

# TEL AVIV LIGHT RAIL

Tel Aviv, Israel



## FACTS

**Customer:**

NTA Metropolitan  
Mass Transit System  
Ltd.

**Vertical Market:**

Public Transport

**Product:**

Qognify Situator

## DELIVERING END-TO-END INCIDENT MANAGEMENT ACROSS THE TEL-AVIV RED LINE

Inaugurated on August 17, 2023, the Red Line is the first phase of the Light Rail Transit network in Tel Aviv, constructed by NTA Metropolitan Mass Transit System Ltd. (NTA) to improve the welfare and quality of life of Israel's citizens.

## THE CHALLENGE

Integral to the smooth running of this new world-class light rail system is the ability to manage incidents that might occur, be they operational, safety, security, critical maintenance or cyber; or natural disasters. With the project built from the ground up, NTA commissioned creating a cutting-edge technological ecosystem that would connect the many different stakeholders involved in the Red Line to provide truly holistic end-to-end management of the entire incident lifecycle. This large-scale, complex initiative was ultimately implemented by MTRS (MTRS3 Solutions and Services Ltd.), an international transport security consulting company based in Israel that has been NTA's trusted security and emergency preparedness consultant for mass transport projects since 2015.

„Qognify has a wealth of experience in the deployment of incident management solutions for rail operators around the world.“

Asaf Karavany, Project Manager for the Red Line project at Qognify



Following an exhaustive tender process, during which NTA and MTRS evaluated the solutions available on the market, Qognify, part of Hexagon, was awarded the contract to supply and assimilate its Situator Incident Management System (IMS).

Given the importance and scale of this project, high demands were placed for the solution. It needed to be a single unified installation, capable of effectively operating as a traditional PSIM for security related tasks, as well as an incident management system for managing the response to operational, safety, critical maintenance, cyber and natural disaster emergencies and crises.

Being supplied with the most advanced, tailored solution was important, but it was also essential that the company demonstrated proven vertical sector experience. To this end it was very beneficial that Qognify could present NTA with the opportunity to observe a fully operational Qognify Situator system in Europe, as well as at other reference sites with rail operators around the world.

## THE SOLUTION

Qognify Situator is a leading Incident Management System (IMS) that addresses every aspect of the incident lifecycle. It is designed to integrate and correlate vast amounts of information in real time, from multiple diverse systems. This state-of-the-art level of integration ensures situational awareness is delivered when and where it is needed, helping to mitigate risk, prevent incident escalation and ensure a reliable, fully coordinated, appropriate and consistent response every time.

With the Red Line scheduled to begin commercial operation in the summer of 2023, a rigorous process of design, integration, configuration, testing and commissioning of the solution commenced. It was especially important to the customer to have total confidence in the technology, methodology and procedures to ensure that the entire system would be fully operational when the first train departed.

## THE CUSTOMER

The Red Line is the first phase of the Light Rail Transit (LRT) network, constructed by NTA Metropolitan Mass Transit System Ltd. (NTA) to improve the welfare and quality of life of Israel's citizens. Opened in August 2023, the Red Line forms the backbone of the mass transit system in the Tel Aviv metropolitan area, which will transport more than 300,000 passengers each day along 24 km of track and through 34 stations (10 of which are underground), connecting the five municipalities of Petah Tikva, Bnei Brak, Ramat Gan, Tel Aviv-Yafo, and Bat Yam.

# THE SOLUTION (CONT.)

The scale of the task was immense, with direct integrations between Qognify Situator and more than 20 security, safety and rail related systems encompassing more than 10,000 datapoints. The systems and sub-systems include video surveillance (3,000 wayside and on-board cameras), access control (including gates, doors, and barriers) and perimeter intruder detection, fire and smoke detection, passenger help points, public address and display systems and automatic fare collection. These systems are installed in stations, stops, tunnels, at-grade alignment tracks, depot and on-board the trains. In addition, there are integrations (through an Enterprise Service Bus) with the signalling and train control systems and other services and information management systems, such as an asset and maintenance management system and a geographic information system.

By integrating this complex architecture of sophisticated systems to produce a single unified solution, operators are provided with workstations from which they can centrally coordinate the appropriate incident response. The process of developing predetermined workflows to manage the vast array of operational, safety, security, cyber, critical maintenance natural disaster incidents that could potentially occur on the line was intensive. All stakeholders were consulted from day one of the system's design to deliver a solution that would be intuitive for operators to use on a daily basis.

# THE RESULT

To date, there are over 80 workflows within Qognify Situator to manage a range of incidents, such as a collision involving rolling stock, train derailment, severe weather, abnormal congestion, infrastructure failure, as well as threats to personnel, passengers and property.

Qognify Situator is deployed across four Red Line control centers – the Security Operation Center (SOC); the Operation Control Center (OCC, responsible for managing traffic, facilities, power, fire safety and passenger information); the Depot Control Center (DCC) and the Maintenance Control Desk (MCD). Additionally, workstations have been installed in the command-and-control rooms of the police and fire & rescue services via a highly secure web client.

