

G-Cloud 15

Service Definition

Real-Time Passenger Information (RTPI) Display Content

Management System (CMS) M2M Tech Ltd

M2M Tech Ltd

Lot 2b Software as a Service (SaaS)

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1. Introduction

Our Real-Time Passenger Information (RTPI) Display Content Management System (CMS) is a comprehensive Software-as-a-Service (SaaS) solution designed to transform how public sector organizations manage, monitor, and deliver real-time transport information to passengers across all transport modes. Built on a robust, modular micro-service architecture, our platform provides end-to-end data governance, from initial ingestion through to final display, ensuring that accurate, timely, and accessible information reaches the traveling public.

This service addresses the critical challenge faced by transport authorities, local councils, and public transport operators: delivering reliable, consistent, and enriched real-time passenger information across diverse display estates while maintaining complete operational control and visibility. Our platform integrates seamlessly with existing transport data infrastructure, supporting all major national and international protocols including SIRI, GTFS/GTFS-RT, TransXChange, NeTEx, Darwin, and RTIG047, among others.

1.1. Company Overview

M2M Tech is an innovative technology company specializing in intelligent transport infrastructure solutions, focused on transforming legacy systems into modern, cloud-based platforms. We deliver comprehensive Real-Time Passenger Information (RTPI) systems and advanced CCTV security platforms that combine edge computing, AI analytics, and collaborative access management to provide reliable, cost-effective solutions for transport authorities and public sector organizations across the UK.

We focus on breaking down the barriers created by proprietary systems and vendor lock-in, providing transport authorities with flexible, scalable, and future-proof solutions that span passenger information services and intelligent security infrastructure. As a Made In Britain certified member, we are committed to supporting local supply chains and delivering high-quality technology solutions that serve the public sector's evolving needs in both passenger communication and security management.

1.2. Value Proposition

Current RTPI display systems often suffer from vendor lock-in, limited remote management, poor interoperability, and inadequate monitoring - resulting in high costs and service disruptions. You wouldn't buy a TV that only works with Netflix, requiring a different TV for Amazon Prime - yet that's exactly what proprietary RTPI systems force you to do.

M2M Tech's provider-agnostic RTPI CMS eliminates these constraints with a "Just-Add-Data" approach that integrates with any data source and supports multi-manufacturer displays through standardised protocols. We're here for the life of your displays, not just the contract, ensuring your investment remains future-proof regardless of changing data providers, display manufacturers, or technological advances.

1.3. What the Service Offers

Our service encompasses a complete ecosystem of integrated solutions, designed with flexible deployment in mind. We offer both a comprehensive, full-featured platform for organizations seeking an end-to-end solution, and individual services that can be selectively integrated into existing third-party systems via robust APIs. This modular approach ensures you can adopt our technology in the way that best serves your operational requirements and existing infrastructure.

This flexibility ensures that public sector organizations can adopt our solutions in a manner that best complements their existing infrastructure and operational requirements, delivering maximum value while future-proofing their passenger information systems.

1.3.1. Core Platform Services

Data Ingestion Services	Seamlessly integrate diverse external data feeds into a unified internal model, with support for all major transport protocols and custom implementations
Data Processing Services	Apply intelligent multi-stage screening, correction, standardization, and enrichment to ensure data quality, consistency, and public appropriateness
Data Distribution Services	Intelligently prioritize and deliver updates with comprehensive throughput monitoring and full audit trails
Display Interface Services	Manage two-way communication with physical display assets, supporting multiple protocols and providing real-time performance metrics
Orchestration & Monitoring Services	Automated rule-based health monitoring, failover management, and restorative actions ensuring 24/7/365 reliability

1.3.2. Genesis Management Interface

Asset Management System	Complete lifecycle management, real-time monitoring, KPI tracking, remote control, and maintenance management for your entire display estate
CCTV Integration	Advanced safety and operational intelligence with AI-powered detection, live streaming, and incident capture capabilities
Content Management	Collaborative control over custom media, display themes, operational messaging, and service data presentation
Dashboard, KPIs & Reporting	Real-time operational insights with comprehensive reporting and full audit trails
Data Source Configuration	Control automated failover, public messaging, and real-time manipulation rules across your data ecosystem

Support Ticket System	Centralized ticket-based support with SLA management, automated notifications, and third-party coordination
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1.3.3. Display Client – Edge Device Interface

Comprehensive Accessibility Integration	Full REACT RNIB compliance with Focus Cards, multilingual support, audio-only display options, and adaptive theming for visual and audio impairments
Interactive User Engagement	Touch screen interaction with user engagement metrics, push button accessibility controls, and two-way audio communication for customer service
Advanced Proof of Delivery	Video recording with timestamps, periodic screenshots, and live streaming capabilities for content compliance, auditing, and real-time monitoring
Intelligent Display Management	Algorithmic backlight control with ambient light sensors, dynamic theme switching (day/night, festive, accessibility), and optimized power consumption
Hardware Monitoring & Control	Advanced hardware monitoring with remote management capabilities and virtual engineer functionality for comprehensive display estate management

1.3.4. Supporting Utilities & Services

Graphic Production Engine	Automate creation of data-driven visual assets for smart media and digital printing, including route maps, timetables, and service grids
Redirection Engine (RE)	Transform static links into dynamic, measurable marketing assets with real-time URL management and engagement tracking
Text Message & WhatsApp Enquiry System	On-demand and subscription-based transport information delivery via SMS and WhatsApp
Virtual Displays	Web-based virtual instances of physical displays with enhanced accessibility features and REACT RNIB integration

2. Core Platform Services

Comprehensive data governance pipeline delivering end-to-end reliability from source to display through intelligent ingestion, multi-stage processing, prioritized distribution, secure two-way communication with displays, and automated health monitoring with self-healing capabilities.

Our entire system is designed around a modular, micro-service architecture, allowing for the easy implementation, update, removal and triage of individual services without affecting the stability and security of the entire system.

This enables us to be highly flexible and quick to respond to changes in the industry.

Data Ingestion Services	Seamlessly integrate diverse external data feeds into a unified internal model, with support for all major transport protocols and custom implementations
Data Processing Services	Apply intelligent multi-stage screening, correction, standardization, and enrichment to ensure data quality, consistency, and public appropriateness
Data Distribution Services	Intelligently prioritize and deliver updates with comprehensive throughput monitoring and full audit trails
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2.1. Data Governance

Data Governance within Genesis ensures data quality, consistency, and reliability from source to display through a unified pipeline: Data Ingestion Services integrate and map diverse external feeds; Data Processing Services enrich, correct, and standardize data; Data Distribution Services intelligently prioritize and deliver updates; and Display Interface Services manage two-way communication with physical assets.

2.1.1. Data Ingestion Services

The Data Ingestion Service is the integration layer for all external data sources into the Genesis platform, mapping incoming data fields from diverse sources to our internal model for subsequent processing.

Our modular design allows rapid adaptation to emerging industry protocols and changes to established standards. Readymade ingestion modules support national and international protocols across all transport modes including: TransXChange, GTFS/GTFS-RT, SIRI (ET/VM/SM/SX variants), RTIG047, NeTEx, Darwin, AODB, IATA Standards, and NaPTAN. All versions are supported for backward compatibility unless officially deprecated.

