CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

REPORT TO: CITY MANAGER
TO BE REFERRED BY THE OFFICIAL TO MAYCO VIA THE RELEVANT CORPORATE SERVICES SECTION 79 COMMITTEE

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1. ITEM NUMBER

2. SUBJECT

FEEDBACK ON THE INTERNATIONAL/OUTSIDE THE BORDERS OF THE RSA TRAVEL UNDERTAKEN FROM 1 JUNE TO 6 JUNE 2025 TO ATTEND THE NOKIA SREXPERTS 2025 EVENT AT PORTAVENTURA CONVENTION CENTRE, TARRAGONNA, SPAIN.

ONDERWERP

TERUGVOERING OOR DIE REIS NA DIE BUITELAND/BUITE DIE GRENSE VAN DIE RSA ONDERNEEM VAN 1 JUNIE TOT 6 JUNIE 2025 OM DIE "NOKIA SREXPERTS 2025"-GELEENTHEID IN DIE PORTAVENTURA-KONFERENSIESENTRUM, TARRAGONA, SPANJE BY TE WOON

ISIHLOKO

INGXELO ENGASEMVA KOHAMBO KUMAZWE APHESHEYA / ANGAPHANDLE KWEMIDA YASEMZANTSI AFRIKA EQHUTYWE UKUSUSELA NGOWO 1 UKUYA KOWE6 KWEYESILIMELA 2025 UKUZIMSA UMSITHO ONGOWAKWA NOKIA SREXPERTS WANGO 2025, OKWIZIKO LENKOMFA LASE PORTAVENTURA, TARRAGONA, E SPAIN

R3785

3. EVENT SUMMARY

EVENT DETAILS	
CONFERENCE/SEMINAR	[SReXperts Event, PortAventura Convention Centre.]
OTHER	[Not Applicable]
DATE	[1 JUNE 2025 – 6 JUNE 2025.]
VENUE	PortAventura Concention Centre; Tarragona, Spain
TOTAL COST TO THE CITY	[R7 526.22]
CITY	Tarragona, Spain
COUNTRY	SPAIN

ATTENDEE DETAILS	
NAME AND SURNAME	DESIGNATION
Vincent Farirayi	Head: Operations Telecommunications Broadband Services, Infrastructure Services, Information Systems &Technology
Murwaan Moses	Principal Professional Officer: Design And Demand, Telecommunications Broadband Services, Infrastructure Services, Information Systems &Technology
PROVIDE SUMMARY OF HOST ORGANISATION / CITY	
Alcatel-Lucent Enterprise is a French company. It is an Original Equipment Manufacturer of Alcatel-Lucent Enterprise Hardware and software that specialises in telecommunications equipment. The City of Cape Town's broadband infrastructure Metro Area Network (MAN) incoporates a significant portion of Alcatel-Lucent Enterprise /Nokia (previously one company) networking equipment.	

4. OBJECTIVE

The objective of the invitation was for the City of Cape Town (City) Subject Matter Expects (SME's) Vincent Tendesayi Farirayi (Head: TBS OPERATIONS, INFRASTRUCTURE SERVICES) and Murwaan Moses (Prinicpal Professional Officer: Design and Demand, Telecommunications Broadband Services, Infrastructure Services) to participate in a multi-day Nokia SReXperts event in Tarragona, Spain at the PortAventura Convention Centre.

The City currently utilizes technologies from Alcatel-Lucent Enterprise and regards its relationship as strategic in nature. The purpose of the workshop is to collaborate with Alcatel-Lucent Enterprises on driving innovation for current and future innovations and latest in network solutions that can transform operations.

The City of Cape Town was given an opportunity to personally meet with the Alcatel-Lucent and Nokia executives, and specialists to discuss network solutions, innovations, vision, products and technology roadmaps. Detailed discussions, workshops and presentations covering vision, municipal strategies around the world, and technological roadmaps in networks were discussed and presented in detail during the course of the visit.

