

SHREWD

TURN ON THE POWER OF YOUR DATA

Live Data Sharing For the Whole Health System

DATA • INTELLIGENCE • ACTION

TABLE OF CONTENTS

SHREWD Platform.....	5
SHREWD Platform overview:	5
SHREWD Resilience	5
SHREWD Resilience Overview:	5
SHREWD Resilience - The Case for Change.....	6
Alerts and Notifications	6
So What?	6
Benefits of SHREWD Resilience:.....	7
SHREWD Action	8
SHREWD Action overview:.....	8
SHREWD Action – Benefits:	8
SHREWD Action for OPEL:	9
SHREWD Vantage.....	9
SHREWD Vantage overview:	9
SHREWD Vantage – Benefits:.....	9
SHREWD Vantage – Intelligent Conveyancing System overview:	10
SHREWD Region	10
SHREWD Region overview:.....	10
SHREWD Region – Benefits:	11
SHREWD Reporting.....	11
SHREWD Elective	12
SHREWD Elective overview:	12
Realised benefits of SHREWD Elective:	12
Back Up and Recovery.....	13
Off-boarding Process and Scope	14
Service Management Details	14
On contract award, the customer will have available:.....	14
Data Processing & Storage Location.....	16
Data Restoration & Service Migration	16

WHO WE ARE

SHREWD was founded in 2009, to provide improved visibility of real-time data across multiple NHS providers, 'to buy time' during the H1N1 Influenza Pandemic.

1 Regional Deployments in Canada

1 National deployment NHSE Control Centre

People

Research

Technology

SHREWD

"This is a great example of how the NHS, acting as 'lead customer', can work with an industry partner to create a product that addresses the specific needs of the customer."

KSS AHSN Head of Innovation

30 Deployments out of 42 ICBs



EXPERTS

We grew from a team of technology scientists and senior NHS managers, motivated by using real-time data to generate insight driven decisions.



PIONEERS

We provide new and relevant ways of generating insights by being creative, innovative and helping to set new standards.



COLLABORATORS

We unite people by linking real-time data insights and turning these into action. We bring IT, systems and people together.

Our Goal was to solve the challenges associated with how you can capture, transform and easily display a wide range of healthcare data, from multiple providers in real time, to create a single version of the truth. We spent 6 years in R&D and have since been working with the NHS to deliver award-winning solutions that support patient flow and improve operational resilience.

The core to our success has been the in-depth understanding that we have of data flows, data management, data translation, visual display and actionable insights that drive behavioural change.

WHAT WE DO

The output from our research is our award-winning SHREWD portfolio, a cloud-based platform of data visualisation tools that takes complex digitised data from all providers within the wider health economy, from acute and community to ambulance and primary care, and creates instant, whole-system visibility of escalating pressure and potential impact on services.

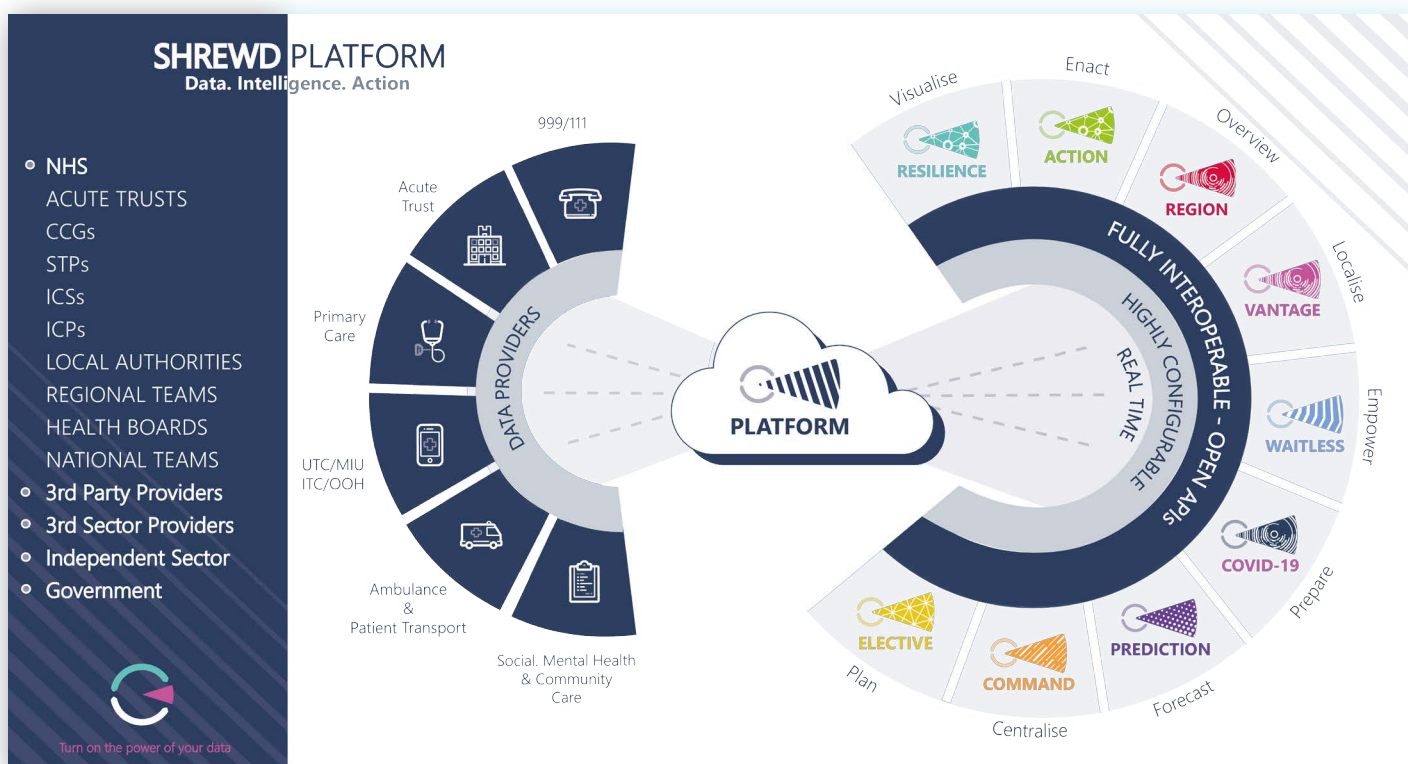
Using live BRAG rated dials, dashboards and heatmaps, SHREWD enables users to recognise early warnings in and around the wider infrastructure and take action quickly, helping to avoid breaches of targets for performance measures, saving valuable time, and maintaining patient safety.



