how these source data sets can be attached to our data then aligned to key processes and strategies i.e. our Licence areas have Customer Vulnerability heat maps which we strategically use to target areas we can provide increased support (High 'Pensionable age' factor is key to the support level we provide within these areas)

Requirement 2 / 2b

Has the potential to deliver net benefits to consumers

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

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

This proposal will see SP Energy Networks understand the capability of methodology to identify 'real process insights' which becomes an enabler to delivery new and improved, efficient ways of working. This is predominately in preparation for RIIO – 2 projects and targets but we will see improvements in:

Reduced connections costs, quicker quotes = quicker customer return on investments as well as , improved customer experience

This will be linked into our portfolio of SAP modules & the ATHOS application with a primary focus on Identifying poor execution, waste and data issues across the Minor Connections process. This will provide the enabler to prioritise the system, process and people changes that are required to support the forecasted increase on Connections activity whilst trialling the effectiveness of an innovative Process mining product

Please provide a calculation of the expected benefits the Solution

RIIO – 2 projects and targets

we will targets improvements in:

- Increased field Capacity
- Eliminate manual effort, rework & reassignments
- Drive Capacity increase for project managers and field staff with a forecasted increase in connections numbers and management of LV network
- Remove poor support processes and associated costs
- Increased Reporting Efficiency
- Reduce number of manual adjustments needed through identifying data issues and improved process compliance
- Reduce burden on additional teams needed to support reporting process
- Increase reporting frequency & reduce non compliance risk
- Reduced Overheads
- Increase in automation of new dataflows into NAMS from connections etc
- Reduced NAMS support costs through increased process compliance and targeted training
- Monitised benefits will be considered after this proof of concept project.

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

100% of the targeted benefits could be replicable across GB

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

To be determined following this Proof of Concept project.

Requirement 3 / 1

Involve Research, Development or Demonstration

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

- A specific piece of new (i.e. unproven in GB, or where a method has been trialled outside GB the Network Licensee must justify repeating it as part of a project) equipment (including control and communications system software).
- A specific novel arrangement or application of existing licensee equipment (including control and/or communications systems and/or software)
- A specific novel operational practice directly related to the operation of the Network Licensees system
- A specific novel commercial arrangement

RIIO-2 Projects

- A specific piece of new equipment (including monitoring, control and communications systems and software)
- A specific piece of new technology (including analysis and modelling systems or software), in relation to which the Method is unproven
- A new methodology (including the identification of specific new procedures or techniques used to identify, select, process, and analyse information)
- A specific novel arrangement or application of existing gas transportation, electricity transmission or electricity distribution equipment, technology or methodology
- A specific novel operational practice directly related to the operation of the GB Gas Transportation System, electricity transmission or electricity distribution
- A specific novel commercial arrangement

Specific Requirements 4 / 2a

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

Based on the forecasted increase for management information in RIIO 2 SP Energy Networks has recognised the need for a more innovative way of interrogating and presenting data held within multiple systems portfolio. The goal is to share the learnings identified whilst interrogating our core systems and producing meaningful management information that can be used to support RIIO 2 business plan targets.

Or, please describe what specific challenge identified in the Network Licensee's innovation strategy that

is being addressed by the project (RIIO-1 only)

n/a

Is the default IPR position being applied?

Yes

Project Eligibility Assessment Part 2

Not lead to unnecessary duplication

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

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

This project is the first of its kind with regards to SP Energy Networks forecasting the increased need for Management information to support our RIIO – 2 Business plans, especially a forecasted increase in Connections activity around Electric Vehicle charging points. There are no other NIA projects that are innovatively looking into this area or this methodology.

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

N/A

Additional Governance And Document Upload

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

Process Mining is a relatively new technique having been developed over the last 10-years or so. To our knowledge it has not been trialled in the energy networks sector and therefore the business case is unproven in this sector.

Relevant Foreground IPR

N/A

Data Access Details

Data can be made available in line with our information sharing policies.

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

The business case for Process Mining in the energy networks sector is unproven and therefore SP Energy Networks will not fund a trial as a business as usual activity.

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

There are technical and associated commercial risks associated with the trial. For example there is a risk that a lack of unique identifiers could prove an issue for Process Mining, that is the same object having different names in different systems. Consequently the effectiveness of the technique and therefore its commercial viability cannot be assessed without a trial funded with NIA support.

This project has been approved by a senior member of staff

Yes