The core content covered included:

- Network strategy/solutions for municipal entities such as City and across the world.
- Mission Critical Networking for Utilities.
- Security and Resiliance
- Broadband Network Role in enabling Public Safety, Smart Utilities and Internet of Things (IoT)
- Real-time hands-on demonstrations of newer techonologies
- Effective Brainstorming, problem solving and engagement.
- Comprehensive presentations of cutting edge network solutions

Refer to section 9 GENERAL DISCUSSION for further detail on core content covered.

5. OUTCOMES

This was an event and learning opportunity and as part of market research. No resolutions or any other form of commitments between the hosts and City of Cape Town was made.

6. ACTIONS REQUIRED

There are no immediate applicable actions to be implemented at the moment,

however, what is applicable has been recommended under the recommendations.

7. IMPLICATIONS

7.1	**Constitutional and Policy Implications**	No ☒	Yes ☐
7.2	**Environmental implications**	No ☒	Yes ☐
7.3	**Financial Implications**	No ☒	Yes ☐
7.4	**Legal Implications**	No ☒	Yes ☐
7.5	**Staff Implications**	No ☒	Yes ☐
7.6	**Risk Implications**	No ☒	Yes ☐

7.7 <u>POPIA Compliance</u>

☒ It is confirmed that this report has been checked and considered for POPIA Compliance.

8. RECOMMENDATIONS

a) It is recommended that the feedback report on the trip NOKIA SREXPERTS EVENT PORTAVENTURA CONVENTION CENTRE undertaken by Vincent Tendesayi Farirayi and Murwaan Moses between 1 June to 6 June 2025 **be considered and noted.**

AANBEVELING:

a) Daar word aanbeveel dat die terugvoeringsverslag oor die reis onderneem deur Vincent Tendesayi Farirayi en Murwaan Moses van 1 tot 6 Junie 2025 om die NOKIA SREXPERTS-geleentheid by die Portaventura-konferensiesentrum in Tarragona, Spanje by te woon, oorweeg en daarvan kennis geneem word.

IZINDULULO

a) Kundululwe ukuba makuthathelwe ingqalelo kwaye kuqwalaselwe ingxelo engasemva kohambo oluqhutywe nguVincent Tendesayi Farirayi noMurwaan Moses ukususela ngowo1 ukuya kowe6 kweyeSilimela 2025, ukuzimasa umsitho wakwa NOKIA SREXPERTS wango2025, obukwiZiko leNkomfa lasePortaventura, Tarragona, eSpain.

9. GENERAL DISCUSSION

This visit was valuable in that it provided insights into cutting-edge network strategy, automation, operational technologies, security and monitoring tools, and application-specific hardware solutions. These discussions and demonstrations provided the City delegation with a strategic view of how leading entities—including municipalities, electricity utilities, and service providers—are adopting automation and AI to enhance performance, manage complexity, and reduce operational costs. The visit further allowed for benchmarking the City of Cape Town's current capabilities against evolving industry standards and highlighted strategic opportunities for enhancement.

1. Network Management and Monitoring Tools

The event covered the critical role of intelligent Network Management and Monitoring tools and how these offer central orchestration and control platforms.

Key points include:

How modern Network Management and monitoring tools enable:

- Network Traffic Engineering
  Efficiently steers traffic to avoid congested paths, ensuring service availability and quality.

- Service Assurance and Path Control
  Intent-based networking with deterministic path control helps guarantee service level agreements (SLAs), especially in mission-critical municipal applications.

- Latency Optimisation
  Particularly valuable in time-sensitive operations such as control systems in electricity utilities and public safety networks.

- Agentic Artificial Intelligence (AI) Operations
  AI is at the heart of network transformation, enabling predictive and adaptive network behavior. Through real-time analytics and historical data modeling, AI supports dynamic decisions in network routing and fault management.

- Digital Twins and Network Simulation
  The simulation capabilities using Digital Twins allow pre-deployment testing of configurations and failure scenarios, drastically reducing risk in production environments.

