



Macrocomm Group

A leading IoT technology Service Provider



Macrocomm

Time & Attendance Solution

The Macrocomm Time & Attendance product provides a comprehensive solution to address the primary challenges encountered by both public and private institutions in South Africa when managing their workforce efficiently.

Our system enables customers to manage HR activities through a secure web-based and mobile application.

The platform addresses issues like manual time and attendance processes leading to payroll errors, lack of centralisation in leave management causing confusion, and the use of disparate systems for HR and finance integration resulting in inefficiencies.

120,000 Employees
Managed

55 Customers across
South Africa

52 Years Collective
Experience

ISO Compliance

Solution

Highlights

- ❑ **Rostering and Scheduling** Tool
- ❑ **Leave Management** Tool
- ❑ **Overtime Management** System
- ❑ Automated **Time & Attendance**
- ❑ **Anomaly Detection** in Rosters and Schedules
- ❑ **Absenteeism** Hours **Monitoring**
- ❑ System **Integration**
- ❑ **Advanced Reporting** for Employee Management
- ❑ **Support** Centre

Key Challenges the Solution Addresses

Time & Attendance

- Manual processes leading to payroll errors and compliance issues.

Leave Management

- Lack of centralisation causing confusion and administrative burdens.

HR and Finance Integration

- Disparate systems leading to inefficiencies and data discrepancies.

Overtime Calculations

- Manual processes resulting in errors and dissatisfaction among employees.

Work Shift Management

- Inflexible systems causing operational irregularities.

Macrocomm360 – Access Control in General Areas

Clocking Methods

Facial Recognition

This is the primary/default method of clocking in, for all staff onsite

Fingerprint

This option may only be used if the first two clocking options do not work.

Unique Password

Should the biometric scan options fail, the unique password will serve as the clocking method.

Mobile Application

A mobile application is embedded in the solution for all staff who are required to work offsite.

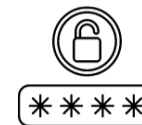
Key Features

Back Up Battery – up to 6 hours

Our hardware's standout feature is a robust backup battery system, ensuring up to 6 hours of uninterrupted operation. This functionality is especially beneficial for industries reliant on precise timekeeping, preventing missed clocking events and maintaining accurate records.



Facial Recognition



unique password



Fingerprint



Mobile application
(Locum and revolving staff)

Scholar Transport Solution

Scholar Transport Solution

Macrocomm

Scholar Transport Solution

The Scholar Transport Safety Solution is a blended platform that combines telematics, fleet analytics, AI-powered cameras, and alcohol-based vehicle immobilisers to address the dual priorities of learner safety and operational efficiency.

By offering real-time tracking of vehicles, monitoring driver behaviour, and preventing unsafe operation, it gives schools, operators, and regulators complete visibility into fleet performance and compliance.

This unified approach enables safer journeys, builds parental trust, and ensures that transport providers can meet both regulatory and community expectations.

With its proactive risk detection and detailed reporting, the solution transforms scholar transport into a safer, smarter, and more accountable system.

Safer Learner Journey's

Operational Control &
Compliance

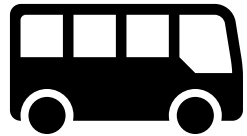
Solution

Highlights

- ❑ **AI cameras** safeguard learners by monitoring in-vehicle activity and external risks.
- ❑ **Live telematics** deliver instant insights on speed, routes, stops, and driving behaviour.
- ❑ **Fleet analytics** optimise route planning, maintenance scheduling, and fuel efficiency.
- ❑ **Compliance-ready records** support audits, parental assurance, and oversight.
- ❑ **Proactive monitoring** detects potential risks before they escalate.

