Scottish & Southern Electricity Networks

SIF Alpha Round 2 Project Registration

Date of Submission

Jan 2024

Project Reference Number

10085471

Initial Project Details

Project Title

VIVID - Vulnerability Identification Via Informative Data (Alpha R2)

Project Contact

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Challenge Area

Supporting a just energy transition

Strategy Theme

Supporting consumers in vulnerable situations

Lead Sector

Electricity Distribution

Other Related Sectors

Electricity Distribution

Project Start Date

01/10/2023

Project Duration (Months)

6

Lead Funding Licensee

SSEN-D - Scottish and Southern Electricity Networks Distribution

Funding Licensee(s)

SSEN-D - Scottish and Southern Electricity Networks Distribution

Funding Mechanism

SIF Alpha - Round 2

Collaborating Networks

UK Power Networks

Technology Areas

Poverty

Project Summary

VIVID will attempt to unlock the full potential of data held by the energy industry, local authorities and the third sector for the benefit for people and communities in vulnerable situations.

We will do this by developing new techniques, using existing data in a safe and secure way to identify which households would most benefit from timely and relevant offers of practical and financial support from their local authority, reputable charities, and responsible energy companies.

VIVID will also investigate the creation and maintenance of a common regional vulnerability reference system, initially for Aberdeen City, but applicable to all GB regions.

Add Preceding Project(s)

10059427 - VIVID - Vulnerability Identification Via Informative Data

Project Budget

£516,490.00

SIF Funding

£448,525.00

Project Approaches and Desired Outcomes

Problem statement

VIVID meets the aim of the specific Supporting a Just Transition SIF Challenge in the following respects:

- Providing novel and replicable approaches for identifying consumers in various vulnerable situations by sharing and analysing a range of data sets including smart meters.
- Developing appropriate interventions to support consumers and designing the process so it can be used by other organisations. By including UK Power Networks (UKPN), E.ON and The Data Communication Company (DCC) we will identify opportunities for expansion GB wide.
- Project VIVID will improve inclusion for vulnerable and disadvantaged consumers. All partners are focused on outcomes for people in vulnerable situations, especially customers who are digitally excluded and in danger of being left behind by new, low carbon, technologies, and the associated economic benefits.
- Following the successful delivery of the Discovery Phase of VIVID, we will have a well-defined template for delivering a usable VIVID tool, beginning with creating a common vulnerable database and reference system, initially for Aberdeen City, but applicable to all GB regions.
- We have improved our understanding of how isolated data is in different organisations and how powerful it can be when we safely combine this information. Discovery has allowed us to create a framework and governance structure which will enable this in Alpha.

The energy network innovation involves:

- Working with a broader range of smart meter data than currently used by DNOs.
- Using multiple data sources along with smart meter data to gain insight on customer vulnerability at scale, testing the process from end to end, from data acquisition through to customer engagement and assistance.
- Developing new marketing and outreach activities including Priority Services Register (PSR) promotion and fuel poverty initiatives as well as ensuring we are open and transparent about the project, use of data and the benefits this will bring
- Finding new ways to support 'missing vulnerable' consumers who are most at risk during emergency situations and are likely to be left behind in the transition to Net Zero.
- Spotting trends in vulnerability more quickly and accurately allowing quicker targeted response.

VIVID Discovery phase had four project partners: SSEN-D, CGI, Quarriers and Aberdeen City Council. All four want to progress to Alpha and ultimately Beta.

For the Alpha phase of VIVID we will be welcoming three new partners; DCC, E.ON and UKPN to make seven partners in total for the Alpha phase of VIVID.

Together, these seven organisations will work initially on three use cases:

1. Creating a Regional Vulnerability Data Repository
2. Bridging the Digital Divide, and
3. Finding the Missing Vulnerable

Another use case, 'Better Targeted Energy Efficiency', will come towards the end of Alpha, or at the beginning of Beta. Three more use cases have already been identified, these are health and power cut related and the systems and processes created in Alpha will allow these to be delivered in Beta.

The main output of VIVID will be better identification of vulnerable customers, leading to increased cooperation, coordination, and better service delivery, enabling positive outcomes, including:

- Faster response time to households during times of crisis, including power cuts.
- Greater digital inclusion, especially relating to energy services.
- Safer communities after better resilience planning
- Lower carbon emissions by enabling adoption of Low Carbon Technologies, for people who would otherwise be left behind.
- Early intervention enabled by sharing data with, and from, councils.
- More investment in communities as organisations have greater confidence in providing help to the right households.
- Reduced levels of fuel poverty following better targeted financial help

Warmer and healthier population arising from more effective energy efficiency activities. *Cooler in summer.