Our award-winning SHREWD solution, a portfolio of real-time operational management tools, is playing a pivotal role in supporting the NHS to implement digital transformation at scale.

The SHREWD platform offers a range of innovative tools to effectively manage patient flow, demand and capacity, whole-system data sharing, and operational control centres.

SHREWD supports healthcare organisations to address fragmentation in services and enable more coordinated, continuous, and improved care for patients.



SHREWD takes complex digitised data from multiple providers across healthcare systems, from Acute and Community trusts to Ambulance and Primary Care, including Independent Sector providers, and creates instant, automated, whole-system visibility of pressure, creating one single version of the truth.

This utilisation of live data sharing helps to deliver the prescriptive intelligence required to empower decision makers with key information to better co-ordinate and streamline patient care across any geographical footprint.

By providing a critical strategic overview of growing pressure, in both Urgent and Emergency and Elective Care pathways, it helps to load balance and support mutual aid transfers between providers, enabling an integrated, tactical response to reduce pressure, resolve delays and improve care delivery services.



**Save Time
& Money**



**Enable Actionable
Insights**



**Reduce Pressure
& Improve Flow**



**Enhance Operational
Performance**



**Whole System
Visibility**



PLATFORM

SHREWD Platform overview:

The SHREWD Platform is the foundation of the SHREWD product suite. The SHREWD Platform provides a set of tools that allow the ingestion of data in almost any format (from direct entry into the system, through to digital systems via APIs). This data is captured and transformed into useful information stored in our secure UK based data-lake.

The Platform has an open API for third party connections to use the information that is held in the data-lake. This is a genuine operational data layer that provides a single source of the truth for managers and key decision makers in real-time. From this the modules offered allow actionable insights to speed up decision making across the board.



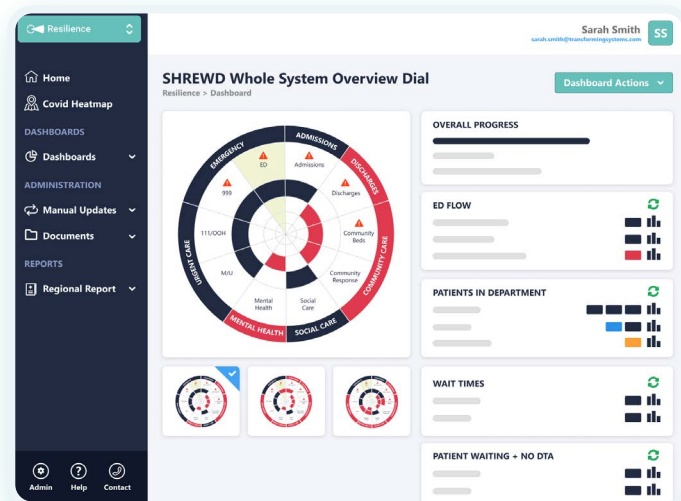
SHREWD Resilience Overview:

SHREWD Resilience is a cloud-based application that enables the whole health and social care system, within a defined locality, such as Integrated Care Boards (ICB's), to access real-time data in a way that is simple to understand. SHREWD is a 'live' sitrep that refreshes constantly throughout the day, 24/7.

