

PwC Command and Control Centres Maturity Index:

Transforming regional command centres for urban safety and resilience

October 2024



<https://www.pwc.com/me>

Introduction

Command and Control Centres (CCCs) are critical for managing urban operations, enhancing safety and ensuring efficiency in smart city management, policing, Critical National Infrastructure (CNI), border security and emergency response. To meet the demands of modern urban environments, CCCs must transition from traditional, siloed operations to integrated, data-driven systems that enable more cohesive and efficient management.

Technological Innovations such as AI, digital twin, AR/VR, IoT and big data have the potential to transform CCC capabilities. Leading examples like the Ubiquitous Integrated Centre in Anyang-si, South Korea, and the Rio Operations Centre in Brazil demonstrate the significant impact of integrating these advanced technologies into CCC operations. These centres serve as benchmarks, showcasing how data-driven, connected systems can revolutionise urban management and emergency response.

The CCC Maturity Index, developed by PwC Middle East, is pivotal in guiding the transformation of CCCs. This index assesses CCCs on a three-level scale - Traditional, Advanced, and Moonshot. The Traditional level focuses on foundational monitoring, while the Advanced level enables predictive operations with real-time data. The Moonshot level enables automated strategy generation from real-time data analysis.

This comprehensive assessment provides a clear roadmap for CCCs, ensuring they are well-informed and guided in their transformation journey.

The CCC Maturity Index evaluates governance, operations and technology, identifying strengths and weaknesses to guide strategic improvements and align with best practices. This framework helps CCCs adapt to challenges, optimise resources and enhance cross-domain collaboration.

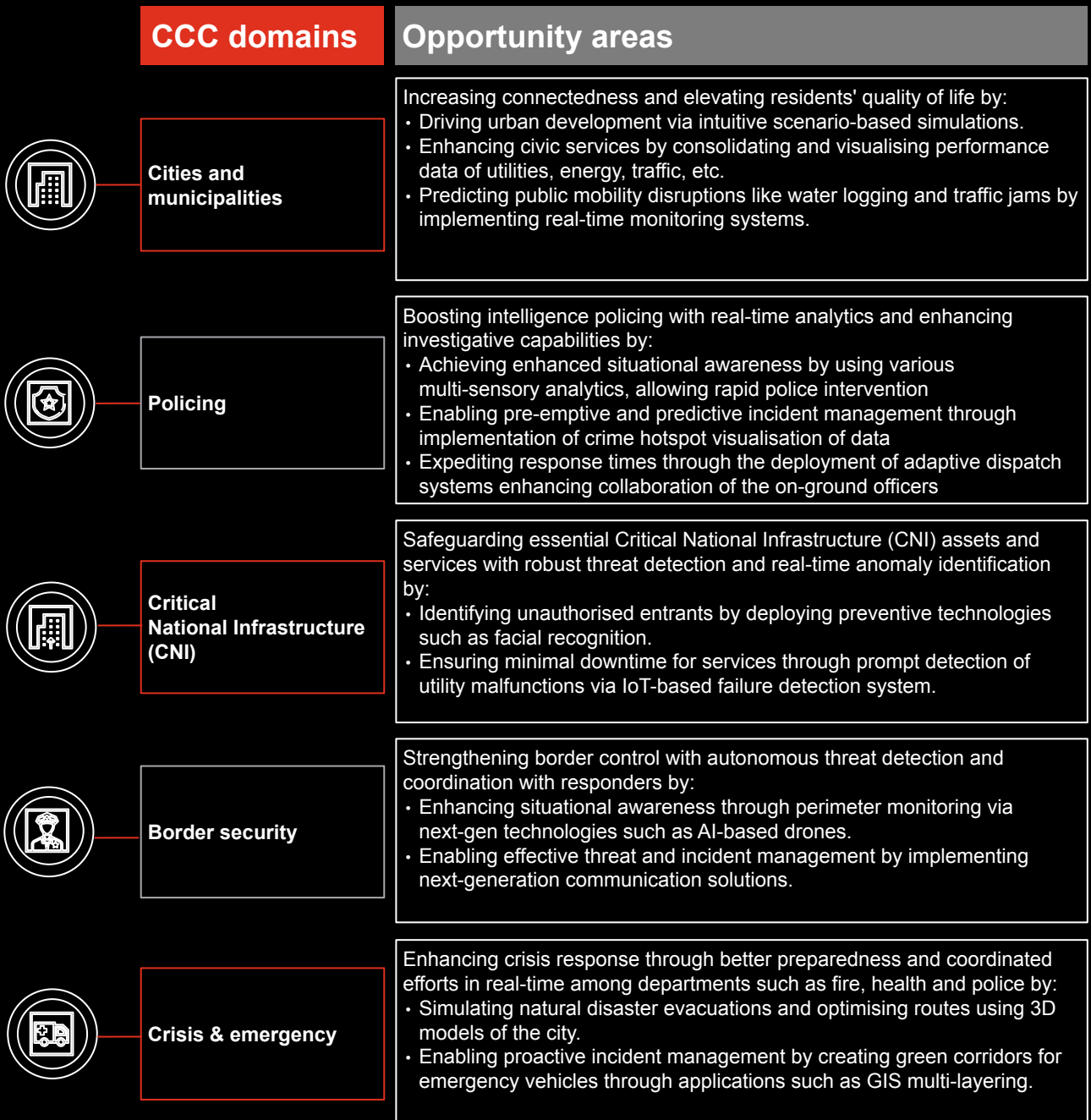
Modernising CCCs aims to create intelligent, proactive systems that anticipate and mitigate threats, ensuring urban safety and resilience. As cities grow, technological maturity of CCCs and transition to moonshot is becoming increasingly crucial, emphasising the need for continuous advancement and innovation. In the Middle East, KSA is set to lead the way with its ambitious vision, embracing cutting-edge technology and fostering strong public-private partnerships to define the standard for Moonshot CCCs.