*Additional health and power cut related benefits from Beta.

Innovation justification

VIVID will help find people who, until now, haven't registered for the PSR, are missing from Local Authority support databases or who would benefit from receiving the financial and energy efficiency help they are entitled to.

In the Alpha phase, new methods of identification will allow contact with customers who have been previously left out of engagement activities, not realised the support they are entitled to, or have found it hard to ask for help previously. Please see slide 2 in appendix.

VIVID will use innovative techniques to unlock the potential of smart meter data by combining it with social and local information to drive inclusion and engagement in the energy market. During Discovery we worked extensively to identify a viable legal basis for sharing data, the most secure ways for storing and moving data and the methods we would have to use to be fully GDPR compliant. Alpha will put this into practice and ensure full adherence to the relevant data protection legislation and information security protocols.

We will work during Alpha so that VIVID can expand to new local authority areas, more charities, DNOs, and delivery partners from the outset of Beta. This will allow all those using the process to identify the right people to help and support.

The Alpha phase VIVID partners will find ways to structure systems and processes, so they work effectively and securely across all organisations involved. This should allow the VIVID methodology to be embedded into the business-as-usual functions across DNOs, local authorities and the third sector. We will look for opportunities to include other utilities from Beta onwards, including Gas Networks and the water industry.

The Alpha phase of VIVID will build in consumer and stakeholder feedback methods and surveys so we can continuously improve the functionality and usability of the VIVID tool. This will also assess what messages and assurances are needed to build and maintain trust.

These will also help to measure the value delivered by VIVID and the interventions it enables. We envisage this will be measured in four ways; two quantitative and two qualitative:

1. Direct savings for customers -- calculating how much customers in total save off their bills from energy efficiency measures, fuel poverty advice, supplier switching, help with tariffs and income maximisation checks.
2. Social Return on Investment calculations -- considering reduced carbon emissions, improvements in health from warmer homes in the winter and cooler homes in summer months, and reduced cost of serving customers in power cuts and other emergency situations.
3. Engagement -- with stakeholders, partners and end users of the services and support delivered by VIVID.
4. Customer satisfaction surveys -- allowing us to benchmark service levels, the perception of the Project and driving continuous improvement.

VIVID will break new ground by combining smart meter data with other information to produce dynamic analysis for vulnerability management, allowing short term changes in behaviour to quickly be interpreted as a potential requirement for consumer assistance like never before.

The work done during Discovery assessed the potential for a unique, GB-wide, vulnerability assessor tool, based on a new and innovative Regional Vulnerability Data Repository, off which use cases can be built, updated, and improved upon.

Impact and benefits (not scored)

Financial - future reductions in the cost of operating the network

Financial - cost savings per annum on energy bills for consumers

Environmental - carbon reduction – indirect CO2 savings per annum

New to market – products

New to market – processes

New to market - services

Impacts and benefits description

Financial - future reductions in the cost of operating the network: DNOs conduct extensive engagement and promotion for the PSR which has significant time and cost implications. Using the VIVID solution would identify households most at risk, and enable rapid offers of financial and practical support, saving time and money. VIVID should reduce costs in engaging, recruiting and maintaining the PSR by using automated data analysis to find previously hidden customers and help them register.

As Discovery progressed it became apparent that creating a Regional Vulnerability Data Repository would lead to faster response times during power cuts and other emergency situations. We will also see consumers accepting help to better prepare for such events, in turn reducing the need for network interventions.

Financial - cost savings per annum on energy bills for consumers: Customers identified by VIVID will get faster and more targeted advice on possible interventions including energy efficiency, switching, financial support, grants, and debt management. The positive impacts will be calculated as a direct savings, Social Return on Investment (SROI) and potentially smart meter monitoring allowing further engagement to achieve further cost reductions.

New to market -- products, processes, and services: As DNOs and suppliers look to use smart meter data for vulnerability identification VIVID will allow this to happen in a consistent, joined up manner by creating a common GB-wide vulnerability assessor tool, using data for societal good.

This would contribute to the idea of a common Consumer Consent Portal being investigated and part of Ofgem's digitalisation projects. Operating a central service would allow consistency and cost reduction as duplication of effort is removed.