SHREWD stands for Single Health Resilience Early Warning Dashboard. Not only does the system display real time data, it has also been designed to intuitively enable users to plan ahead by seeing what impacts are happening around the areas in which they are working, in advance.

In health systems, SHREWD is a System Coordination/ Command Centre in Regions, ICBs, Health & Care Partnerships and in Provider organisations, that provides a real-time view of capacity and demand across the whole urgent & emergency care (UEC) patient pathway; enabling users to identify where support is needed to improve flow. SHREWD allows front line teams and operational leaders to see a real-time view of the situation, quickly. Users can then 'drill down' into the precise reasons driving that pressure within just a few clicks. SHREWD exceeds all requirements of the Smart System Coordination Centre specification recently published by NHS England.

Data is captured in real time and accessible to all providers in the system via a web interface and smartphone app. The inbuilt notification system can be configured by individual users to alert them as indicators change.



SHREWD Resilience - The Case for Change

Current operational processes used to share operational information related to urgent and emergency care (UEC) between organisations are time consuming and inefficient. Whilst some partners have access to real time data related to their own operations, there is no platform that makes key metrics visible to all partners in real time. In order to manage surge and escalation across UEC pathways, staff are reliant upon teleconferences and emailing spreadsheets in order to understand the operational picture. Teleconferences are dominated by respective partners explaining their data and operational position, rather than being able to quickly focus on the actions required to restore patient flow.

Routine regulatory reporting is also time consuming. Commissioners are required to disrupt senior operational staff from front line duties in order to state their position and contextualise it for onward reporting to NHS England & Improvement colleagues. Data aggregation in order to prepare reports for regulators and executive colleagues is also time consuming as there is no single source of truth from which to pull the relevant data.

As part of the implementation process, data feed calls will be set up with each data provider to determine the source of data and their preferred data feed methodology. We provide a set of tools to all providers, that allows the ingestion of aggregate level data, which is collected in multiple formats through automated and/or manual processes and placed in a secure data lake. The data is then extracted into the SHREWD dashboards as required – more information on this can be seen in our response to Q2.

Data is captured in real time and accessible to all providers in the system via a web interface and smartphone/mobile application, meaning access to real time data is not restricted to dedicated SCC rooms or rigid infrastructure, but available anywhere, anytime. SHREWD is also able to provide an open API if required.

Ongoing configuration support is provided throughout the life of the contract, and we will continue to work with contract leads and individual providers to continuously ensure the data meets the needs of the users. This includes looking at the addition of any new services, pathways or providers, and also configuration of trigger thresholds, which is all part of the licence agreement and included within the cost, so there are no hidden charges or additional costs when changes are requested to the dials – we see change requests as a sign the system is being

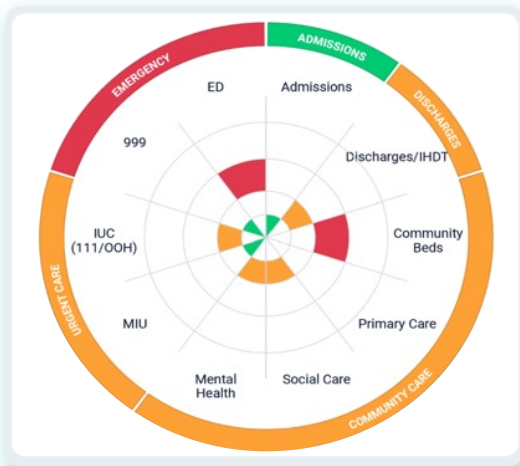
Alerts and Notifications

SHREWD has an inbuilt notification system that proactively alerts users to situational changes so that action can be taken quickly, even if they're not physically looking at SHREWD at the time – so users don't even need to look at the system so know when things are escalating. This helps to avoid breaches of targets for performance measures and helps monitor compliance of standards; ultimately supporting improved care and patient safety.

So What?

The ability to collect data and make it available is only part of our solution, that's the easy bit – the ability for users to easily understand what the data is telling them, to then act upon, is critical. We have spent over 15 years looking at the most effective ways to display data, working with a wide range of NHS teams, academics and developers throughout that time. The UI/UX of our SHREWD dashboards are presented as dials and are based upon Florence Nightingales Coxcomb diagrams, which are used to indicate variations of pressure in different parts of the UEC pathway.

Each segment on a SHREWD dial represents each part of the UEC pathway. When one segment on the dial becomes pressured, and goes from green, to amber, to red, to black, it does impact the segment next to it, and that then impacts the next one, and so on.



A good example of this is when looking at the community segment on the dial. If community services become pressured, that segment will escalate; that in turn will affect discharges out of the hospital, so users will see the discharge segment start to go from amber to red to black also. If discharges are pressured then that affects new admissions, and you will then see that segment start to escalate, in turn affecting the ED segment due to overcrowding and corridor care, and then the 999 segment will then also see a change if handovers then become affected.