Our in-house development team provides professional services for creating custom ingestion modules or customizing readymade modules to your data provider's exact specifications, accommodating any protocol implementation nuances.

Through the Genesis interface, you maintain full control over your active data sources with manual switching capability for your entire display estate or specific groups/individual displays—essential for managing feed failures or testing new sources. The system also provides autonomous failover actions (detailed in Orchestration & Monitoring Services).

2.1.2. Data Processing Services

Data Processing Services apply multi-stage injection, manipulation, and cleansing to all incoming data, ensuring consistency, accuracy, and richness across every display.

Injection and Enrichment: The system fetches and merges complementary data fields for incomplete sources. Examples include injecting NaPTAN Stop Identifiers when stop/station information is missing, integrating BODS feeds to add real-time occupancy data for buses, merging Darwin feeds with platform information for rail services, or enriching ferry departure data with weather and tidal conditions.

Four-Step Manipulation Process: A robust, rule-based process applies to all relevant data fields:

Screening: Intercepts and blocks inappropriate content using dictionary matching, fuzzy matching, and wildcards. Blocked data triggers immediate alerts for review.

Correction: Fixes spelling errors and capitalization inconsistencies across all transport modes (e.g., normalizing "OxF," "oxf," "Ofxord" to "Oxford" for bus destinations, "Bham" to "Birmingham" for rail services, or "Plym" to "Plymouth" for ferry routes).

Standardization: Eliminates abbreviation inconsistencies by expanding abbreviated words, establishing universal standards for public-facing data.

Compression: For space-constrained displays, intelligently reintroduces abbreviations using weighted rules and penalty scoring to maintain readability while achieving required character counts.

A final screening check occurs before distribution. While fixing issues at source is ideal, Genesis processing allows immediate interception and correction of data inconsistencies.

2.1.3. Data Distribution Services

Data Distribution Services provide intelligent data prioritization and reliable delivery with full audit trails. The service continuously captures throughput metrics (data volume, update instances, backlog

depth, and duplicate data from Publish/Subscribe sources) that feed into the platform's automated monitoring and alerting system.

Intelligent Prioritization: Critical updates are distributed ahead of pending data. High-priority clear-down messages or immediate alerts are issued instantaneously, overriding less urgent updates.

Audit Trail: Captures and logs what data was updated, when, and from where, providing historical and real-time insights with full transparency and auditability.

2.2. Display Interface Services

Display Interface Services manage two-way communication with display client software on physical assets, enabling secure updates and on-demand data/configuration fetching.

Protocol Support: Accommodates various communication standards for diverse hardware compatibility, including M2M RTPI Display NetCode Protocol, RTIG047, and SIRI-SM. Our in-house development team provides professional services for creating custom interface modules or customizing readymade modules to your specific hardware requirements.

Performance Metrics: Captures essential communication metrics including Time-To-Display (measuring channel opening, data issuance, and transfer confirmation) and failed communication attempts. Comprehensive audit trails provide historical and real-time insights into the performance and delivery history of every display, feeding directly into automated monitoring, healing, and alerting systems.

2.3. Orchestration & Monitoring Services

Orchestration and Monitoring Services provide continuous, end-to-end oversight throughout the data processing lifecycle and monitor real-time health of all display assets, maintaining system performance and ensuring 24/7/365 reliability.

Rule-Based Automated Healing: All monitoring and restorative services operate as a highly customizable Rule-Based Machine-to-Machine Hierarchical Finite State Machine (Rule-Based M2M HFSM), ensuring reliable and deterministic detection and healing behaviours. Automated actions include:

Data Source Failover: Detects stale/failed data sources and performs immediate failover, switching to alternative sources and distributing pre-made public-facing messages to displays.

Non-Responsive Display Recovery: Initiates sequential recovery steps including remote reboot of Display OS, remote Power-Cycle of Modem, or remote Power-Cycle of Single Board Computer.

End-to-End Performance Tracking: Measures and logs the Source-To-Display metric, tracking total time from data receipt to display delivery confirmation. All automated actions and events are logged into event logs for individual displays and/or the display estate, ensuring full transparency with real-time and historic data access.

3. Genesis Management Interface

Genesis is our web-based, mobile-friendly display management interface for configuration, content management, monitoring, and remote control of your display estate.

Asset Management System	Complete lifecycle management, real-time monitoring, KPI tracking, remote control, and maintenance management for your entire display estate
CCTV Integration	Advanced safety and operational intelligence with AI-powered detection, live streaming, and incident capture capabilities
Content Management	Collaborative control over custom media, display themes, operational messaging, and service data presentation
Dashboard, KPIs & Reporting	Real-time operational insights with comprehensive reporting and full audit trails
Data Source Configuration	Control automated failover, public messaging, and real-time manipulation rules across your data ecosystem
Support Ticket System	Centralized ticket-based support with SLA management, automated notifications, and third-party coordination

3.1. Asset Management System

The Asset Management System (AMS) provides centralized operational visibility, maintenance management, and remote control across your entire display estate, delivering real-time and historic insights into asset health, performance, and status.

Real-Time Alerts and Monitoring: Captures comprehensive alerts and events with Email and Text Message notifications, including Automated/Manual Reboots, Hardware/Software issues, Impacts Detected, Power events, and REACT RNIB Trigger Events.

KPIs and Analytics: Tracks extensive performance metrics for proactive and predictive maintenance. Always-On Displays monitor Mains Voltage, Component Current Consumption, SBC status (CPU, Memory, Storage, CMOS, Backlight), OS/Client uptime, and Mobile Network data. On-Demand Displays track activation counts and On-Duration for utilization insights.

Documentation and Compliance: Complete file repository for compliance documents (site photos, NICEIC certificates, commissioning sheets, test reports), maintenance history tracking, inspection reminders, and modification records for configuration changes.

Remote Management: Hierarchical cascading configuration system (estate-wide to individual display level), remote commands (Data Purge, Power-cycling, OS reboot), dynamic theme management, and proof of delivery via live-stream or video recall. Includes component-level warranty tracking.

3.2. CCTV Integration

Genesis integrates CCTV operations directly into your display infrastructure, transforming passive monitoring into active site management and passenger safety.

Monitoring and Control: Live-streaming and recorded footage recall with full PTZ controls and two-way audio communication. Automatic snapshot capture and immediate video upload following impact events.

AI-Powered Intelligence: Integrated AI modules detect Environmental Safety (Flood, Fire), Security Threats (Gunfire with classification, Panic/Distress Audio), Infrastructure Health (Shelter and Lighting failures), and Operational Metrics (Passenger Counting, Traffic Congestion for bus stops, Platform Crowd Density for rail stations, Queue Length Monitoring for ferry terminals, and Coach Bay Occupancy).

3.3. Content Management

Genesis provides flexible management of custom media, display themes, and operational messages with multi-organizational collaboration capabilities.

Service Data Control: Configure display of schedules only, real-time predictions only, or mixed modes. Define preview/display periods, enable/disable stand information, and use Clear View to compress similar services. Hierarchical settings (estate-wide, display type/group, individual display) provide precise control.

Messaging and Theme Control: Manage operator logos, message tags, bottom-line messages, service blanking, and full blanking messages with scheduling and historic audit trails.