Solution Overview

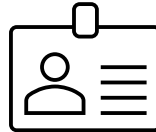
Mode of transport



Commuters



Compliance



Verification



Driver Safety



Driver Behaviour



Performance



Total Cost



Route & Duration



Option 1

Drivers Licence
Licence Disk
PDP
Route Licence
Service Control
Driver Behaviour
True Cost of Operation

Option 2

Drivers Licence
Licence Disk
PDP
Route Licence
Service Control
Driver Behaviour
True Cost of Operation

- Alcohol Detection

Option 3

Drivers Licence
Licence Disk
PDP
Route Licence
Service Control
Driver Behaviour
True Cost of Operation

- Alcohol Detection
- Driver Health
- Passenger Count

Option 4

Drivers Licence
Licence Disk
PDP
Route Licence
Service Control
Driver Behaviour
True Cost of Operation

- Alcohol Detection
- Driver Health
- Passenger Count
- Commuter Identification
- Loyalty Programs
- Route Analytics



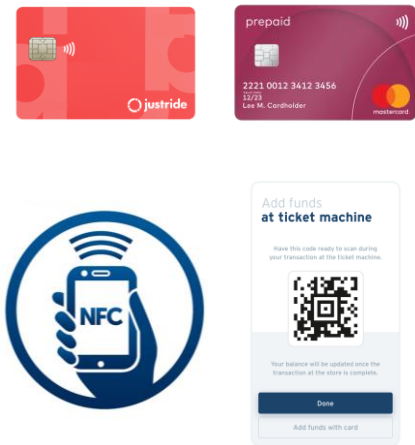
Macrocomm Intelligent Transport Management System