For operational teams using the dial, the community data would have shown an issue before it was felt in the other segments, allowing other teams, providers, and services to plan ahead and maybe implement some mitigating actions to avoid wider disruption and bottlenecks in other parts of wider the system. There are many insights such as this and early warning signs in every part of the dial, that spans all parts of the UEC pathway within an ICB.

Benefits of SHREWD Resilience:

SHREWD Resilience can support Leicester, Leicestershire and Rutland ICB in addressing this challenge as follows:

- All partners can see the current situation across all providers in the system in one place all at the same time, reducing inconsistency and variation,
- Resources can be deployed where they are needed in real time, utilising available capacity to meet demand at times of pressure. This reduces inefficient administration and allows faster deployment of resources
- Spare capacity can be identified and exploited to ease the pressure on the busiest departments. This reduces workload imbalance and pressure in the system
- Significant time that was spent on compiling spreadsheets or trying to interpret historical data is no longer needed. Staff time is spent on agreeing and implementing solutions
- Real-time data reflects the operational position, rather than waiting for validated/coded data to be released. This improves the ability for the organisation to respond to pressures as they occur
- Providers can see partners' pressure immediately and respond to it. This may be by providing temporary mutual aid to pressurised areas, changing pathways for a defined period of time in order to reduce pressure building or putting in additional support by way of preparation. This allows a whole system approach to be taken for patients and staff benefit in real-time.



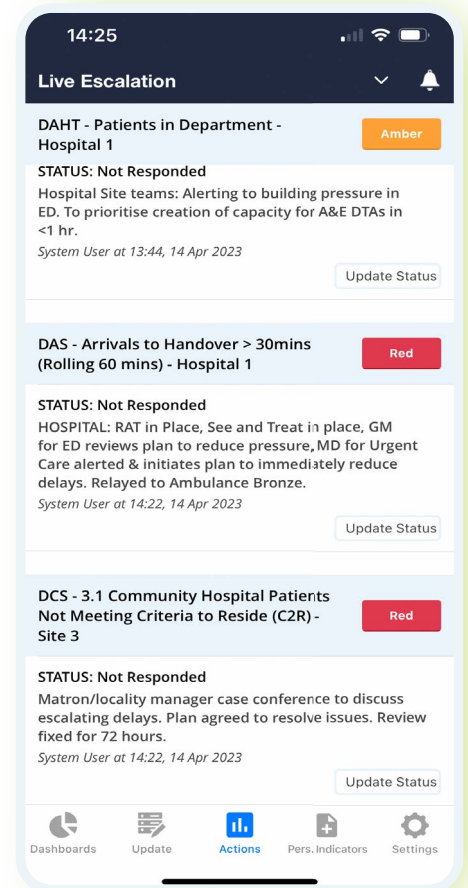
SHREWD Action overview:

SHREWD Action, in combination with SHREWD Resilience is, a cloud-based add-on module for the SHREWD Platform. This module allows organisations to create and manage real-time escalation and response plans for the urgent and emergency care pathway across a whole health economy.

The module automates significant parts of the escalation process, sending alerts, notifications and agreed actions to key individuals across and between organisations in order to enable them to act quickly and at key points in time.

Actions are managed on web or smartphone interfaces and escalated if they become overdue or as situations become more pressured. Actions are automatically recorded for all notified users once the status has been updated removing duplicated effort and making everyone aware of issues in real-time. A full digital audit trail is captured to support continuous improvement and “after action” reporting.

In common with the rest of the SHREWD modules, SHREWD Action has been designed using visual management principles to give a live view of system pressure within seconds and enable detail information to be retrieved within a few clicks of the initial view screen.



SHREWD Action – Benefits:

SHREWD Action can support organisations within the Derby & Derbyshire ICB in the following ways:

- Reducing potential “siloes working” practices and removing the delay and effort associated with communicating to partner agencies when pressure has been triggered; meaning effective responses happen faster.
- Actions triggered in real time enables teams to respond quicker and is designed to help avoid escalation to red or black statuses, helping the health and social care partners resolve pressure earlier in the cycle, improving patient care and outcomes. This reduces costs and stress in the system as well as improving patient outcomes.
- Ensuring agreed actions are followed at specific point in time, every time; standardising responses in alignment with system plans and reducing variation. This improves patient outcomes and quality of services.
- Enables actions to be tracked in order to ensure escalation is appropriate and everything previously agreed has already been put into place. This allows ongoing monitoring and training of staff to meet the best agreed practice.
- Providing an audit trail of actions deployed and the ability to assess whether they were deliverable and/or effective. This provides the audit trail for the organisations to learn from and adapt its responses in the future.

SHREWD Action for OPEL:

VitalHub UK will also develop SHREWD Action so that users can digitally automate the actions cards outlined in the National OPEL framework.