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Command and Control Centres: Domains and opportunity areas

Command and Control Centres (CCCs) play a critical role in managing critical situations efficiently in today's complex world. As central hubs, CCCs coordinate activities across various domains, enhancing safety and operational effectiveness. Their importance spans both day-to-day operations and emergency management, making them indispensable for maintaining stability and responding to crises. CCCs operate across various domains, from smart city management to securing borders and emergency response. Their capabilities continue to evolve across these domains, but addressing domain specific challenges with urgency is critical to their success.



These opportunities highlight the need need for transforming of CCCs into intelligent, proactive operations. Modern CCCs must be pre-emptive and prescriptive, capable of automatically generating predictive models and anticipating threats before they occur. By integrating across domains, CCCs can streamline processes and address the diverse challenges of urban management.

Transforming Command Centres: Enhancing urban efficiency with one CCC

The evolution of modern CCCs from siloed operations into integrated hubs is not just a possibility, but a necessity. Incorporating advanced technologies such as AI, digital twins, AR/VR, IoT, and big data is the way forward. Currently, most entities are using traditional, segregated CCCs to manage activities across multiple domains, but the need for change is urgent.

Transitioning to an integrated CCC holds the promise of significantly improving operational efficiency for cities. For instance, it can lead to a 25-30% enhancement in emergency response rates, as demonstrated by the Ubiquitous Integrated Centre at Anyang-si, South Korea, and the Rio Operations Centre in Rio de Janeiro, Brazil. Similarly, the Dubai Roads and Transport Authority (RTA) achieved a 36% improvement in response and recovery time by integrating the Joint Flood Management Room into its Enterprise Command and Control Centre (EC3). This potential for improvement is a reason for optimism in the future of city management.

Why One CCC? Aligning mandates and promoting a shared vision creates an adaptable CCC ecosystem that provides strategic benefits. These benefits include improved resource allocation, faster response times, and better decision-making, all of which contribute to a more efficient and effective city management system.



Common **mandate** to rationalise operations in accordance with compliance, regulations and best practices.



Shared **vision** to achieve excellence in outcomes through innovative strategies and continuous improvement.



Resource **optimisation** through enhanced collaboration and expertise utilisation across domains for collective effectiveness and improved efficiency.

Key attributes of One CCC



People-centric, increasing connectedness, prioritising quality and accessibility of services.



Omnipresence, maintaining constant vigilance through continuous remote monitoring, enabling enhanced situational awareness.



Adaptable threat response, scalable to evolving threats with agility and dynamic protocols, ensuring swift response.



User-friendly workflows, with intuitive and engaging interfaces through enhanced visualisations.



360° holistic decision intelligence, leveraging cross-domain data fusion to ensure proactive incident management.