Intelligent Transport Management System

Point of Sales & Top-up Points



Payment Methods



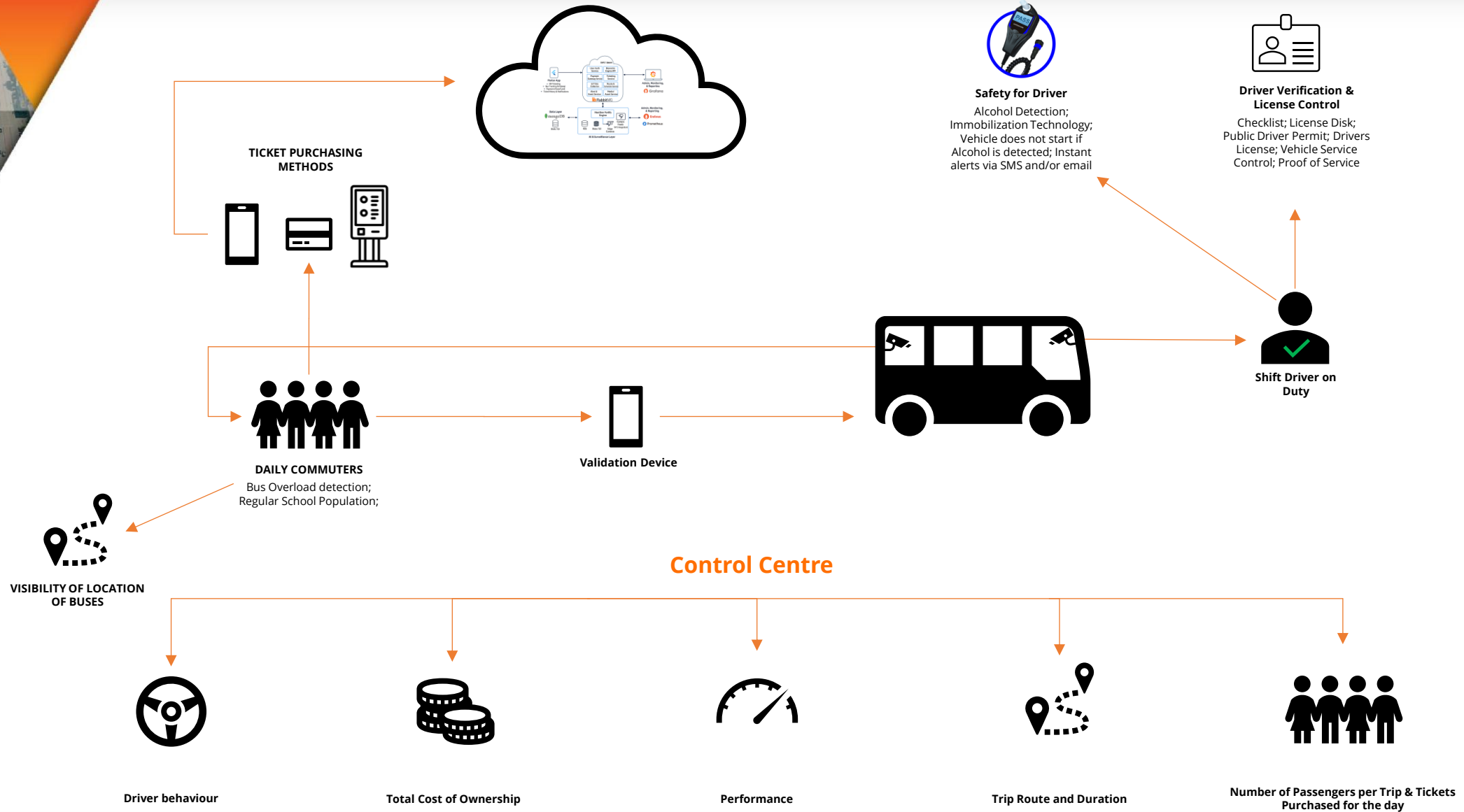
Service Delivery



Validation & Processing



Intelligent Transport Management System



MacrocommAI Unity

Macrocomm Smart Municipality AI Unity

Local government can only meeting the national objectives and targets set if they adopt:

Financial Accountability & Stability:

Centralised financial oversight platforms provide transparent, real-time visibility into municipal budgets, spend, and variances, reducing mismanagement and corruption.

Infrastructure Monitoring & Maintenance

IoT-enabled asset tracking and predictive maintenance tools ensure timely repair of aging infrastructure, lowering downtime and costs.

Strengthened Governance

Digital reporting and audit trails enforce accountability, while automated systems reduce opportunities for manual manipulation.

Urbanisation & Housing Pressure Management

Data-driven planning tools support municipalities in anticipating housing demand and aligning resources with urban growth trends.

Improved Service Delivery

Smart utility monitoring (water, electricity, sanitation) allows for proactive issue detection, ensuring consistent service to communities.

Enhanced Community Engagement

Real-time communication platforms enable municipalities to respond quickly to grievances, reducing the risk of protests and unrest.

Capacity Building & Skills Support

AI-driven dashboards simplify complex data, empowering limited-capacity municipal teams with actionable insights and decision support.

Climate & Environmental Resilience

Smart environmental monitoring tools provide early warnings for climate-related risks (floods, droughts), supporting resilience strategies.

Alignment with District Development

A centralised “One Tool” platform integrates planning, monitoring, and reporting across all municipalities, ensuring alignment with national development objectives and targets.

MacrocommAI Unity[©] enabling DDM with AI Tools

KPI / OKR Management Tool & Dashboard

This module centralises objectives, key results and performance indicators into a single, visual dashboard that drives alignment across teams. It lets managers set strategic OKRs, cascade them to operational KPIs, and track progress in real time with traffic-light health indicators, trend charts and automated alerts when targets deviate. Integrations pull data from operations, IoT devices and finance so the dashboard always reflects live performance.

Training, Coaching, Mentoring

A continuous learning engine that delivers role-based learning paths, microlearning modules, scheduled coaching sessions and mentor matching for drivers and operations staff. It ties training progress to KPIs (e.g., hygiene checklist pass rate, on-time deliveries) and supports assessments, certifications and refresher nudges so competence is measurable and repeatable. Trainers can push updates (new SOPs, short videos) and monitor skill gaps to target coaching where it matters most.

Analytics and Reporting

Analytics pulls together operational, customer and sensor data into customizable reports and dashboards, from daily hygiene compliance rates to route performance and spoilage incidents. Advanced capabilities include scheduled reports, ad-hoc drilldowns, cohort analyses and simple predictive models (e.g., probability of temperature excursions). Exportable evidence packages support audits and stakeholder updates.



Financial Management & Budget Tracking

This module tracks costs, revenues and budgets at multiple levels (per driver, per route, per client) and ties financial outcomes to operational inputs (fuel, spoilage, maintenance). Features include real-time expense logging, budget vs actual dashboards, automated invoicing templates and scenario forecasting to test margin impacts of routing or temperature control changes. Alerts flag budget overruns and variance drivers so finance and ops can act quickly.