Collaborative Access: Delegate feature access to third-party contributors (transit operators) with mandatory peer-review and approval ensuring content integrity before publication.

Smart Media Integration: Seamless integration with Graphic Production Engine (GPE) for automated generation and maintenance of data-derived smart media (Route Number Grids, Multi Service Tablets) alongside regular content.

3.4. Dashboard, KPIs, Reporting & Audit Trails

The dashboard provides you with a real-time insight into the operational status of the system. The dashboard utilises traffic light colouring systems, graphs and charts to provide performance metrics and alerts for key sub-systems. This enables continuous monitoring and alerting for real-time operational effectiveness.

Dashboard elements consist of, but are not limited to:

- **Always-On Display Status:** Traffic light counts of active, undergoing triage and inactive displays.
- **CCTV Live Streaming Consumption:** Colourised percentage graph showing how much of the quota has been consumed for the month.

- CCTV Video Retrieval Consumption: Colourised percentage graph showing how much of the quota has been consumed for the month.
- Data Source Status: Each data source gets its own dashboard element and indicates its status.
- Data Source-To-Display: Time from data received to data delivered to displays, measure of over data processing efficiency, as a time graph.
- Data Time-To-Display: Time to deliver data to display, measure of mobile network latency, as a time graph.
- Data Bandwidth Throughput: Measurement of how much data in size the system is processing from data sources, as a graph.
- Data Update Throughput: Measurements of how many updates the system is processing from data sources, as a graph.
- Display Content Video Retrieval Consumption: Colourised percentage graph showing how much of the quota has been consumed for the month.
- Display Live Streaming Consumption: Colourised percentage graph showing how much of the quota has been consumed for the month.
- Graphic Production Engine Status: Traffic light operational status of the Graphic Production Engine.
- Mobile Network Data Consumption: Colourised percentage graph showing how much network data has been consumed for the month.
- Mobile Network Operator Latency: A colourised list of all mobile network operator's networks and their latency.
- On-Demand Display Status: Traffic light counts of active, unused, and inactive displays.
- Open Support Tickets: List of open support tickets, against each Priority.

Each dashboard element can take you to a more detailed breakdown of the data, allowing for the filtering, report downloads and historical views of the various KPIs, metrics and statuses.

All reports are generated and accessible from Genesis allowing for unrestricted 24/7/365 access to all data, metrics and KPI outcomes. For contractual obligations to 'deliver' reports, like monthly KPI reports, these will be generated by the system when contractually obligated to, they will be stored in the system, and you can access and download the reports at your convenience. We do not typically generate these types of reports, nor issue reports from outside of the system, i.e. manually curated monthly reports for reasons of consistency and transparency.

All user movements, modifications and login activity is stored in audit logs, allowing you to review and determine what configurations, settings and data has been changed throughout the system by users, and by automated systems where appropriate. Like other reports, these are accessible 24/7/365 through the Genesis interface, and as downloadable reports.

3.5. Data Source Configuration

Genesis serves as the control centre for your data ecosystem, managing configuration, governance, and reliability of all ingested and processed information.

Automated Failover and Public Messaging: Configure automated failover actions with pre-defined public-facing messages to minimize user confusion. Issue initial alerts and restorative messages with flexible automatic removal or replacement upon service recovery.

Real-Time Data Manipulation Rules: Hierarchical rule-based system (estate-wide, display type/group, individual display) for precise control over data logic deployment. Rules deploy in real-time with remote data purge capability for immediate corrections.

3.6. Mapping and Geospatial Visualization

Genesis provides comprehensive mapping and geospatial visualization capabilities, transforming display estate management through intelligent location-based insights and visual network oversight.

Interactive Network Visualization: Advanced mapping interface enables users to visualise the locations of RTPI displays across all transport networks on a comprehensive, interactive map. This functionality facilitates easy identification and management of display locations across bus stops, railway stations, tram platforms, ferry terminals, coach stations, and intermodal hubs.

Operational Intelligence: The mapping system displays real-time operational status for each display location using an intuitive traffic light format (green for operational, amber for warning, red for fault), providing immediate visual assessment of estate-wide performance and enabling rapid response to operational issues. Historical performance data overlay reveals patterns and trends across geographic regions.

Maintenance and Planning: Supports efficient maintenance route planning, enables optimization of display coverage across integrated transport networks, and facilitates strategic planning for network expansion. Maintenance teams can visualize workload distribution, plan efficient service routes, and identify coverage gaps or redundancies.

Geospatial Analytics: Advanced analytics layer provides insights into network performance by geographic region, transport mode, and demographic factors. Supports data-driven decision making for network optimization and resource allocation.

3.7. Support Ticket System

Genesis features a fully integrated, ticket-based support system for centralized operational, maintenance, and query management.

Workflow Control: Full flow control from ticket creation to closure with delegated access for authorized third-party contractors. Configurable Support Ticket Categories (e.g., Data Source Inactive, Vandalism/Graffiti, Public Safety Concerns) ensure accurate classification.

Service Level Management: Customizable Priority levels (P0 Critical/Emergency through P6 Informative Only) linked to SLA response timings, configured to your specifications.

Automated Notifications and Evidence Management: Email and Text Message alerts for ticket events (creation, updates, closure) with subscription management by category and priority.

Document/image upload capability for evidence and reports. Automatic ticket raising when automated restorative actions are exhausted, with optional auto-closure upon issue resolution.

4. Display Client - Edge Device Interface

The Display Client represents the sophisticated endpoint of our RTPi ecosystem, providing intelligent two-way communication between the Genesis platform and physical display hardware. More than a simple content renderer, the Display Client is a comprehensive accessibility-focused solution designed to ensure optimal passenger experiences across all user demographics and needs.

Built with inclusive design principles at its core, the Display Client seamlessly integrates advanced accessibility features, intelligent content adaptation, and robust operational capabilities to deliver reliable, engaging, and universally accessible passenger information displays.

Comprehensive Accessibility Integration	Full REACT RNIB compliance with Focus Cards, multilingual support, audio-only display options, and adaptive theming for visual and audio impairments
Interactive User Engagement	Touch screen interaction with user engagement metrics, push button accessibility controls, and two-way audio communication for customer service
Advanced Proof of Delivery	Video recording with timestamps, periodic screenshots, and live streaming capabilities for content compliance, auditing, and real-time monitoring
Intelligent Display Management	Algorithmic backlight control with ambient light sensors, dynamic theme switching (day/night, festive, accessibility), and optimized power consumption
Hardware Monitoring & Control	Advanced hardware monitoring with remote management capabilities and virtual engineer functionality for comprehensive display estate management

4.1. Comprehensive Accessibility Integration

Accessibility is not an afterthought but a fundamental design principle embedded throughout the Display Client architecture. Our comprehensive integration with REACT RNIB provides far more than simple audio triggers—it delivers a complete accessibility ecosystem that transforms how users with impairments interact with transport information.

REACT RNIB Integration: The Display Client features deep integration with REACT RNIB technology, automatically detecting when users with registered accessibility needs are within proximity to displays. This triggers a comprehensive suite of adaptive features including automatic theme switching to high-contrast modes, activation of audio departure announcements at normally silent bus stops, and deployment of Focus Cards that present each service announcement in fullscreen, high-contrast format with simplified layouts optimized for users with partial sight loss.