SHREWD Resilience is able to utilise the 9 automated data metrics mandated for 2023/24, to provide OPEL escalation calculations in real time. This will provide SCCs with the ability to have the OPEL at site, trust and ICS level to be recalculated as the metrics driving the OPEL scores change throughout the day.

With SHREWD Action, delegated users will be notified of the mandated Action cards within the guidance via the SHREWD OPEL escalation statuses change, and also enable them to provide an update on the current progress of those actions, which SCC teams and other system stakeholders are able to monitor with SHREWD. This will reduce the requirement for routine status updates and bring forward the response time to the changing OPEL position throughout the working day.

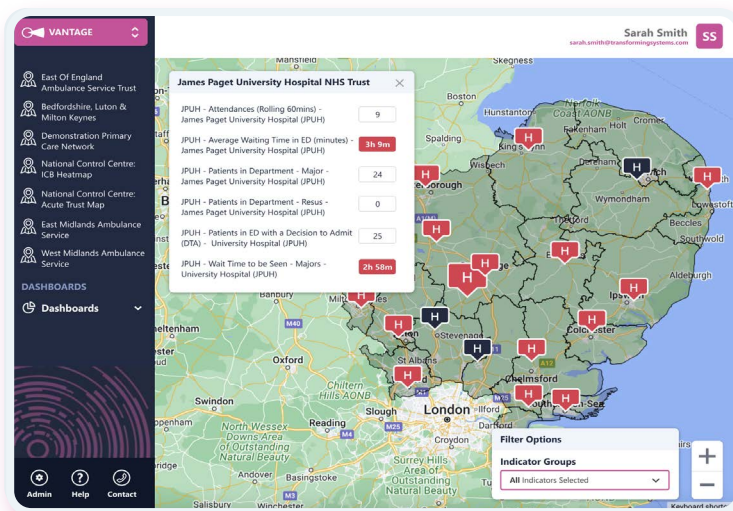


SHREWD Vantage overview:

SHREWD Vantage provides a simple, single view of pressure across a large geographical area, spanning multiple systems, trusts and providers as required, via a real-time heat map. The heatmap functionality can be filtered to show visibility of specific key data sets from the SHREWD Resilience dashboard across a defined geographical areas such as;

- Bed capacity
- ED Wait Times
- Ambulance Handover Delay
- Community Discharges
- DTOC's

This supports decision makers in identifying which resources can be shared and redistributed, where possible, and ensures greater visibility of pressure.



SHREWD Vantage – Benefits:

- Save time by having a single view of pressure for multiple sites, systems and providers – all in one place.
- Provides a quick snap shot of the trajectory for each area piece of data selected on the map so users can determine quickly if the pressure is rising, reducing or staying the same.
- Enables standardisation of data capture, visualisation and interpretation, so that what is being measured is consistent across multiple areas, reducing variation.
- Supports greater mutual aid response efforts across wider geographical footprints.

SHREWD Vantage – Intelligent Conveyancing System overview:

SHREWD Vantage (Intelligent Conveyancing) is a tailor-made solution which adapts our SHREWD Vantage product to support oversight of capacity and demand to inform conveyancing decisions in real time.

The product will provide a live heat map and dashboard to present the critical ambulance, ED and UTC data for every facility in the entire Region.

The data set presents the information that is currently held in the ambulance service systems that is relevant to a crew's conveyancing decision. This could include, but is not limited to:

- Conveyances in the last rolling 60 minutes by acute site.
- Rolling data on arrival to handover times by acute site.
- Rolling Data on handover to clear times by site.
- Rolling data on the breaches of 15-, 30-, 45- & 60-minute waits by acute site.
- Number of ambulances currently waiting at acute site.
- Average times for arrival to handover, handover to clear and arrival to clear, by acute site over the last 60 minutes on a rolling feed.
- Mean and 90th percentile performance by response categories 1-4 and HCP referral by locality and/or region.
- Current surge and REAP levels.
- Outstanding calls on the call stack.
- Outstanding HCP referrals.
- Percentage rates for hear & treat, see & treat and see & convey since midnight.

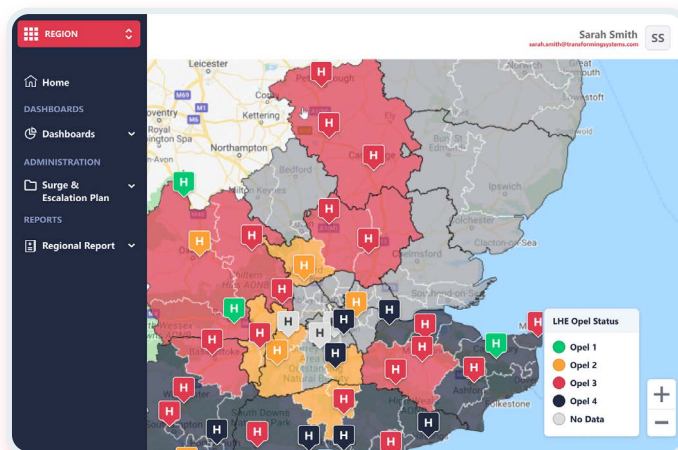


REGION

SHREWD Region overview:

SHREWD Region provides a regional view of pressure, in real-time via a heat-map and reporting function. The SHREWD Region heatmap function reflects real-time acute and system OPEL statuses, showing emerging pressure at a glance.