Smart Services

Smart Services is the IoT and automation layer: thermostatic logging for delivery boxes, remote telemetry (door status, battery, shocks), automated route optimisation, and predictive maintenance for equipment. It enables rules (e.g., hold delivery if temperature out of range), real-time notifications to drivers/customers, and API hooks for third-party devices (smart locks, thermal sensors). The result is consistent product condition and automated service guarantees.

Knowledge Management

A searchable, versioned knowledge base containing SOPs, checklists, how-to videos, incident post-mortems and regulatory documents. It links training modules to SOPs, stores audit trails (who read/acknowledged which procedure) and supports quick creation of localized guides for specific clients or regions. Feedback loops allow frontline staff to suggest improvements, and governance ensures only current, approved docs are in circulation.

Macrocomm Smart Learner Verification System

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Learner Verification System

South Africa's school funding system reportedly suffers significant losses each year. This misrepresentation diverts critical resources from learners who need them most, leading to inefficiencies, financial waste, and a lack of trust in the public education sector.

Traditional systems often fall short due to the need for human intervention and the lack of real-time accuracy. This proposal presents an AI camera solution that ensures secure, fixed, and non-invasive authentication using facial verification.

By leveraging AI technology via camera devices and advanced recognition software, the system ensures:

- Verifiable learner attendance linked to funding
- Enhanced mobility for real-time attendance capture
- Reduced fraud and improved trust
- Scalable implementation across rural and urban schools