Multilingual Support: Dynamic language switching accommodates diverse passenger demographics, automatically adapting to user selections on interactive displays or responding to REACT RNIB users' primary and secondary language preferences stored in their device settings. This ensures information accessibility extends beyond physical accessibility to linguistic inclusivity.

Audio-Only Display Options: Recognizing that not all locations require visual displays, the Display Client supports dedicated audio-only installations utilizing the same AI synthesis text-to-speech engine as visual displays. These installations can include two-way audio communication capabilities for customer service purposes, making them ideal solutions for rural areas or information points where full visual displays may not be practical or cost-effective.

Push Button Accessibility Controls: Complementing REACT RNIB functionality, physical push button controls provide alternative access to accessibility features including audio announcements, high contrast modes, and other adaptive functions, ensuring accessibility options remain available regardless of user technology or device compatibility.

4.2. Interactive User Engagement

The Display Client transforms static information displays into dynamic, responsive interfaces that actively engage with passengers and provide valuable operational insights.

Touch Screen Interaction: Advanced touch screen capabilities enable direct user interaction with display content, allowing passengers to access additional information, select preferred languages, or navigate through complex transport networks. All interactions are logged to generate comprehensive user engagement metrics that help transport authorities understand passenger information needs and optimize content effectiveness.

Two-Way Audio Communication: Integrated audio communication capabilities support customer service functions, enabling direct passenger assistance through information points and service desks. This functionality extends the Display Client's role beyond information provision to active passenger support, particularly valuable in unstaffed locations or during service disruptions.

User Engagement Analytics: Comprehensive logging of user interactions, language selections, accessibility feature usage, and content engagement provides transport authorities with detailed insights into passenger behaviour and information consumption patterns, enabling data-driven optimization of content and services.

4.3. Advanced Proof of Delivery Operations

Robust proof of delivery capabilities ensures content compliance, enable comprehensive auditing, and provide real-time operational visibility across entire display estates.

Video Recording with Timestamps: Continuous recording of visual output displayed on screen with precise timestamps ensures complete content compliance and provides comprehensive audit trails. These recordings can be recalled and reviewed as needed for regulatory compliance, dispute resolution, or performance analysis.

Periodic Screenshot Capture: Automated screenshot functionality captures display content at configurable intervals, uploading images to the Genesis CMS for centralized visualization and monitoring. This provides operators with regular snapshots of display performance and content accuracy across their entire estate without requiring manual site visits.

Live Streaming Capabilities: Real-time streaming of display content through the Genesis CMS enables immediate remote monitoring and verification of display performance. Operations teams can instantly verify content accuracy, monitor display health, and respond rapidly to any content or technical issues across their network.

Compliance and Auditing: Comprehensive recording and monitoring capabilities support regulatory compliance requirements, provide evidence for SLA adherence, and enable detailed performance analysis for continuous service improvement.

4.4. Intelligent Display Management

Sophisticated algorithmic controls optimize display performance, readability, and energy efficiency while adapting to environmental conditions and user needs.

Advanced Algorithmic Backlight Control: Intelligent brightness management combines multiple data sources—time of day, solar positioning, content analysis, and ambient light sensor readings—to establish optimal brightness bands that ensure comfortable viewing while maximizing power efficiency. The system continuously adjusts within these bands based on real-time ambient conditions, ensuring displays remain easily readable in all lighting conditions while minimizing energy consumption.

Dynamic Content and Theme Adaptation: The Display Client intelligently adapts both visual themes and content presentation based on environmental conditions, user demographics, and operational requirements. Automated theme management switches between day/night modes, seasonal celebrations, and accessibility-optimized themes when REACT RNIB users with specific visual impairments are detected in proximity. Content adaptation includes real-time adjustments to text sizes, colour contrasts, audio volumes, and information density to optimize readability and comprehension for current conditions and user needs.

4.5. Hardware Monitoring and Remote Management

Comprehensive hardware monitoring capabilities provide complete visibility into display health, performance, and operational status, enabling proactive maintenance and rapid issue resolution.

Advanced Hardware Monitoring and Predictive Maintenance: Real-time monitoring of all critical hardware components including displays, processors, connectivity, environmental sensors, and power systems provides continuous health checks that identify potential issues before they impact service delivery. Intelligent analysis of performance metrics enables predictive maintenance scheduling, identifying components approaching end-of-life or experiencing performance degradation before failures occur, minimizing service disruptions and optimizing maintenance resource allocation.

Remote Management and Virtual Engineer Capabilities: Complete remote-control functionality allows operators to manage display settings, update content, adjust configurations, and perform diagnostic tests without requiring on-site visits. Advanced virtual engineer access provides comprehensive troubleshooting, performance optimization, and maintenance support across the entire display estate, significantly reducing operational costs while improving response times and ensuring expert-level support is available remotely.

4.6. Integration and Interoperability

The Display Client seamlessly integrates with the broader Genesis ecosystem while supporting diverse hardware platforms and communication protocols.

Genesis Platform Integration: Deep integration with all Genesis services ensures the Display Client receives optimally processed, screened, and enriched data while contributing operational metrics, user engagement data, and hardware performance information back to the central platform for comprehensive operational visibility.

Protocol Support: Comprehensive support for industry-standard display communication protocols ensures compatibility with diverse hardware vendors and existing infrastructure investments. This includes support for both legacy protocols and emerging standards, future-proofing display investments.

Third-Party System Integration: Robust APIs enable integration with existing transport management systems, passenger information systems, and operational platforms, allowing the Display Client to complement and enhance existing infrastructure rather than requiring complete replacement.

5. Supporting Utilities & Services

Purpose-built utilities extending platform functionality, available as standalone services with dedicated interfaces or embedded into third-party systems via robust APIs.

Graphic Production Engine	Automates the creation of data-driven visual assets for smart media and digital printing, transforming live data sources into high-quality graphics including route maps, timetables, and service grids with intelligent rule-based generation and automatic updates
Redirection Engine	Transforms static URLs and QR codes into dynamic, future-proof marketing assets with real-time destination management, comprehensive engagement tracking, and analytics, eliminating the need to reprint media when links change
Text Message (SMS) and WhatsApp Transport Service Information Enquiry System	Delivers on-demand and subscription-based real-time transport information directly to passengers' mobile devices via SMS and WhatsApp, providing accessible service updates regardless of proximity to physical displays
Virtual Displays	Provides web-based virtual instances of physical displays with enhanced accessibility features, REACT RNIB integration, and multi-modal support for Audio-Only and Beacon-Only installations, extending network coverage cost-effectively

5.1. Graphic Production Engine (GPE)

Automates creation of sophisticated visual assets, transforming raw data into high-quality graphics for Smart Media displays and Digital Printing.

Key Capabilities: Rule-based system for single and bulk generation, direct linking to live data sources (NaPTAN, timetable data), automated updates when data changes with full audit logging. Hierarchical cascading rules handle complex conditional logic and optimization, exemplified in Route Number Grids (RNGs) / Multi-Service Tablets (MSTs) with intelligent service combination and operator logo insertion. Seamless QR Code integration via Redirection Engine (RE) for trackable marketing.