The reporting function facilitates the daily winter returns and in-year escalation reporting to be automated and records the trusts proposed actions for review. The structure of the report is centrally managed and built to meet the needs of the regional team. The real-time report is auto-reported each morning from our platform data and allows for additional information to be added, such as response and reasons for escalation.



SHREWD Region – Benefits:

SHREWD NHS Region can support the NHS North West Region in addressing a number of the core concerns raised from regions in the following ways:

- Simple view of real-time regional pressure.
- Standardised reports across Regions.
- Less administration for the reporting end user. Consistent and timely onward reporting.
- Derive more data driven information for better analysis and comparison.
- Less interruption to operational activity to manually gather operational data.
- Timelier and streamlined process for the oversight body.



SHREWD Reporting:

SHREWD Reporting is an online reporting and dashboard package for SHREWD customers based on indicators contained within the SHREWD Platform. The package will include 5 main features:

Summary Dashboard:

The Summary dashboard provides a single page overview of key indicators from the previous day (or week). This includes KPI cards, BRAG ratings, trends and custom visualisations which allow for a simple and efficient understanding of the information.



KPI Scorecard:

The KPI scorecard is a traditional view of indicators in the form of a matrix, displaying the previous 14 days data, with some smaller visualisations of trends alongside performance against targets and previous periods. The scorecard shows icons which indicate if specific statistical rules have been breached and therefore highlights indicators where further investigation may be required. Users can click on certain elements of the scorecard to automatically navigate to the most useful section of the analysis tools to explore a given measure in more detail.

Indicator Analysis:

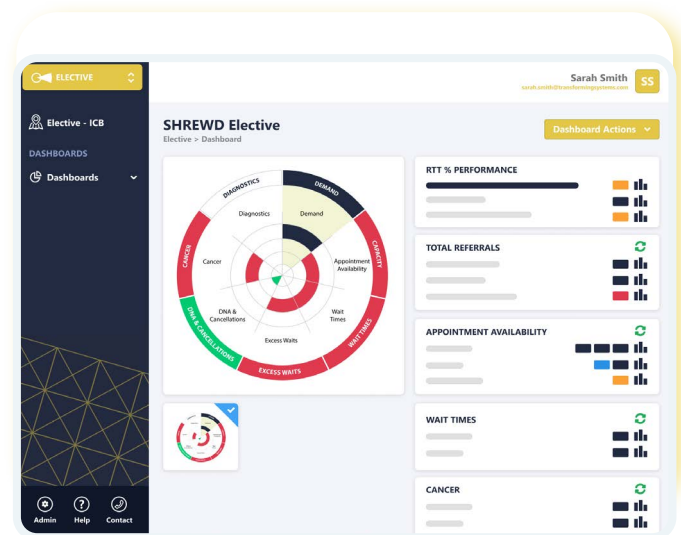
The indicator analysis section consists of a range of full-page visualisation that can be filtered to specific indicators for deeper investigation. These provide an array of variation and trend analysis, including SPC, seasonality, day of week and hour of day trend, etc.

Presentation Wizard:

Presentation Wizard serves as a versatile report-building platform designed for the creation of comprehensive reports using your SHREWD data. Users can tailor and define measures, organisation and date groupings, accumulation methodology, and timescales to produce a multi-page presentation style report. Alongside the analysis presented through various visuals, the tool includes automated statistical narratives for each chart. After configuring the report, it can be scheduled for regular updates and email distribution on a predefined basis (daily, weekly, monthly) available in either PDF or PowerPoint format.

SHREWD Elective overview:

Across the ICB there is a complex network of systems and different practices, however there is a core set of data which can be used to inform decision making within the local system at a more strategic level. This would provide all stakeholders with a picture of where there is a high level of demand and where there is capacity available. This data can be used to visualise where the blockages are and where there are opportunities in the different planned care pathways. It will also demonstrate where additional resource could be invested to meet long term demand.



Elective care has a complex suite of data that does not currently allow for a strategic view of capacity and demand, specifically at speciality and sub-speciality level. SHREWD Elective will provide a system level view, also searchable by site or Trust of:

- Demand – in totality from all routes.
- Appointment slot capacity – and at various pathway intervals.
- Backlog or blockages within pathways.
- Waiting lists and performance.
- Next pending events.