VIVID will assess how vulnerable groups experience energy exclusion and trial practical solutions to help people understand and access digital information on energy support and transition.

Environmental - carbon reduction -- indirect CO2 savings per annum against a business-as-usual counterfactual: VIVID will accelerate conversations about Low Carbon Technologies (LCTs), promote energy reduction and carbon savings. Examples include spotting geographical clusters which would benefit from communal LCTs or usage patterns indicating that subsidised PV panels would be more cost effective than debt management. Behavioral impacts of LCTs may also be monitored and combined with information from existing SSEN-D innovation projects, such as Vulnerability Future Energy Scenarios - VFES, Smart and Fair with the Centre for Sustainable Energy, and HOMEflex, brining fairness to Household or Microbusiness Energy flexibility fairness. Quarriers will proactively help less confident or tech savvy customers to understand and adopt LCTs, helping customers who would otherwise be left behind to play an active role in net zero and energy flexibility.

Estimating costs and value for money for a just transition focused innovation can be illustrated with a Cost Benefit Analysis (CBA), SROI, and Social Value Frameworks.

CBA calculations can estimate the savings for networks, carbon savings and use SROI calculations for consumer benefits, bill savings and health improvements etc.

SSEN- D are an active partner in the new Social Value Framework project from ENA and Sirio Partners. This will be ready for October, and we will use this new, industry wide, methodology in addition to UKRI requirements when the tool is available. We will also use qualitative customer surveys to assess the suitability of the offers we're making to different consumers.

For now, we have used existing CBA calculations and estimated the benefits as follows:

Initial CBA/SROI modelling shows a potential £50,000 benefit for consumers, society and networks, based on identifying and helping every 100 additional households.
The potential SROI rises to over £50m of benefit for consumers, society and networks, if 100,000 households can be identified and helped with solutions implemented.

Teams and resources

SSEN-D are leaders in the promotion and provision of Priority Services using many innovative outreach techniques. VIVID will use new technology to find 'missing' consumers and engage with them in an inclusive, non-judgemental and positive manner.

CGI and Quarriers both submitted excellent SIF pitches. VIVID combines their skills into one more efficient project to provide better outcomes for more customers at a lower cost than two concurrent projects.

Brining Aberdeen City Council into VIVID at the Discovery stage, representing Scotland's third largest city and the largest in the SSEN-D Scottish licence area, allows a large and diverse area to be evaluated, supported, and emulated.

For Alpha, partnering with DCC will enable supplier related data to be used in a regulatory compliant manner. Evaluating this tool as an "other user" of Smart DCC (as defined in the Smart Energy Code) means the tool could be used by a wider range of accredited organisations ensuring that societal good is not tied to one specific DNO. We now know this is possible, we also know what data will need to be shared by all parties in a safe and secure manner, having DCC as a partner means this should be more joined up, safer and replicable for suppliers and DNOs alike.

To ensure we get this right UKPN and E.ON will be joining for Alpha. As well as challenging and playing the role of a 'critical friend', they will both ensure that the processes we devise are not only suitable for other DNOs and suppliers, but that they are beneficial. Furthermore, as part of Work Package 7, UKPN and E.ON will be able to learn during Alpha so that they can be the first companies to partake in Beta and have their customers be among the first to benefit from project VIVID.

Project Plans and Milestones

Project management and delivery

VIVID Alpha Phase will be delivered in seven work packages:

WP1 - Project Management: Led by SSEN-D: Co-ordination of all activities and Alpha deliverables, project performance, risk management and reporting.

SSEN-D will facilitate at meetings, regular catch-up calls, and assist Project Partners with cocreation of their outputs and collaboration sessions as required. The key output is enabling the other partners to successfully deliver work packages 2 to 7 which will allow VIVID to expand and transition into a Beta project.

WP1 will deliver the framework and facilitation to enable VIVID and either the end stage report or Beta application.

WP2 -- Consumer Engagement, Research and Outreach Trials:* Led by Quarriers: Use learnings from Discovery to conduct engagement with consumers, communities and/or stakeholders to assess the best way of engaging.

Use this feedback to conduct small scale outreach trials with the aim of 'Finding the Missing Vulnerable" and/or "Bridging the Digital Divide". Measure success and conduct satisfaction surveys and feedback sessions/forms to shape cost effective outreach proposals in Beta.

WP2 will deliver customer and community engagement, outreach sessions or communications, identify benefits all reported to help other Local Authorities and charities replicate the VIVID process.