Collaboration & Quality Control: Enables external partners to generate compliant graphic components for composite media. Media preview function for quality assurance before publication.

Output Examples: Face Flags, RNGs/MSTs, SMS/QR Code Plates, Route Maps (bus routes, rail network maps, ferry route charts, tram line diagrams), Service Line Graphs, Timetables (bus schedules, train departure boards, ferry sailing times, coach timetables).

File Formats: Adobe Illustrator (AI), Adobe Photoshop (PSD), Bitmap (BMP), EPS, GIMP (XCF), JPG/JPEG, PDF, PNG, SVG.

5.2. Redirection Engine (RE)

Transforms static links into dynamic marketing assets with integrated URL Shortening, generating short, memorable codes that future-proof printed and displayed media.

Real-Time Control: Instantly update destination URLs behind any managed code, eliminating costly reprinting when destinations change. Seamlessly redirect website links without breaking existing assets.

Enhanced Usability: Optimized short codes improve QR Code scan rates and digital readability. Supports URLs, SMS codes, and other short codes for diverse interactive mediums.

Analytics: Automatic engagement tracking and reporting for all managed links, measuring end-user interaction with printed and digital assets.

5.3. Text Message (SMS) and WhatsApp Transport Service Information Enquiry System

Provides on-demand and subscription-based real-time transport information via SMS and WhatsApp, ensuring accessibility regardless of proximity to physical displays.

On-Demand & Subscriptions: Users request current information or subscribe to proactive notifications for specific services or departure points. Supports one-off and regular updates, including disruption-only alerts for habitual journeys.

Transport Mode Customization: Bus (next three services, route information, stop updates), Rail (train status, platform info, station info, delay notifications), Tram (next departures, line status, stop information), Ferry (sailing times, weather & tidal conditions, terminal info), Coach (departure times, bay information, route status), Air (boarding/departure/delay/arrival/baggage claim with timings). All modes include disruption information and service alerts.

Platform Support: Traditional SMS (full numbers and Short Codes) and WhatsApp with richer formatting, interactive menus, and Wi-Fi/data connectivity for better user experience. Custom text-based protocols supported.

Analytics & Integration: Automatic engagement logging with misuse detection and throttling. Seamless integration with Data Governance Stack for screened, sanitized, enriched information, or raw data output for third-party systems.

5.4. Virtual Displays

Web-based virtual instances of physical displays extending real-time transport information network-wide, offering a cost-effective alternative where physical installations are not feasible.

Accessibility Features: Large text formats, AI-Synthesized Text-to-Speech (matching physical display voice models), and colour themes supporting colour blindness diagnoses (Protanopia, Deuteranopia, Tritanopia, Achromatopsia). Full REACT RNIB Mobile App integration with automatic interface adjustment based on user-defined additional needs.

Network Coverage: Budget-friendly solution ensuring every stop/station has live information. Automatic usage metrics and KPI recording. Embeddable in websites and third-party utilities with brand-consistent themes matching physical displays.

Multi-Modal Support: Complements Audio-Only displays (providing visual interface for hearing-impaired passengers) and Beacon-Only installations (delivering detailed transport information after beacon activation). Supports all transport environments including bus stops, railway stations, tram platforms, ferry terminals, coach stations, and interchange hubs. Maximizes inclusive, accessible coverage without full physical display costs at every location.

6. Using the service

6.1. Ordering and Invoicing

Initial Engagement Process:

To begin using our RTPI CMS service, prospective customers should email their requirements to **info@m2mtechltd.com**, please include the following information:

- Current RTPI infrastructure and data providers
- Number and types of displays to be managed
- Specific integration requirements or constraints
- Any additional features or services required

Preferred implementation timeline and any specific deployment constraints

Order Process:

1. Initial consultation calls to discuss requirements and demonstrate capabilities
2. Technical assessment of current infrastructure and integration needs
3. Customized proposal with pricing and implementation timeline
4. Order Form completion with agreed specifications and service levels
5. Contract execution and project initiation

Invoicing:

- Monthly billing in arrears for standard service subscriptions
- Quarterly billing available for annual commitments
- Professional services billed upon completion of milestones
- All invoicing through standard government procurement channels

6.2. On-Boarding, Off-Boarding, Service Migration, Scope etc.

On-Boarding Process:

Our structured on-boarding typically takes 8-12 weeks depending on deployment scale and data integration complexity:

- Kick-off Meeting: Dedicated session with technical team and key stakeholders
- Technical Assessment: Comprehensive evaluation of existing RTPI infrastructure, data feeds, and display hardware requirements
- Implementation Planning: Detailed deployment schedule coordinated with customer operational requirements
- Data Integration: Professional configuration of multi-provider data feeds and API connections
- Platform Configuration: User account setup, access permissions, display themes, and messaging system configuration
- Training Delivery: Comprehensive training for all user types including multi-organizational teams
- Go-Live Support: Initial 30-day support period with dedicated technical assistance

Off-Boarding Process:

- Termination Notice: 60-day notice period required with engagement to formulate transition plan
- Data Export: Customers can export all configuration data, user settings, display themes, and messaging templates
- Access Removal: Systematic removal of user access with comprehensive audit trail
- Service Transition: Gradual service reduction to minimize operational disruption to passenger information displays
- Documentation Handover: Complete documentation of system configuration and operational procedures

Service Migration: Bespoke migration plans available for transitioning to alternative providers, including data format conversion and technical documentation support.

6.3. Training

Comprehensive training ensures successful platform adoption across all organizational levels:

Training Delivery Methods:

- Web Portal Documentation: 24/7 access to comprehensive help system, step-by-step guides, and interactive tutorials
- Online Training Sessions: Dedicated virtual training sessions conducted via online meetings for all user types and organizational roles
- In-Person Training: On-site training available upon request for complex deployments or specific operational requirements

Training Content:

- **Role-Based Training Programs:** Specialized curricula for operators, administrators, content managers, and technical staff
- **Multi-Organizational Training:** Training sessions designed for transport authorities, bus operators, maintenance teams, and other stakeholder groups
- **Feature-Specific Training:** Focused sessions on data integration, AI-assisted messaging and multi-tenant collaboration
- **Administrative Training:** User management, access controls, system configuration, and integration with existing RTPi data feeds

Training Support:

- **Training Materials:** Comprehensive documentation, quick reference guides, and video tutorials provided for ongoing reference

6.4. Implementation Plan

Our structured implementation approach typically takes 8-12 weeks depending on deployment scale and data integration complexity:

Implementation Phases:

- **Discovery & Requirements Gathering:** Comprehensive assessment of current RTPi infrastructure, data feeds, and stakeholder requirements
- **Technical Configuration:** Multi-provider data integration setup, display theme customization, and platform configuration tailored to operational needs
- **System Integration:** Connection and testing of existing display hardware, data feed validation, and multi-tenant access configuration
- **User Training & Testing:** Role-based training delivery, system testing with stakeholders, and user acceptance validation
- **Go-Live & Optimization:** Phased deployment with performance monitoring, final optimization, and post-implementation support

Key Milestones:

- **Week 1-3:** Infrastructure assessment and technical planning
- **Week 4-7:** Data integration and platform configuration
- **Week 8-10:** Training delivery and system testing
- **Week 11-12:** Deployment, optimization, and handover

A detailed implementation plan can be provided/customised to the buyer on request, including specific timelines, resource requirements, and deployment strategies tailored to organizational requirements.