These capabilities significantly reduce OPEX through automation of routine tasks, early fault detection, and real-time optimization, thus enhancing network reliability and cost-efficiency.

2. Network Automation Tools

The event showcased the transformative journey from traditional human-centric network operations to machine-assisted and autonomous operations.

Key points included:

Nokia outlined four key stages in this shift:

- Assisted Operations and Maintenance
  by utilizing scripts and data polling to automate repetitive tasks.

- Partially Autonomous Operations
  Certain workflows and recovery mechanisms operate with minimal human intervention.

- Conditionally Autonomous Operations
  The system makes decisions based on defined rules or thresholds—improving response times.

- Highly Autonomous Operations
  Self-learning networks powered by AI and Machine Learning (ML) that adapt without human inputs.

Simulations demonstrated these capabilities in action—showing how automation drastically reduces Mean Time to Repair (MTTR), improves service availability, and allows for predictive maintenance and closed-loop assurance. This shift is vital to manage the growing complexity of networks and to optimize operational spending in the face of shrinking technical resources.

3. Deepfield and Security (Including IoT Threats)

Security was a major focus at the SReXperts event, particularly in light of the growing complexity and threat landscape driven by IoT proliferation, cloud adoption, and increasingly sophisticated cyberattacks.

Nokia's Deepfield platform was showcased as a key innovation in network security, offering real-time traffic analytics, (Distributed Denial of Service) DDoS detection, and threat mitigation through AI-driven automation and network telemetry.

Key highlights:

- DDoS Identification and Mitigation
  Deepfield's AI-driven analytics were shown to detect advanced threats including the Eleven11 botnet and emerging AI-based DDoS attack toolkits.

- Identification of Eleven11 Botnet DDoS. A standout case study presented was the identification and analysis of the Eleven11 botnet, a large-scale DDoS attack campaign that leveraged IoT devices and open-source

toolkits to target networks globally. Nokia Deepfield was able to detect, classify, and mitigate the Eleven11 DDoS attacks in real time.

- IoT-Specific Threat Intelligence
  The platform identifies vulnerable endpoints, anomalous behavior patterns, and potential exploit vectors—crucial in municipal environments where IoT proliferation (Closed Circuit Television, sensors, meters) increases the attack surface.

These insights are invaluable in developing a multi-layered security strategy, integrating AI-driven analytics, behavior profiling, and automated mitigation policies.

4. Network Technologies for Electricity Utilities

One of the key themes explored at the SReXperts Event was how utilities are modernizing their communications infrastructure to meet growing reliability, security, and performance demands. The session highlighted the importance of transitioning from traditional SCADA (Supervisory Control and Data Acquisition) systems to IP/MPLS-based networks, which are more scalable, secure, and capable of supporting real-time operations.

Key points included:

Traditional SCADA networks typically rely on serial communications and purpose-built infrastructure that lack agility and are vulnerable to evolving cybersecurity threats. In contrast, IP/MPLS (Internet Protocol/Multiprotocol Label Switching) networks offer:

- Highly resilient, redundant architectures, Deterministic traffic engineering, Built-in security mechanisms and Scalability to support future smart grid, IoT, and automation use cases.

- The benefits of telecommunications networks for grid networks was explored through a case study of the 2025 Iberian Peninsula blackout. For electricity utilities, this event posed a serious threat—not just to power delivery, but to the very systems used to monitor, control, and restore the grid. Amid the widespread outages, utilities with robust IP/MPLS network infrastructure were better positioned to maintain visibility, control field assets, and coordinate restoration efforts. These networks played a critical role in reducing the operational impact of the blackout on grid management systems

This transition mirrors a journey currently under consideration by the City of Cape Town, where modernization of electrical utility communications infrastructure is being explored to enable improved automation, fault isolation, and integration with broader smart city initiatives.

The discussions emphasized that moving to IP/MPLS networks is not just a technology upgrade—it is a foundational enabler for grid modernization, automation, and improved service reliability.