WP3 -- Regional Vulnerability Data Repository: Led by CGI: To create a demonstration of a Vulnerability reference data set for Aberdeen.

To demonstrate adequate privacy & security criteria can be met with de-sensitisation.

WP3 will deliver an operational system and algorithm as approved with the other partner and an extension of the dataset completed without impacting operations.

WP4 -- Use Case Investigation and Execution: Led by CGI: To create and deploy algorithms for Alpha use cases.

To iterate use cases within Alpha timeframes.

To deliver iterative results to allow engagement and treatment of vulnerable customers to be assessed.

WP4 will deliver a first iteration of the use cases and the iterations provided to partners along with the results of the data analysis and a report detailing the work and the next steps of the process.

WP5 -- PSR Matching and outreach feasibility study: Led by SSEN-D: Reviewing data to assess PSR, PARD, TIMs and Quarriers data to develop a proposal to improve data sharing between organisations safely.

WP5 will deliver a proposal for how solutions can be created to share data within GDPR parameters.

WP6 -- Regulation and Consent Management: Led by CGI: Understand operational experience of data sharing and consent in Alpha.

Draw conclusions of operation at scale.

WP6 will deliver a regulatory and consents management report, a system where supplier data can be utilised in the VIVID process securely and a final report detailing the outputs from the Alpha phase of VIVID.

WP7 -- Expansion feasibility study: Led by SSEN-D assisted by CGI, DCC, E.ON and UKPN: Work together to allow partners to participate in data sharing and expansions to new areas from the outset of Beta.

WP7 will deliver an expansion plan including proposed new areas, partners and communities to benefit from the VIVID process.

Risks

Key risks identified during Discovery include data privacy, data management, public perception of smart meters and the use of data.

These will be further investigated during Alpha and tracked during the Project, along with appropriate mitigation which will be reviewed and agreed with stakeholders. Regular reviews of the risk profile will be conducted. This will include what to do when we find non-vulnerable consumers and residents and how to fine tune our systems to improve accuracy continuously through Alpha and Beta.

Key outputs and dissemination

Key learning from the project will include

An understanding of the framework required to allow consumer data to be shared between organisations in a compliant manner. This will include the potential to add additional datasets from any additional project partners or users in future. This has the potential to unlock further use cases to build on those being explored directly in the project.
By sharing data, the project should be able to help DNOs and Local Authorities create a methodology for identify vulnerable individuals who are not currently "visible" to either.
The project will develop and test new interventions to support these individuals or customer groups after they have been identified. Using stakeholder engagement techniques to suitability of these will be assessed.
The team will be jointly responsible for disseminating the learnings from the project with SSEN being the lead party for ensuring that all dissemination requirements are met. Information will be made available on the Smarter Networks portal and will be presented at the Show and Tell events arranged by UKRI.

As part of Work Package 7 we will also be engaging with at least one other Local Authority and other charities to expand the project for Beta.

Commercials

Intellectual property rights, procurement and contracting (not scored)

To ensure clarity is provided to the Project partners, UKRI and Ofgem regarding the intellectual property (IP) landscape, the Project is using an IP register to track the Background IP provided to the Project, the Foreground IP the Project generates, and the use and access rights to all this IP.

The main contract governing the Project (the Collaboration Agreement) will include detailed, mutually agreed terms governing IP that are in line with the SIF Governance Document. For the Discovery Phase, all the IPR arrangements will follow the default recommendations of Chapter 9 SIF Governance Document.

Commercialisation, route to market and business as usual

The enduring market model for this solution would be to look at a common method for identifying vulnerability and creating a continuous feedback loop to keep vulnerability baseline information (and consequently all stakeholders) up to date and accurate. Although smart meter data analysis for vulnerability has been looked at before, in projects such as NGED's Venice, VIVID will take a novel approach by:

- Looking at recent information to spot transitions to vulnerability.
- Comparing trends in the wider regional population to help exclude common trends.
- Proactively looking to feedback into existing vulnerable data sets and keep them updated and accurate.
- Implementing outreach, communications, measurement, and consumers/stakeholder feedback to improve the results further and improve support for communities.

The enduring market model will also develop a method for identifying households and/or communities which who are excluded from energy technology and standard approaches to engage with them.

The approach will be innovative with direct inclusion of third sector, local authority and utilities is a combined approach.