The SHREWD Elective platform enables users to identify delays and variance in capacity in demand on all pathways and provides the ability to recognise and anticipate and be alerted to early warning signs of problems or pressure growing in the different parts of specific pathways which means services can be improved, backlogs managed more efficiently and at a bigger scale and ultimately improve patient outcomes.

Realised benefits of SHREWD Elective:

The overall benefits are as follows:

- Whole system visibility of planned care waits and appointment availability in real time.
- Supports greater utilisation of resources.
- Displays both demand and capacity.
- Reduce lengthy wait times.
- Identify growing pressure by speciality & sub speciality.

SHREWD Elective is fully configurable. We have a core data set in use in other areas however the dashboards can be tailored to suit the needs of the system and can include areas such as:

- High Volume Low Complexity pathways.
- P1-P6 categorisations.
- Cancer specific.
- Theatre utilisation.
- PIFU.
- Outpatient specific.

For hospital trusts, in addition the benefits of surfacing relevant data from multiple sources in one place, the platform provides an opportunity for collaborative and time efficient working. The data will be used in operational meetings to understand what areas need more focus and where we should concentrate more or dedicate more time to. It will help with planning, as clinical and clerical teams will be able to see where pressure is building and move activity from one area to another and or one speciality to another.

Information will be available in seconds and updated frequently throughout the day. A common data set being used across the ICB will allow teams to use it for comparison. It will enable operational communications between local trusts and the movement of demand and capacity around the system. The interface is easy to use which is imperative for clinicians who are normally time poor. Clinical teams will be able to identify the risk of 52-week breaches before they come along and when the 40+ week breaches start to climb act to mitigate further delay and the commensurate patient impact.

The wider elective care programme nationally and in regions is to implement an elective care hub model which will drive system level elective management. The use of SHREWD Elective will help facilitate that transition.

Back Up and Recovery

There are two separate backup and disaster recovery processes. The system is hosted at multiple UK data centres by a HSCN and PSN accredited hosting provider and uses a managed backup service. This is a weekly event with a snapshot of the complete server. The core database is also backed up to a separate server every three hours. Transforming Systems has internal processes for disaster recovery detailed in the Business Continuity and IT Disaster Recovery Plan. This plan directs a dedicated Emergency Response Team to convene a disaster recovery subgroup with the following responsibilities: - Establish facilities for an emergency level of service within 2 business hours; - Restore key services within 4 business hours of the incident; - Recover to 'business as usual' within 8 to 24 hours after the incident; - Coordinate activities with the Disaster Recovery Team, first responders, etc. - Report to the Emergency Recovery Team. The Emergency Recovery Team will alert affected clients as necessary. On-boarding Processes and Scope On commencement of the contract, customers receive a detailed welcome pack that includes a highlevel milestone plan (itemised below). A dedicated Deployment Team then work to the plan, with customers, to develop the initial Resilience dashboard view. A typical deployment takes up to 12 weeks from project kick off but can be deployed much sooner depending on customer readiness. The Deployment Team offer support, both business and technical, and product training throughout the deployment process with a clear transition to the Business-as-Usual phase, where a dedicated Partnership Manager will continue to support the customer with benefits realisation throughout the duration of the contract. This is complemented by support from our Support Desk and both training videos and documentation available via the application. SHREWD Welcome Pack - Introduction • Key Stakeholder Contact List • Whole System Details Template • Communications & Engagement Strategy Guide • SHREWD Resilience Factsheet • Transforming Systems Core Indicators • Data Feed Technical Overview

Off-boarding Process and Scope

Upon termination of contract, all data feeds will be switched off within Shrewd architecture so that feeds from affected agencies and other systems are no longer available. Any personal data held for logging into SHREWD Resilience from the commissioning organisation and partner organisations will be deleted from the system. Partner organisations will be notified by email regarding the closure of the data collection service and all necessary ports within the infrastructure will be closed. Upon request and within 3 months of the end of the contract, the commissioning organisation will receive the data received during the life of the contract. This will be provided in CSV file format via email.

Service Management Details

The support offered by VHUK during implementation and for the duration of the contract includes:

Scope requirements, agree deliverables and offer initial advice

- An experienced team with a broad professional range that includes clinical backgrounds, improvement specialisms with senior NHS operational or corporate management experience
- Support systems to provide safer, more effective care and ultimately improve patient experience as well as provide greater staff satisfaction
- Experts working with experts to support and enhance local improvement capacity and capability
- Recommendations and assistance with prioritisation identification and early wins Respect and understanding of the complexity of the issues clients face
- An understanding of what good looks like and where improvements can be made – connecting people and spreading good practice
- Practical ability to successfully implement good practice using rapid improvement cycle methodology and other proven methods
- Knowledge of and the ability to deploy a defined set of tools
- Knowledge of appropriate leadership practice in complex adaptive systems Support improved interoperability with expertise in how this can be achieved
- Experience in bringing all providers together to work collaboratively with integrated care. Helping clients get the best out of their data

On contract award, the customer will have available:

1. A partnership manager appointed who will be the key point of contact during deployment and throughout the duration of the business-as-usual management of the product.
2. A support desk is available for the purposes of:
 - a. Assisting the customer with the proper use of the software
 - b. Determining causes of error in the software
 - c. Fixing errors in the software
3. Response and resolution times.

VHUK will use:

- a. Reasonable endeavours to respond to requests for services made through the Support Desk quickly
- b. Reasonable endeavours to resolve issues raised by the customer (any registered system user) quickly

In accordance with the following response time matrix.

Implementation

We have a well-established methodology for the deployment of SHREWD, after working with 27 ICBs, 5 regions and national and regional NHSE teams over the last 14 years.

You will be allocated a dedicated SHREWD Programme Lead, who will run the deployment through to completion. For implementation, you will be provided with a dedicated deployment team to offer support, with both business and technical expertise, as well as product training. You will also be allocated a Partnership Manager who will continue to support you and all providers within the ICB with benefits realisation throughout the duration of the contract and will be your main point of contact. This is further complemented by our Support Desk team and our Marketing Team. All resources are provided as part of the implementation cost.

On commencement of the contract, we will provide you with a welcome pack that outlines the product and the deployment process.

- **Key Provider Details.** We ask that this be completed as soon as possible to ensure all the required stakeholders in the deployment from the start.
- **Key Milestone Timeline.** This provides all stakeholders with the timeframes we are working to and key deliverables.
- **SHREWD MOU document.** This document acts as a form of “contract” between the organisations that are deploying SHREWD. This is an optional document we provide you may find useful. We also have a Data Sharing Agreement template in case the system would prefer to use that, but some areas complete a system DPIA instead.
- **SHREWD Resilience Core Indicators.** This is a list of indicators we have built over the years with our current customer base, and it has been refined to try and reflect a core set of indicators that UEC colleagues would find useful. This includes recent NHS guidance changes such as OPEL and SCC's. We would like to point out that the contract allows for changes and additional data and configuration to be undertaken throughout the life of the contract so please don't feel everything has to be decided prior to making a start, as we can certainly get the key data on in the very beginning and add to it later as we go along.
- **Data Feed Technical Overview.** An overview of how SHREWD can receive data and is the basis for when setting up data feeds.
- **Communications and Engagement Strategy Guide.** Effective communication with all providers and future users of SHREWD is key to its success, which we can support.

A typical deployment with ALL data feeds from across all providers in the system, including mental health, social care and community, can take up to 12 weeks from project kick off, but that includes time we have built in for delays we have historically seen on the provider side and can be deployed much sooner, depending on customer readiness – we can go as quick as you can. We have successfully completed the deployment of SHREWD in as little as 4 weeks previously and that was in the height of COVID.

Value Add

There are a number of additional functionalities and services that SHREWD users benefit from at no extra cost, but that have not been specifically specified in your requirements, and these include:

- SHREWD is a system that should be used by all staff responsible for flow, not just senior leads and execs in the ICB. This means that whilst SHREWD is being purchased via the ICB for the purpose of their SCC, ALL providers can have access and also use SHREWD as their OWN SCC. We see most acutes in the ICBs who have SHREWD, have their SHREWD dashboards on display in their site rooms to see what's going on in each of their areas, sites and all around them in the community.

- We provide networking opportunities with other organisations and ICBs, and regional teams from NHSE to learn from each other, share best practice and provide ideas and new ways of working.
- We provide an annual conference on patient flow that covers both UEC and Elective Care.
- We provide a SHREWD Partnership Manager for every contract who works closely with ALL providers throughout the duration of the contract at no additional cost. The role of the Partnership Manager is to be responsible for overseeing and embedding SHREWD as well as acting as a consultative partner. Our team have a mixture of clinical backgrounds, improvement specialisms and senior NHS operational or corporate management experience.
- We provide user groups to help co-design any changes or new ideas to enhance the system, or potentially develop new products.
- We can provide system flow sessions that provide examples of the early warning signs that can be seen on SHREWD around the UEC pathway that will help them plan for what's potentially coming ahead.
- We can facilitate scenario and winter planning workshops, whereby we have provided exercises that test and promote whole system collaboration, and also the effectiveness of Action & Escalation plans.

Data Processing & Storage Location

All live data is held within a hosting provider's data centres based in the UK. Data is transferred between the commissioning body and other partner organisations behind an HSCN connection and access is restricted to NHS staff or staff from approved agencies, such as local authorities or community care organisations. Data is processed within the VHUK infrastructure held on the provider's Cloud HSCN provision and stored securely within VHUK's own databases and data warehouses. The hosting provider has implemented appropriate controls to protect customer