The real time collaboration between the operator, security team, maintainers and first responders and cross-organizational situational awareness were the critical elements to assure the optimal emergency response multi-stakeholder response.



# THE RESULT (CONT.)

An example of this real-time collaboration is how the system assists in managing the handling of a collision between a train and a vehicle at a junction. Qognify Situator will show the incident location on the GIS map, trigger the associated workflow and present it to the operator at each specific workstation. Each action will be guided and logged during the multi-stakeholder response.

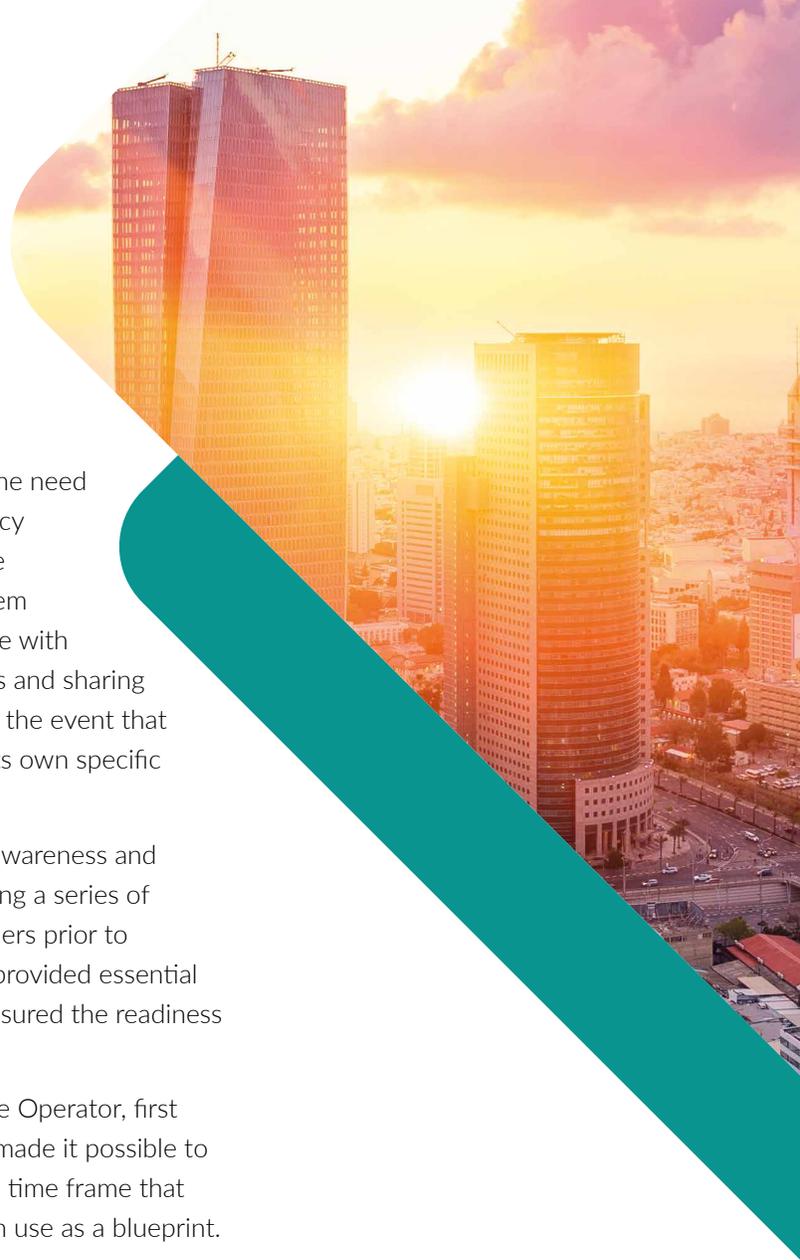
For example, the relevant stakeholders will be alerted to the need to halt movement on a section of track, dispatch emergency medical services and front-line personnel (who will receive notifications and instructions to act directly from the system in their smart devices via a mobile client) and communicate with passengers (by broadcasting pre-recorded announcements and sharing information on the public display system). Furthermore, in the event that rolling stock is damaged, the maintenance team also has its own specific workflows to follow.

The performance of the solution in delivering situational awareness and end-to-end incident management was put to the test during a series of large-scale exercises with the participation of all stakeholders prior to commencement of operation. It was these exercises that provided essential insights that enabled the fine-tuning of the system and ensured the readiness of the Red Line for commercial operation.

It is the collaboration of the solution partner with NTA, the Operator, first responders and many others involved in the project, that made it possible to deliver an innovative and proven solution within the given time frame that metro and rail owners and operators around the world can use as a blueprint.

## OUTLOOK

The next phase of NTA's ambitious project is the Purple Line that will transport passengers from the eastern parts of the metropolitan area to the heart of Tel Aviv. This will be followed by the Green Line, which will connect Holon and Rishon LeZion directly south of Tel Aviv metropolitan area, to Hezliya, bordering in the north.



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