Examples of where the VIVID outputs could be embedded into the Business as Usual functions of the partners are as follows:

For a DNO embodiment could involve:

- Quicker response times to customers at risk in power cuts and a rapid response to other crisis situations-Better, more accurate and real time updates of PSR data against other known and reputable data sources
- Precise PSR promotion GB wide with specific offers to the right people at the right time, with less waste and more response
- Targeted partner outreach projects to help with resilience and energy efficiency where and when it is most needed
- Co-created and collaborative low carbon technology and energy efficiency programmesFor a Local Authority it could involve:
- Better, more accurate, and real time updates of data showing residents at risk during a crisis.
- Precisely delivered help and support for Tenants who are living in cold or inefficient homes
- Guiding inclusion and anti poverty strategies resulting in better outcomes for residents and more efficient use of public funds
- Co-created and collaborative partner outreach projects to help with resilience and energy efficiency etc
- Supporting early intervention strategies by finding residents at risk and helping them before they reach crisis pointFor the third sector this could involve:
- Co-produce support functions that match the needs of the people they support already
- More independence within the energy sector for people who require support as their needs are understood and can be addresses
- Inclusion for people who are supported in decision making which will have long and short-term impact on transition to net zero
- Increased awareness of help and support available with more people able to associate with vulnerability registers and the missing vulnerable be found and supported
- The ability to find people who need to be listened to and to creating a network of support across the UK which people recognise as being person centred The outcomes for energy suppliers and other utilities will become clear as we progress through Alpha. Learning how other utilities can benefit from the VIVID process is an important part of the project in the Alpha phase, so we can embed the correct use cases and data techniques into Beta.

The best options for deployment of the solution will be considered more fully in Alpha and then Beta, this could involve creation of a new platform or mechanism for sharing date or trying to link this to one of the existing industry bodies. Working with DCC and suppliers as well as DNOs will help further develop our thinking .

Policy, standards and regulations (not scored)

The project team will ensure that all phases of VIVID are in alignment with relevant policy and that any barriers are clearly identified. That is not to say that changes would not help in the drive to better identify and support the most vulnerable and at risk in our society.

An example of this may come when we analyse smart meter data used by DNOs. Currently, this needs to be aggregated to a minimum of five households for most purposes. This isn't the case for supplier data. An alignment of this in the Smart Meter Code may prove beneficial to helping with the identification and support of vulnerable consumers. This will become clearer as we develop the technology and collaborative working in VIVID and progress through Data Privacy Impact Assessments and Information Security processes.

Furthermore, DCC have detail in their proposal as part of VIVID to look at the supplier smart meter data, DCC say:

"The Modernising Energy Data Applications project with Urban Tide identified howaggregated smart meter system data could be used to help build an algorithmic model to identify geographic areas at greatest risk of fuel poverty, to help enhance deployment of energy efficiency investment programmes. With approval from Ofgem, DCC provided aggregated and anonymised 'system data' which included descriptions and timings of transactions including prepayment top ups, lowcredit alerts and outages for example (for more information on the range of system data (see Appendix 1). The project concluded in August 2022.

Whilst the project demonstrated positive results DCC is unable to continue supporting the project with up to data smart meter system data as our 'permitted purpose' approval from Ofgem expired. Furthermore, we need to gain approval from energy suppliers (as Data Controllers) to share the data, as provisions within the smart meter communications licence and Smart Energy Code prevent DCC from sharing the data without their agreement.

An opportunity exists to apply to the 'Alpha' phase of the Strategic Innovation Fund Round 2 to overcome these issues, enable wider data access to smart meter system data and provide valuable learning for Ofgem that could support development of an enduring data governance regime for sharing smart meter system data for the benefit of consumers. A SIF project could therefore have further future benefits and applications for sharing system data for Use Cases outside of fuel poverty.

Our proposal seeks to enhance the previous work undertaken with Urban Tide through the Modernising Energy Data Applications competition. This solution, whilst successfully developed by Urban Tide, is unable to scale because of the regulatory and data governance issues that prevent data sharing by DCC.

Lastly, although not regulatory barriers, we feel it worth recording two of the pinch points we've identified in Discovery which could hinder Alpha and/or Beta phases. Alternatively, they could be seen as opportunities for removing barriers during the project for future benefit of collaboration on consumer vulnerability and smarter use of data.

Currently, Local Authorities, energy companies and the third sector all collect and use data using different legal basis.