5. Hardware and Test Tools for Diverse Network Applications

The event also offered exposure to a wide range of hardware platforms and testing tools suitable for different deployment environments and operational needs.

Highlights included:

- Router Platforms
  Demonstrations covered routers optimized for edge, aggregation, and core use-cases. Emphasis was on performance-per-watt, modularity, and support for deterministic low-latency routing, essential in Operational Technology (OT) environments. Newer hardware technologies reduce the heat dissipation in infrastructure environments thereby reducing cooling requirements and investments in these environments.

- Network Testing Tools
  Solutions from multiple vendors were presented, showcasing capabilities for layer 2–7 testing, interoperability validation, and network emulation—tools that are critical during upgrades, migrations, and maintenance operations.

These platforms help reduce commissioning time, improve deployment accuracy, and ensure performance compliance for complex municipal network environments.

6. Brainstorming, Problem Solving, and Engagement with Technical Specialists

A key highlight of the SReXperts event was the interactive and highly engaging technical sessions designed to promote brainstorming, collaborative problem-solving, and peer-to-peer knowledge exchange. These sessions provided high value by enabling participants to reflect on their own network environments, benchmark against industry peers, and explore forward-looking strategies in areas such as multivendor operations, technology refresh planning, and security posture optimization.

The sessions encompassed:

- Engagement with Reference Customers:

Participants had the opportunity to learn from live case studies shared by global operators and enterprise network leaders, showcasing their journeys with Nokia technologies in multivendor, mission-critical environments. These reference engagements offered practical insight into how challenges were addressed through automation, AI-based assurance, and network simplification.

For example, a large European utility presented their transition from legacy infrastructure to a converged IP/MPLS platform, discussing Nokia's Network Services Platform (NSP), Service Routing (SR) Linux, and how security was embedded across layers to meet evolving threat landscapes.

- Strategic Outcome-Driven Engagement:

Discussions focused on the shift from technology-first to outcome-first solutions. Presenters and Nokia experts emphasized understanding business outcomes, operational bottlenecks, and scalability needs, aligning technical architectures accordingly. The approach included personalized solution paths, based on operational maturity and future readiness, especially in the context of AI-driven operations and intent-based networking.

These technical discussions will us to critically evaluate the City's current technical network operations and identify areas for evolution, leveraging input from global peers, product specialists, and real-time demonstrations.

In summary of the key take aways from this visit are:

1. Next-Generation Network Management & Monitoring

How AI-driven management can enhance service assurance, traffic optimization, and network resilience. The integration of digital twins and network simulation is directly relevant to the City's intent to modernize its operations. This is vital for cost containment, latency reduction, and avoiding congestion in municipal networks. These capabilities directly support the City's goals to improve visibility and control across its growing network infrastructure, while managing the complexity of services across multiple departments and facilities.

2. Evolving Network Automation

The journey to highly autonomous network functions was demonstrated as a practical roadmap. The step-by-step evolution enables cities like Cape Town to progressively improve operational efficiency without disruption, starting with assisted operations and scaling to AI-driven decision-making. The City manages a large, distributed network with constrained human resources. Adopting a phased automation approach would enable the City to enhance operational agility, even in a multivendor environment. Simulation tools also support better planning and safe testing before live rollouts.

3. Utilities Network Evolution

Discussions around the transition from SCADA to IP/MPLS networks for electricity utilities were particularly relevant. Many utilities are now leveraging NSP-type platforms to enhance control, security, and scalability, while addressing legacy limitations. The City of Cape Town is actively investigating a similar transition, making this an opportune knowledge transfer.

Understanding global utility transformation journeys offers the City a tested blueprint for navigating similar challenges, especially regarding cybersecurity, operational silos, and aging infrastructure.

4. Deepfield and Network Security

Nokia’s Deepfield solution showcased advanced flow analytics and threat detection, including real-time identification of major threats such as the Eleven11 botnet DDoS and AI-driven IoT attacks. These capabilities allow early warning and automatic mitigation, crucial for any smart city infrastructure.