6.5. Service Management

We implement structured IT Service Management based on ITIL principles and industry best practices, specifically tailored for passenger information systems. Our service management approach ensures reliable, consistent service delivery through:

Service Management Framework:

- Incident Management: Structured escalation procedures with defined severity levels prioritizing passenger information availability and data feed continuity
- Problem Management: Root cause analysis focused on display reliability, data integration issues, and multi-provider service continuity
- Change Management: Controlled change processes to minimize disruption to passenger information displays and ensure seamless data feed transitions
- Configuration Management: Comprehensive tracking of display configurations, data integrations, theme deployments, and multi-tenant access arrangements
- Service Level Management: Continuous monitoring of display uptime, data feed reliability, and passenger information accuracy with regular reporting

Service Delivery:

- 24/7 automated monitoring with proactive alerting for display failures, data feed interruptions, and content delivery issues
- Specialized service desk processes for RTPi-specific support including display management, data integration, and multi-provider coordination
- Regular service reviews with performance reporting focused on passenger information delivery metrics and operational efficiency
- Continuous service improvement based on transport authority feedback, passenger experience data, and evolving RTPi standards
- Documented procedures and knowledge base covering data integration, display management, and multi-tenant collaboration

Customer Integration:

- Monthly service performance reports including display availability, data feed reliability, and content delivery metrics
- Quarterly business reviews to assess passenger information performance and identify enhancement opportunities
- Change notification processes for planned maintenance affecting passenger information displays and data feed updates
- Escalation procedures for urgent transport-related issues requiring immediate passenger communication

6.6. Service Constraints

Our RTPI CMS service operates within defined parameters to ensure optimal performance and reliability for passenger information systems:

Performance Constraints:

- Data Feed Processing: 500 API requests per minute per data provider connection with automatic throttling protection

Availability Constraints:

- Support Coverage: 9 AM - 5 PM Monday-Friday for standard queries
- Response Times: Vary by incident severity with priority given to passenger-affecting display issues
- Data Provider Dependencies: Service continuity dependent on third-party RTPI data feed availability and quality

Customization Constraints:

- API Integration: Modifications for non-standard data formats require professional services assessment and development
- Multi-Provider Setup: Complex data integration scenarios may require extended configuration periods
- Reporting Capabilities: Advanced analytics and custom reporting available through add-on services

Deprecation Schedule:

- Feature Changes: 60-day advance notice for any passenger information feature deprecation

6.7. Service Levels

Our service levels are specifically designed to meet the demanding requirements of public transport operations and passenger information delivery:

System Availability:

- Cloud Management Platform: 99.5% uptime with redundant infrastructure and automated failover capabilities (proven track record over 12 years)
- RTPI Display Hardware: 99.2% uptime with automated fault detection and proactive monitoring (proven track record over 12 years)
- Data Feed Processing: 99.5% availability for multi-provider data integration with automatic failover between data sources

Performance Standards:

- Display Content Updates: Maximum 30 seconds from data source to passenger display for real-time information accuracy
- Platform Response Time: Maximum 10 seconds for all user interface interactions and display management functions

Support Response Times:

- Critical (P1): 4 hour response, 8 hour resolution target for passenger-affecting display failures and data feed disruptions
- High (P2): 8 hour response, 2 business day resolution target for multi-display issues and integration problems
- Medium (P3): 1 business day response, 5 business day resolution for configuration and theme management issues
- Low (P4): 3 business days response, best effort resolution for enhancement requests and training queries

Service levels can be customized and documented in Order Forms based on specific transport operational requirements and passenger information priorities.

6.8. Outage and Maintenance Management

Our comprehensive approach to service reliability ensures continuous passenger information delivery through:

Proactive Outage Prevention:

- Redundant cloud infrastructure across multiple availability zones with automated passenger information continuity
- Automated health checks and performance monitoring for display hardware and data feed integration
- Predictive analytics for early identification of display failures and data feed interruptions

Service Performance Planning:

- Regular performance reviews and capacity planning focused on passenger information delivery requirements
- Load testing during peak transport periods including rush hours, events, and holiday travel
- Performance optimization recommendations for display efficiency and data integration improvements

Downtime Measurement:

- Real-time availability monitoring with 5-minute granularity for passenger information displays and data feeds
- Monthly availability reports with detailed incident analysis focused on passenger impact assessment
- Continuous improvement based on incident learnings and passenger experience feedback

Ad-hoc Service Support:

- Rapid deployment capabilities for urgent display replacements and emergency messaging during transport incidents
- Flexible resource allocation during peak events, holiday periods, and emergency transport situations

7. Provision of the service

7.1. Customer Responsibilities

Our partnership approach requires clear customer responsibilities to ensure optimal service delivery and operational excellence:

Technical Environment:

- Ensure network security policies accommodate secure connections to our cloud-based RTPi platform
- Provide access to RTPi data feeds or coordinate with third-party data providers for comprehensive information integration

Operational Requirements:

- Provide timely feedback during implementation, testing, and optimization phases
- Maintain current contact information for service notifications, alerts, and emergency communications
- Ensure availability of key personnel during critical implementation phases and system updates

Data Management & Security:

- Ensure all data provided complies with relevant data protection regulations including GDPR and transport-specific compliance requirements
- Maintain appropriate user access controls with regular access reviews and permission audits
- Report security incidents promptly according to established escalation procedures and regulatory requirements
- Comply with acceptable use policies for system access, content management, and data handling
- Coordinate with transport operators and information providers for data accuracy and compliance

Service Continuity & Business Operations:

- Participate in disaster recovery testing and business continuity planning exercises as required
- Provide advance notice of planned operational changes that may affect service delivery or display content
- Maintain backup procedures for critical passenger information processes during system maintenance
- Ensure availability of trained personnel during implementation phases, system updates, and emergency response situations

7.2. Technical Requirements and Client-Side Requirements

Our RTPI Content Management System integrates seamlessly with existing passenger information infrastructure while providing advanced upgrade pathways for comprehensive display management capabilities:

Display Infrastructure Requirements:

Existing Display Integration (TFT):

- Single Board Computer compatible with Windows Embedded 7 or greater (Windows 11 IoT Enterprise preferred for optimal performance and security)
- Minimum 8GB RAM and 32GB storage capacity for reliable content processing and local caching
- Standard video output compatibility (HDMI, VGA, DisplayPort) for diverse display types and legacy equipment integration
- Optional audio announcement capabilities for enhanced passenger accessibility and compliance with DDA requirements (requires Single Board Computer to have USB 1.0 or greater)
- Standard data communication protocols (Ethernet, Serial, USB) for integration with existing transport management systems

Existing Display Integration (LED Matrix):

- Single Board Computer compatible with Windows CE 5.0 or greater
- Minimum 1GB RAM and 1GB storage capacity for reliable content processing and local caching
- Standard Serial Comms Port(s) for communication with LED Matrix
- Optional audio announcement capabilities for enhanced passenger accessibility and compliance with DDA requirements (requires Single Board Computer to have USB 1.0 or greater)
- Standard data communication protocols (Ethernet, Serial, USB) for integration with existing transport management systems