- SSEN-D will use LEGITIMATE INTEREST for the PSR and will need to work on this basis for VIVID Alpha phase, SSEN- D will update their privacy notice accordingly.
- Quarriers will use CONSENT from their service users, and this will be stored on their existing databases.
- Aberdeen City Council will use PUBLIC TASK, this is normal for Local Authorities.

In the future, being able to use public task when collaborating with Local Authorities would potentially allow utilities to work more effectively with Local Authorities for the benefit of vulnerable members of society.

Value for money

Whilst we don't envisage that subcontractors will be required for the delivery of the Alpha Phase, our outreach trials in Work Package 2 may require delivery and engagement partners. This is part of embedding benefits into local communities and businesses.

Cost to develop VIVID and create the systems and processes will be £516,490 with partners supplying a contribution of £67,965 making a funding request of £448,525. Majority of partners will be meeting their contribution requirements through reduction in rates.

Where possible, we have benchmarked costs received against those used by equivalent suppliers who are already engaged on SSEN's framework.

The funding request is split between partners as such:

SSEN, as the Lead partner have costed their work at £94,240, and are requesting £83,610 of SIF Funding. SSEN will lead on delivery of Workpacks 1, 5 and 7, while also contributing to the remaining deliverables.

CGI (Partner 1) have costed their work at £209,468, and are requesting £175,130 of Funding. CGI will lead on delivery of Workpacks 3, 4 and 6, while also contributing to the remaining deliverables.

Quarriers (Partner 2) have costed their work at £73,564, and are requesting £65,000 of Funding. Quarriers will lead on delivery of Workpack 2, while also contributing to the remaining deliverables.

Aberdeen City Council (*Partner 3)* have costed their work at £56,100, and are requesting £50,000 of Funding. Whilst not directly leading on any of the workpacks, ACC will be a main contribution to Workpack 2, while also providing input into the remaining deliverables.

DCC (*Partner 4)* have costed their work at £49,856, and are requesting £44,850 of Funding. Whilst not directly leading on any of the workpacks, DCC will be a main contribution to Workpack 6, while also providing input into the remaining deliverables.

E.ON (Partner 5) have costed their work at £19,262, and are requesting £17,335 of Funding. Whilst not directly leading on any of the workpacks, E.ON will be providing input into all deliverables.

UKPN (Partner 6) have costed with work at £14,000, and are requesting £12,600 of Funding. Whilst not directly leading on any of the workpacks, UKPN will be providing input into all deliverables.

The funding represented as a percentage is as follows:

Lead partner - SSEN-D: 19%
Partner 1 - CGI: 39%
Partner 2 - Quarriers: 14%
Partner 3 - Aberdeen City Council: 11%
Partner 4 - DCC: 10%
Partner 5 - E.ON: 4%
Partner 6 - UKPN: 3%
As detailed in Q7, the following represents breakdown of costs per workpackage (Funding only):

WP1 - Project Management: Led by SSEN-D - £25,000

WP2 - Consumer Engagement, Research and Outreach Trials: Led by Quarriers - £100,466

WP3 - Regional Vulnerability Data Repository: Led by CGI - £80,213

WP4 - Use Case Investigation and Execution: Led by CGI - £39,732

WP5 - PSR Matching and outreach feasibility study: Led by SSEN-D - £35,000

WP6 - Regulation and Consent Management: Led by CGI - £92,400

WP7 - Expansion feasibility study: Led by SSEN-D assisted by CGI, DCC, E.ON and UKPN - £75,484

Associated Innovation Projects

- ○ Yes (Please remember to upload all required documentation)
- ◉ No

Supporting documents

File Upload

Vivid Alpha WP6 Report_Final issued.pdf - 764.5 KB
Vivid Alpha WP5 - PSR Matching Feasibility Study v0.3.pdf - 975.1 KB
VIVID mid-point project meeting - Alpha 15.01.2024.pdf - 2.2 MB
Vivid Alpha WP3 and WP4 Report CGI and DCC.pdf - 1.1 MB
VIVID mid-point update.pptx - 14.2 MB
VIVID Project Alpha Report 1 for WP2 Quarriers and Aberdeen City Council.pdf - 84.6 KB
VIVID End of Phase - Alpha.pdf - 3.9 MB
VIVID Alpha Phase Show and Tell.pdf - 2.3 MB
SIF Alpha Round 2 Project Registration 2024-01-17 1_26 - 89.3 KB
10085471 - VIVID 1.1.pdf - 79.3 KB

Documents uploaded where applicable?

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