Real-Time AI Verification

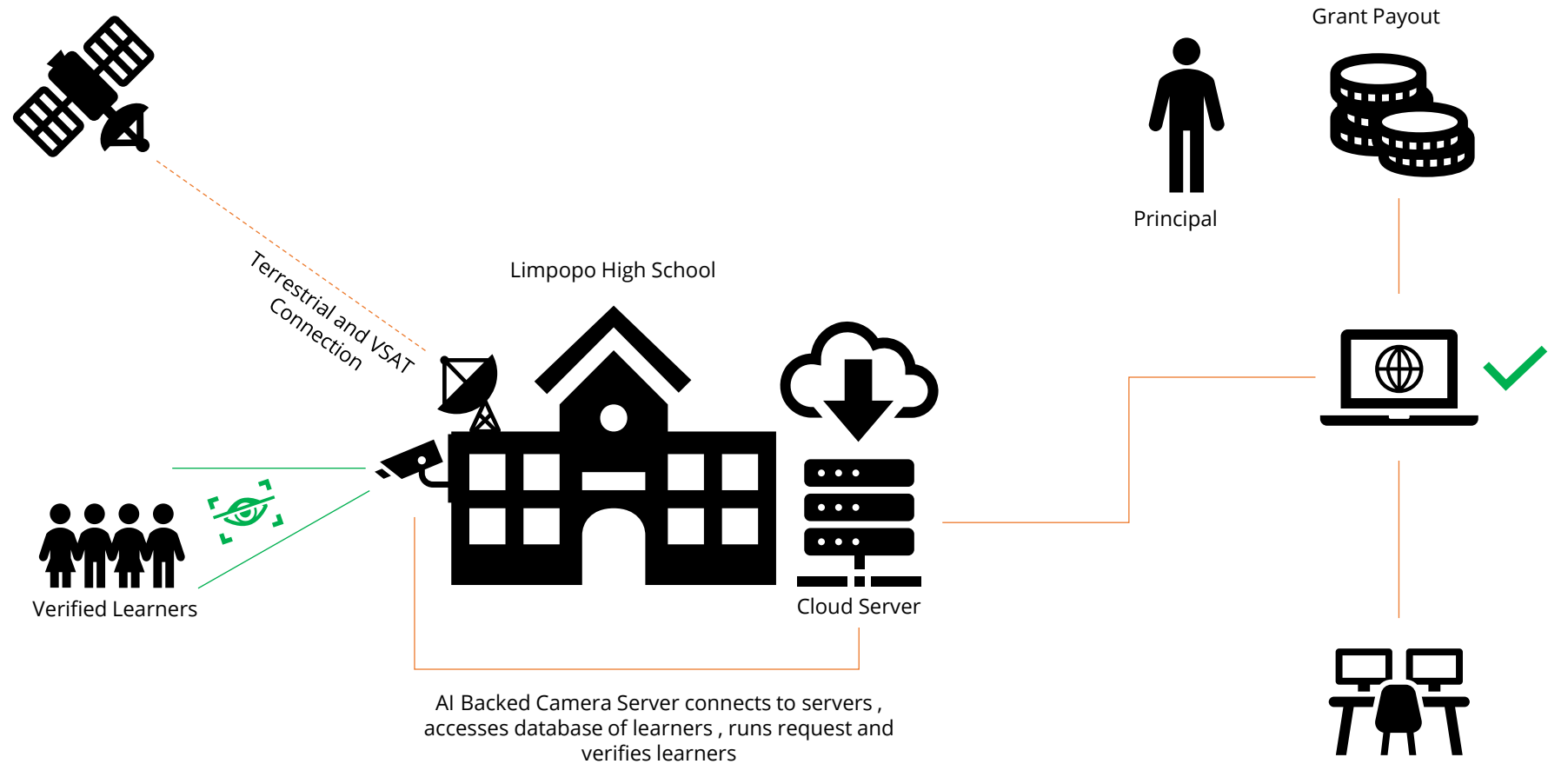
Fraud Reduction & Funding Accuracy

Solution

Highlights

- ❑ **Accurate Attendance:** Schools can receive funding that will be based on real, verifiable attendance, preventing alleged fraudulent claims without any human intervention.
- ❑ **Reduced Fraud and Misuse:** AI-driven verification eliminates the possibility of false reporting through identifying registered learners.
- ❑ **Enhanced Transparency and Trust:** Real-time monitoring fosters accountability within the education sector.
- ❑ **Improved Resource Distribution:** Directs funds to schools based on actual needs, ensuring learners receive the support they deserve.
- ❑ **National / Provincial Analysis Reporting:** National / Provincial report on how many learner anomalies based on lack of attendance.
- ❑ **Integration and Trend Reports:** We will also provide statistics per region based on attendance trends for learners, reporting on red flags based on your specified business rules.

Macrocomm Smart Learner Verification System



Short Summary

AI cameras verifies learners → Data sent via satellite/terrestrial connection → School & principal oversee → Cloud processes data → HQ reviews reports → Grants disbursed.

Back Office / HQ gets a report of all verified learners from respective schools before grants are paid out

Macrocomm Smart Learner Verification System



Continuous AI Camera Monitoring

- Fixed AI-backed cameras installed at the school automatically detect and recognise learners during normal daily activities (arrivals, classes, assemblies, break times).
- The system captures multiple sightings over the day, week, and month to build a verification record.
- This reduces reliance on single-day checks and improves accuracy in identifying consistently attending learners.



Learner Verification

- The AI verification system processes the captured images and matches them against the official learner database.
- Learners consistently detected are automatically marked as Verified Learners.
- This automated verification ensures only eligible students are recognised for the program, minimising human error or manipulation.



Connectivity to Servers

- The device connects via Terrestrial and VSAT connections (satellite or ground internet) to the central system.
- This connection allows the device to communicate with the AI-backed camera server that:
 - Accesses the learner database
 - Runs the verification request
 - Confirms the learner's identity.



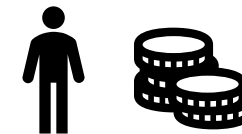
Cloud Server Integration

- Verified learner data is sent to the Cloud Server.
- The cloud server acts as the central repository and processing point for all collected school data.



Back Office / HQ Reporting

- The Back Office / HQ accesses reports from the cloud.
- These reports contain lists of all verified learners from each school.
- The system ensures reports are accurate before proceeding to grant disbursement.



Grant Payment Process

- Once verified learner lists are approved at HQ, grants are paid out to the appropriate schools or beneficiaries.
- The circular connection between HQ and the payment process shows that payments are only made after data validation.

The background of the slide is a cityscape at sunset. The sky is a mix of orange, yellow, and blue. In the foreground, there are several tall buildings, including a prominent one with a red top. A network of white lines with circular nodes is overlaid on the image, suggesting a digital or communication theme. On the left side, there are large, overlapping geometric shapes in shades of orange, red, and grey.

Thank You