Connectivity & Network Infrastructure:

Network Requirements:

- Display devices with integrated 4G/5G modem capability for independent connectivity without customer network dependencies
- Web portal access requires standard broadband internet connectivity (minimum 4 Mbps for optimal content delivery and real-time monitoring)
- Firewall configuration may be required for seamless integration with existing transport data feeds and management systems

Client-Side Infrastructure & Personnel:

Hardware and Platform Requirements:

- Client-side access via modern web browsers (Chrome 120+, Firefox 115+, Safari 16+, Edge 120+) on desktop workstations, tablets, or mobile devices

- No additional server infrastructure required - fully cloud-based solution with scalable architecture
- Mains electricity supply to display installation points (240V standard UK supply) with appropriate surge protection for outdoor installations

Personnel and Resource Requirements:

- Designated system administrator with transport operations knowledge for user management, system configuration, and access control
- Trained operators for daily passenger information management, content scheduling, and service disruption coordination
- Technical liaison personnel for integration with existing transport data providers and operational management systems
- Site contact coordinator for installation access and ongoing maintenance coordination with transport operational requirements

Customization and Integration:

All specific technical requirements, integration specifications, and customization needs can be comprehensively discussed and documented in the Order Form as mutually agreed between M2M Tech and the customer organization.

7.3. Outcomes/Deliverables

Our comprehensive RTPI Content Management System delivers measurable outcomes through integrated platform capabilities and continuous performance optimization:

Core System Access & Functionality:

- Fully configured and deployed RTPI Content Management System with cloud-based architecture
- Multi-tenant user access management with granular role-based permissions and security controls
- Real-time display content streaming with automated monitoring and performance optimization
- Advanced AI-assisted messaging capabilities for intelligent content creation and scheduling
- Create and manage display themes, schedules and formatting
- Access to a specialised team to create display themes tailored to organizational branding with seasonal and event-based variations
- Integrated CCTV management interface for comprehensive transport hub monitoring
- Advanced reporting and analytics dashboard with real-time performance metrics and operational insights

Documentation & Support Framework:

- User documentation and training materials covering system functions and best practices
- Technical integration guides and comprehensive API documentation for system extensions
- Detailed system administration manuals with configuration guides and security protocols
- Dedicated support contact details with escalation procedures for ongoing technical assistance

Measurable Performance Outcomes:

- 99.2%+ display uptime and availability through proactive monitoring and automated fault detection
- Significant operational cost reduction through intelligent automation and streamlined processes
- Enhanced passenger information accuracy and timeliness through real-time data integration
- Advanced system monitoring with predictive fault detection and preventive maintenance scheduling
- Streamlined multi-provider data integration supporting diverse information sources and transport operators

Dynamic Content Management Capabilities:

- Seasonal and Event-Based Theme System: Our specialized design team develops and manages intelligent theme variations that automatically adapt your passenger information displays for:
- Seasonal Adaptations: Christmas themes, summer service schedules, autumn/winter operational adjustments
- Local Community Events: Festival announcements, sports events, community celebrations, market days, cultural activities
- Emergency Response Themes: Service disruption notifications, severe weather alerts, emergency information displays
- Special Occasion Recognition: Remembrance Day commemorations, local heritage events, civic celebrations
- Operational Period Indicators: Peak/off-peak service indicators, school holiday schedules, planned maintenance communications

All themes can be scheduled in advance through the management interface or activated on-demand during unexpected events, ensuring your passenger information displays remain engaging, locally relevant, and community-focused while maintaining professional transport information delivery standards.

7.4. Development life cycle of the solution

M2M Tech employs a robust Agile development methodology with continuous improvement cycles specifically tailored for passenger information systems:

Structured Development Framework:

Phase-Based Development Approach:

1. Requirements Analysis: Continuous engagement with transport operators and passengers to identify operational challenges, accessibility needs, and information delivery requirements
2. Strategic Planning: Sprint planning with prioritized feature development based on customer feedback, regulatory compliance, and transport industry best practices
3. User-Centered Design: Collaborative design approach incorporating stakeholder input, accessibility standards, and passenger experience optimization with regulatory compliance
4. Iterative Development: Systematic development with regular testing, quality assurance, and compliance validation throughout the development process

5. Comprehensive Testing: Multi-tier testing including unit tests, integration testing, user acceptance testing, accessibility compliance validation, and real-world passenger information system validation
6. Controlled Deployment: Continuous deployment with automated testing, rollback capabilities, and minimal service disruption protocols
7. Ongoing Enhancement: Continuous monitoring, support, and platform enhancement based on operational feedback and emerging transport technology requirements

Release Management & Platform Evolution:

- Monthly Platform Updates: Regular feature releases and passenger information improvements delivered automatically with minimal service disruption and comprehensive testing protocols
- Critical Transport Updates: Immediate deployment of security patches and urgent bug fixes with comprehensive validation and regulatory compliance verification
- Transport Feedback Integration: Systematic incorporation of transport professional requirements and passenger feedback into development roadmaps
- Regulatory Compliance: Ongoing platform updates to maintain compliance with transport regulations, accessibility standards, and passenger information requirements

7.5. After-sales Account Management

Every client is assigned a dedicated account manager who serves as your primary point of contact throughout the entire service lifecycle. This ensures continuity, personalized service delivery, and a deep understanding of your specific transport operational requirements and strategic objectives.

Our comprehensive account management approach ensures sustained value delivery and strategic partnership development throughout the service lifecycle:

Strategic Relationship Management:

- Quarterly Business Reviews: Comprehensive performance assessments including system metrics, passenger feedback analysis, and operational improvement opportunities
- Annual Strategic Planning Sessions: Collaborative roadmap development aligned with organizational transport strategies and passenger service enhancement goals
- Regular Performance Check-ins: Proactive satisfaction monitoring and value realization assessments with dedicated account management support
- Stakeholder Engagement: Multi-level relationship management including technical teams, operational managers, and strategic decision-makers

Customer Success & Growth Strategy:

- Proactive Service Enhancement: Continuous identification of value-adding services and operational optimization opportunities based on usage analytics and industry developments
- Innovation Updates: Early notification and demonstration of new platform features, capabilities, and industry-leading passenger information technologies
- Expansion Support: Strategic assistance with deployment scaling, additional service integration, and multi-site implementation coordination
- Best Practice Sharing: Knowledge transfer sessions and benchmarking insights from similar transport organizations and passenger information deployments

Continuous Value Optimization:

- **Performance Analytics:** Regular analysis of passenger engagement metrics, system utilization, and operational efficiency indicators
- **Feedback Integration:** Systematic incorporation of customer insights into service improvements and platform development priorities
- **Technical Evolution:** Ongoing assessment of emerging technologies and their potential integration into existing passenger information infrastructure

7.6. Termination Process

Our comprehensive termination framework ensures seamless service conclusion while protecting passenger information continuity and organizational interests:

Termination Rights & Contractual Framework:

- **G-Cloud No-Fault Termination:** In accordance with G-Cloud framework requirements, buyers may terminate this service for any reason with 30 days written notice, ensuring procurement flexibility while allowing adequate transition planning for passenger information systems
- **Standard Termination Notice:** Either party may terminate with 30 days written notice for standard service agreements outside the G-Cloud no-fault provision, ensuring comprehensive transition planning for passenger information systems
- **Immediate Termination Rights:** Material breach or insolvency situations permit immediate termination with appropriate safeguards for ongoing passenger information delivery
- **Customer Convenience Termination:** Customer organizations retain rights to terminate for convenience with appropriate notice periods aligned with transport operational requirements
- **Service Quality Maintenance:** M2M Tech maintains full service quality and passenger information delivery standards throughout the entire notice period

Comprehensive Data Protection & Migration Support:

- **Structured Data Export:** Customer data facilitated in multiple standard formats (CSV, JSON, XML) including passenger information configurations, display settings, and operational analytics
- **Extended Data Retention:** 30-day secure data retention period following termination for recovery purposes and transition support
- **Certified Data Deletion:** Secure data deletion certification provided upon request with comprehensive audit trails and compliance verification
- **Migration Assistance:** Technical assistance with data migration to alternative passenger information systems including format conversion and integration support

Financial Settlement & Commercial Terms:

- **Pro-rata Service Billing:** Payment obligations limited to services rendered up to the termination date with transparent passenger information service accounting
- **Unused Service Refunds:** Pro-rata refunds provided for unused prepaid services where applicable, calculated on daily usage basis for platform access
- **No Penalty Termination:** No early termination penalties applied for termination for convenience, supporting organizational transport strategy flexibility

- Outstanding Services Settlement: Settlement of any remaining professional services, display integration, or technical support charges according to agreed schedules

Transition Support & Operational Continuity:

- Phased Service Reduction: Gradual service reduction implemented to minimize operational disruption to passenger information delivery
- Technical Migration Support: Comprehensive technical assistance with data export, system migration, and alternative platform integration
- Knowledge Transfer Sessions: Structured knowledge transfer sessions ensuring continuity of passenger information operations and technical understanding
- Extended Transition Support: Post-termination technical support available for 60 days covering transition queries and operational continuity assistance

Service Agreement Considerations:

Customers acknowledge service commitment for the Minimum Period (typically 12 months) and subsequent Renewal Terms as defined in the Certificate or Order Summary. Early termination may result in loss of volume pricing benefits or preferential service terms, though no financial penalties apply for convenience termination.

G-Cloud Renewal Requirements:

In accordance with G-Cloud framework requirements, service renewals must be agreed with comprehensive transition and continuity plans established at least 8 months prior to the end of the contract period. This ensures adequate time for:

- Strategic planning and budget approval processes
- Technical transition planning if changing providers
- Continuity of passenger information services and transport operations
- Stakeholder engagement and training requirements
- Data migration planning and testing
- Integration testing with existing transport systems

M2M Tech commits to proactive engagement with customers regarding renewal planning, providing advance notice of contract expiration dates and supporting strategic planning discussions to ensure seamless continuation of critical passenger information services.

8. Our experience

8.1. Case Studies

8.1.1. Case Study 1: Oxfordshire County Council - Enterprise RTPi Deployment

Challenge: Oxfordshire County Council needed to modernize their aging RTPi infrastructure across the county, managing over 430 display locations with multiple bus operators and data providers. The

existing system suffered from frequent downtime, limited remote management capabilities, and inflexible integration with evolving data standards.

Action: We deployed our comprehensive RTPI CMS solution with:

- Multi-provider data integration supporting SIRI feeds from multiple data providers
- Remote management capabilities for all 430+ displays across urban and rural locations
- Custom-designed display themes incorporating Oxfordshire County Council branding and local visual identity
- Advanced messaging system for service disruptions and public announcements
- Real-time monitoring and automated fault detection
- Multi-tenant access enabling collaboration between council staff and bus operators

Outcome:

- Achieved 99.2%+ system uptime, significantly reducing passenger complaints about information accuracy
- Enhanced brand recognition and professional appearance through consistent themed displays
- Eliminated vendor lock-in, enabling competitive procurement for future data providers
- Streamlined operations with unified interface reducing training requirements for staff

Public Sector Translation:

This deployment demonstrates our capability to handle large-scale, multi-stakeholder transport networks while delivering measurable improvements in service reliability, cost efficiency, and passenger experience.

8.1.2. Case Study 2: Oxford Bus Company - Multi-mode Transport Departure Totems

Challenge: A regional transport authority needed to integrate RTPI data from multiple modes of transport (Rail and Bus Service) into dedicated departure boards in rail station forecourts.

Action: Our solution provided:

- Unified data integration supporting SIRI, Darwin, and proprietary formats
- Standardized display output regardless of data source complexity
- Advanced message management with automated translation between operator-specific terminology

Outcome:

- Consolidated two separate RTPI systems into one unified platform
- Reduced system administration overhead by 60%
- Enhanced collaboration between operators through shared messaging and alert systems

Public Sector Translation:

This case study demonstrates our ability to break down data silos and create integrated transport information systems that span multiple operators and transport modes. For public sector buyers,

this showcases how our platform can unify fragmented transport information across rail, bus, and other services - delivering significant operational efficiencies while improving passenger experience through consistent, reliable information regardless of the transport provider.

8.1.3. Case Study 3: Smart City Digital Infrastructure Integration

Challenge: A forward-thinking science and technology park wanted to integrate RTPI departure boards with their broader smart city initiatives, including their autonomous vehicle trials and visitor information systems. The client required departure boards that could seamlessly blend transport information with promotional content, news feeds, and event announcements to create an engaging digital experience for visitors and staff while maintaining transport information as the primary function.

Action: Our solution delivered:

- Integration with experimental autonomous vehicle data feeds alongside traditional bus services
- Dynamic content management system allowing transport information to be supplemented with multimedia content
- Flexible display templates supporting both information-focused and media-rich layouts
- API integration with the park's visitor management system and event scheduling platform
- Real-time content prioritization ensuring transport information takes precedence during peak travel times
- Custom branding and visual identity reflecting the park's innovation-focused image

Outcome:

- Successfully deployed multimedia departure boards across the science park campus
- Demonstrated flexible platform capability for non-traditional RTPI environments
- Created template for future smart city RTPI deployments combining transport and community information

Public Sector Translation:

This deployment showcases our platform's adaptability for innovative public sector projects, demonstrating how traditional RTPI can evolve to support broader community engagement and smart city objectives while maintaining core transport information functionality.

8.2. Clients

Our client portfolio includes leading public sector organizations who trust us to deliver critical passenger information services. Local Authorities & Transport Bodies we have supported include:

- Oxfordshire County Council, with shared access to:
 - Stagecoach Group
 - Oxford Bus Company
 - Oxford University Hospital
 - Milestone Infrastructure Group
- Oxford Bus Company
- Milton Park In Oxfordshire



Our public sector focus ensures deep understanding of the unique challenges facing transport authorities, including budget constraints, regulatory compliance, accessibility requirements, and the need for transparent, accountable service delivery.

9. Contact Details

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Our dedicated G-Cloud team provides comprehensive support from initial enquiry through implementation and ongoing operation, ensuring successful deployment and optimal platform utilization for all customer requirements.