As the City increases its IoT footprint (e.g., smart metering, sensors), the need for advanced, AI-backed security analytics becomes non-negotiable. DDoS protection is a critical requirement on the Cyber Security Roadmap.

5. Hardware and Test Platforms

Multiple technologies were reviewed, covering routers and testing platforms from various vendors. These tools support performance validation, network refresh planning, and interoperability testing, all key components of the City's future-ready network strategy.

Given the City's multivendor environment, exposure to cutting-edge hardware and test solutions is critical to maintaining high service quality and efficient troubleshooting.

6. Collaborative Engagements and Real-World Insights

Engagements with industry peers and reference customers brought forward case studies, especially around effective operations in multivendor environments, refresh planning, and tactical security strategies. These peer engagements allowed benchmarking against other cities and institutions, and provided tangible strategies for implementing outcome-based, citizen-centric network solutions.

Lessons learnt must be used to improve the current challenges on the City’s Metro Area Network environment.

Insights gained and knowledge acquired will be used as input in the development of the City of Cape Town digital strategies, where applicable.

This is a very summarized report showing at a very high level the engagements the delegation had for the week.

In closing the delegation would like to thank the respective Director, Chief Digital Officer, Executive Director, and the City Manager for granting the delegates the opportunity to attend the conference.

10. ANNEXURES

FOR FURTHER DETAILS, CONTACT:

DATE	10 June 2025		
NAME	Vincent Farirayi	CONTACT NUMBER	021 957 4703
E-MAIL ADDRESS	Vincent.Farirayi@capetown.gov.za		
DIRECTORATE	Corporate Services IS&T	FILE REF NO	
SIGNATURE :	Vincent Farirayi Digitally signed by Vincent Farirayi Date: 2025.06.10 10:15:28 +02'00'		

Shuaib Parker Digitally signed by Shuaib Parker Date: 2025.06.10 13:09:30 +02'00'

DIRECTOR: INFRASTRUCTURE SERVICES

SHUAIB PARKER

COMMENT:

Andre Martin Stelzner Digitally signed by Andre Martin Stelzner Date: 2025.06.12 15:15:33 +02'00'

CHIEF DIGITAL OFFICER

ANDRE STELZNER

COMMENT:

Well done on providing a very insightful and relevant report. The insights and learnings are now to be applied to ensure that our telecoms. network remains fit for purposed and world class.

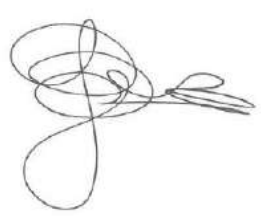
EXECUTIVE DIRECTOR

ERNEST SASS

COMMENT:

The ED's signature represents support for report content and confirms POPIA compliance.

SIGNATURE:



NAME

DATE

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Date: 2025.06.13 10:32:03 +02'00'

MANAGER: INTERNATIONAL RELATIONS

COMMENT:

Acting Manager, while Dr Denver van Schalkwyk is away on Official Business

DR. DENVER VAN SCHALKWYK

SIGNATURE:

DATE

Reagan Mathys
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Date: 2025.06.17 15:53:27 +02'00'

John Laing Smale

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Date: 2025.06.20 12:32:56 +02'00'

LEGAL COMPLIANCE

☐ REPORT COMPLIANT WITH THE PROVISIONS OF COUNCIL'S DELEGATIONS, POLICIES, BY-LAWS AND ALL LEGISLATION RELATING TO THE MATTER UNDER CONSIDERATION.

☐ NON-COMPLIANT

COMMENT:

NAME

TEL

DATE

Certified as legally compliant based on the contents of the report.

Gareth Morgan

Digitally signed by Gareth Morgan
Date: 2025.06.20 15:09:37 +02'00'

CITY MANAGER

☒ NOTED

☒ REFER TO THE MAYORAL COMMITTEE VIA THE RELEVANT SECTION 79 COMMITTEE

DATE

COMMENT: