MOSAIC
Situational Awareness Applications
Enhancing Performance Improving Outcomes
Our Story

Founded in 2008, Airbox Systems Limited is an independent, privately owned UK-based company with its headquarters in Oxfordshire, United Kingdom.

Airbox creates software for tablets, phones and workstations which helps teams of people working together visualise their environment and share data in operational situations.

Multi-award winning, the company is built on innovation through simplicity, blending technology with tactical know-how to produce intuitive products that present information in a clear, easy to interpret manner.

“Bringing the control room to the frontline with its powerful collaborative information and intelligence sharing tools”

Airbox believe in the innovative use of technology to empower individuals and teams to improve outcomes and save lives.

Airbox software combines the technical and operational so it’s intuitive to use and visually powerful. This quickly orientates users to the situation, informing decisions at all levels of command.

**Airbox applications are:**

**Comprehensive**

Airbox applications bring together all the necessary functionality into one place to share information and empower the team.

**Flexible**

MOSAIC is designed to be part of an ecosystem, integrating, extending and enhancing other command and control systems and information services.

**Attainable**

The least expensive and fastest system to roll out in its class, built and designed to adapt to evolving operational needs.
Operationally proven by:

- UK Specialist Police
- UK Emergency Services
- International Counter-Narcotics Units
- NATO and UK Armed Forces
- UK Military Training Establishments
- Commercial Organisations
- R&D Establishments

and other non-disclosable customers
MOSAIC is a family of situational awareness and command support applications for single-service and multi-agency operations where speed, accuracy and safety of decision making is crucial. MOSAIC is fully interoperable with Airbox ACANS (Aviation Command & Aircraft Navigation System) used by 98% of all UK air ambulance, police and SAR (search & rescue aircraft).

Against a backdrop of increasing public service requirements, reduced resources and demanding policy expectation, MOSAIC uses open architecture, automation and mobile technologies to inform and connect users across traditional organisational boundaries.

A driver for learning and interoperability, Airbox applications underpin Training, Operations and Learning to create a common understanding and unified actions across a spectrum of operations from routine activity to major incident response plans.

Operationally proven benefits include:

**STRATEGIC CONFIDENCE**

Senior Commanders report an increase of Strategic Confidence of more than \(21\%\) to meet policy targets and mitigate risk through:

- Capture of data to identify operational trends and inform lessons
- Ability to implement multi-agency policies, plans and procedures
- Mobile oversight and assurance of multi-agency operations

**RESOURCE MANAGEMENT**

Resources available for tasking on the ground have \(24\%\) more availability through:

- Use of intelligence overlays to prioritise tasking
- Tracking, dynamic asset allocation and ability to remote task
- Ability of Subject Matter Experts to support multiple operations

**RESPONSE TIMES**

Response times are reduced by more than \(38\%\):

- Seeing other users and live annotations on a map cuts out ambiguity and therefore reduces response time during the ‘Golden Hour’
- Access to critical information by those who need it enhances speed, accuracy and safety of decisions
- Briefing on the move increases presence on the ground and therefore the ability to respond

“MOSAIC has been invaluable for the training and development of our operational teams; we achieved in four weeks what we thought would take eight, increasing the rate at which we embedded lessons and applied them to operations.”

British Army Specialist Trainer
The four MOSAIC products form a fully integrated and scaleable system delivering information and intelligence when and wherever needed:

1. **MOSAIC Strategic**
   MOSAIC Strategic gives senior Commanders an overview of multiple missions and operations running simultaneously across different geographical locations.

2. **MOSAIC Control**
   MOSAIC Control provides Control Rooms with enhanced situational awareness enabling them to run multiple teams and operations from any location.

3. **MOSAIC Operator**
   MOSAIC Operator puts users into operational teams where they can interactively share information to improve outcomes across land, sea and air.

4. **MOSAIC Map Track**
   MOSAIC Map Track is a mapping and tracking application for users with advanced search, location information and status updates for all users.
Key Functionality

MOSAIC acts as a force multiplier enabling teams from organisations like the Emergency Services to cover large areas and improving reaction times by removing ambiguity using the following key features:

- Integrated mapping and aerial photography
- Tracking of people, vehicles and assets
- Ability to add intelligence and operational plans to the map and share
- Map overlays of schematics, data sets and sensor information
- Sharing of secure messages, risk assessments, photos and video imagery
- Control of drones and ROVs
- Workflow, tasking and checklists
- Geo-fencing and safety alerts
- Social media alerts and visualisation
- Pre-planning and after action review capability
- Integration with 3rd party data feeds (tracking, CCTV, intelligence) and C2 systems

All information is displayed on a single shared view, in the Control Room and on mobile devices carried by deployed teams and Bronze, Silver and Gold levels of Command.

"Airbox MOSAIC has helped my team plan, deliver and execute many vital operational strikes on Organised Crime Syndicates."
ENABLING SINGLE SERVICE & MULTI-AGENCY RESPONSES

MOSAIC underpins Training, Operations and Learning to enhance routine activities and reaction to major incidents.

The functionality of MOSAIC supports organisational procedures and drills to deliver effect.
MOSAIC and ACANS provide a real-time interactive Common Operating Picture for users during Training, Operations and Learning, wherever they may be. Integrating existing information and feeds, Airbox software can be a stand-alone or augmenting application to extend and enhance existing systems.

MOSAIC runs on civilian or ruggedised smartphones, tablets, laptops or wearable technology and is designed for use in both office and extreme environments.

Airbox applications operate across mobile, VHF and satellite networks ensuring users remain in the flow of information staying informed and connected wherever they are in accordance with National and organisational decision models.

“MOSAIC allows back room staff to become engaged in our operations, increasing the team’s effectiveness. This ability to share real-time information provides an operational edge, which ensures we are one step ahead of our subjects.”

UK Police Tactical Response Officer
The functionality of MOSAIC has been rigorously developed to meet and connect the needs of multi-disciplined users at all levels of command to facilitate the National Decision Model.

Beyond a Common Operating Picture, MOSAIC allows information and intelligence to be shared and enhanced across networks, putting users in the middle of the information flow and not at the end of it.

Informed and connected, users can be rapidly assigned and re-assigned to tasks, creating truly agile networks breaking down traditional organisational boundaries to improve Strategic Confidence, Resource Management and Response Times.

**Integrated Hardware**

Airbox applications are designed to integrate with a wide variety of hardware platforms and systems (including customer’s own) providing a cost effective and consistent user experience whilst reducing the training burden.

- Android
- Windows
- iOS
- Wearable
- Phone/Tablet
- Laptop
- Workstation
- Existing MDTs
MOSAIC - DATA REQUIREMENTS

Offline Features with no signal no data availability

**Mapping / Overlays**
- Seamless mapping and photography integration
- Mapping tools – measuring, estimating
- Terrain information and profiling
- Mission specific charts and overlays

**Operational Tools**
- Mission planning, procedures, checklists and log
- Patrol workflow, tasking
- Geofencing of out of bounds areas
- Own position tracking, navigation capability, point-to-point routing
- Map annotation
- Recording of activity
- Recording and geo-referencing new information
- Recall and overlays of Contingency Plans
- Direct tracking and sensor input

**Data Sets**
- Historical data (e.g. Crime maps, past incidents)
- Locations and photos of people of interest
- Relevant geo-referenced information
- Infrastructure information

Increasing MOSAIC Features with improved Bandwidth

<table>
<thead>
<tr>
<th>VHF Radio</th>
<th>Microwave Downlink</th>
<th>SatCom</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5 Mbit/S</td>
<td>4 Mbit/S</td>
<td>18 Mbit/S</td>
</tr>
</tbody>
</table>

**Bandwidth Capacity**

- **Data Speed:** 0.5 Mbit/S
  - Text messaging
  - Photo share
  - 2 Way Tracking
  - Map Annotation share
  - Document share
  - Report submission
  - Remote Tasking

- **Data Speed:** 4 Mbit/S
  - Adaptive Low Frame Video
  - Remote Drone video share
  - Realtime weather data
  - Dynamic layer updates
  - AIS feed
  - Social Media Feeds

- **Data Speed:** 18 Mbit/S
  - Mapping & Chart downloads
  - 2 Way Full Motion Video (multiple windows)
  - Drone video overlay

Note: MOSAIC can operate through Satcom bearers and VHF radio where there is no mobile network coverage. [Data speeds 3kbps to 150kbps – Low 2G bandwidth].
### MOSAIC - SECURITY

**UK Government Data Security Compliance**

1. Airbox Systems incorporate technical measures to support Government Departments Information Assurance policies through their CIA frameworks and 3PT protocols to use MOSAIC for Official-Sensitive data and above.
3. All information download and sharing on Airbox Systems is recorded, tracked and auditable.

### Risk Mitigation Summary Balance Sheet

<table>
<thead>
<tr>
<th>Data</th>
<th>Compliance Criteria at Official-Sensitive</th>
<th>Major Threat Vector Mitigation (Physical Compromise / Human Error / Cyber Attack)</th>
</tr>
</thead>
<tbody>
<tr>
<td>On Device</td>
<td>Unauthorized Access</td>
<td>Complex Password</td>
</tr>
<tr>
<td></td>
<td>Unauthorized Data Extraction</td>
<td>iOS Configurator, Samsung Knox &amp; MDM software</td>
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<tr>
<td></td>
<td>On Platform Integrity</td>
<td>OS Core Crypto Module v4 FIPS 140-2 Level 1 - Assured to Foundation Grade</td>
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<tr>
<td></td>
<td>Hardware Compromise</td>
<td>Data only loaded on devices during operations</td>
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<tr>
<td></td>
<td></td>
<td>Applications not accessible to other apps [restricted/closed system]</td>
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<tr>
<td></td>
<td></td>
<td>Devices can be remotely reconfigured, locked or wiped</td>
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<tr>
<td>In Transit</td>
<td>Intercept</td>
<td>Minimised data transmission by pre-loading data onto devices</td>
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<tr>
<td></td>
<td></td>
<td>Transit data utilises AES 256 encryption - Assured to Foundation Grade</td>
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<tr>
<td></td>
<td></td>
<td>Use of VPN and private APN for iOS and Samsung Android devices</td>
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<td></td>
<td></td>
<td>Employ System Firewalls as per National Cyber Security Centre Guidance</td>
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<tr>
<td></td>
<td></td>
<td>Offline data exchange and user capability available</td>
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<tr>
<td>On Server</td>
<td>Physical Server Security</td>
<td>As per organisation’s CIA and 3PTs</td>
</tr>
<tr>
<td></td>
<td>Cloud Server Security</td>
<td>Private Cloud Server stand-up by ABX or Client</td>
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<tr>
<td></td>
<td></td>
<td>Cloud Servers often have higher levels of updates, patching and security maintenance than private servers</td>
</tr>
</tbody>
</table>

### References

3. NIST (National Institute of Standards and Technology) Online list of approved crypto modules for FIPS 140-2
4. MOD New Government Security Classification System V 18-03-18
ENHANCE YOUR MISSION Effectiveness NOW, CONTACT:

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Airbox Systems Limited is an approved supplier of mobile applications and systems to the MoD. We have an extensive range of clients in SAR, HEMS, law enforcement, the military, and private security contractors.