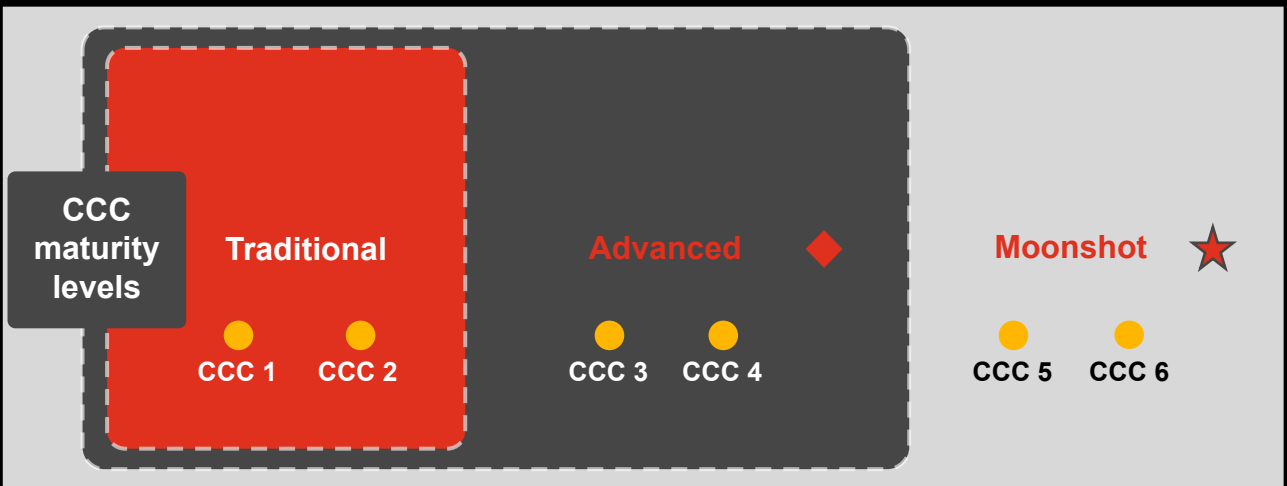
Interoperability and unified communications, enhancing response speed and efficacy through co-ordinated actions.

To establish consistency within the CCC ecosystem, it is important to implement a maturity assessment framework. This framework can evaluate CCCs in various domains using standardised attributes and parameters.

PwC's CCC Maturity Index: Introduction and stages

It is crucial for CCCs to understand their maturity level to maximise their potential through effective planning. An established framework for this assessment will guide them in understanding their current maturity and align them with strategic goals and international best practices. This framework will help outline the initiatives, investments, and efforts needed to advance through the stages of maturity in their CCC developmental journey.

PwC's CCC Maturity Index



Low Maturity score scale High

● CCC rating ◆ Average rating ★ Overall best rating For illustrative purposes

The maturity assessment of CCC will be rated on a three-level scale: **Traditional** for the basic level, **Advanced** for a proactive approach, and **Moonshot** for the most advanced stage, anticipated to have a prescriptive environment.

Traditional	Advanced	Moonshot
Reactive environment with basic monitoring capabilities and domain-specific visualisations, leading to limited actionable insights.	Predictive operational environment that leverages consolidated real-time data and summarised visualisation to anticipate potential outcomes.	Prescriptive environment with automated generation of actionable strategies through seamless integration of internal and external sources.

CCC Maturity Index: Assessment parameters

The assessment framework is the roadmap for CCCs as they aim to evolve towards moonshot. It assesses the three critical parameters of the CCC: Governance ensures strategic adaptation of policies, regulations and KPIs with a supportive leadership environment; Operations optimises workflows and directs the development of SOPs, initiatives, and service tiers for swift response; and Technology, a key player, provides infrastructure and supporting tools to enhance service delivery and generate actionable insights, ensuring efficient operations. Across the three parameters, innovation drives continuous improvement and competitive advantages to enable a future-ready CCC.

PwC's CCC Maturity Index assessment parameters



Governance

Assesses the alignment with designated goals, defined roles for decision-making, and effective communication mechanism across stakeholders.



Operations

Assesses the efficiency and effectiveness of daily tasks and how a CCC operates with respect to performance and responsiveness.



Technology

Assesses technology integration and how CCC leverages technologies to streamline activities, enhance data-driven decision-making, and security.

Detailed insights from the assessment of these parameters will help in making more informed and strategic choices.

Key themes for CCC advancement

Innovative Technology

Unified Communications

Workforce Skill Assessments

Stakeholder Engagement and Review

Dynamic Threat Detection

Incident Response Preparedness

Immersive Training and Simulations

IT Infrastructure Resilience

Resource Allocation and Utilisation

VR-based CCC

Data Management

Digital Governance and Expertise

Process Mapping

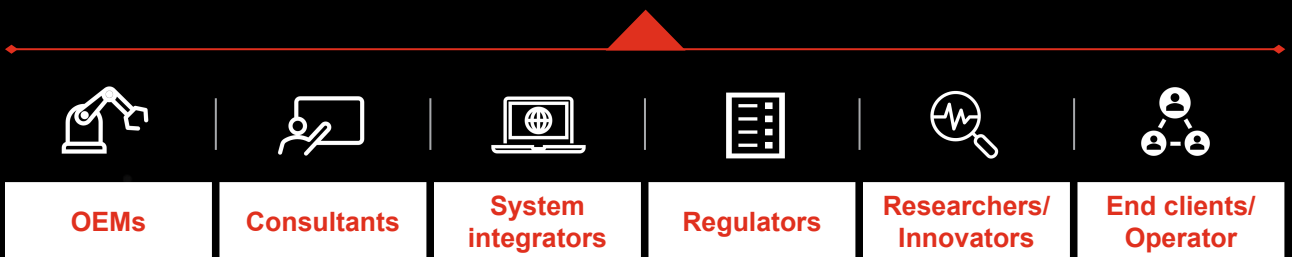
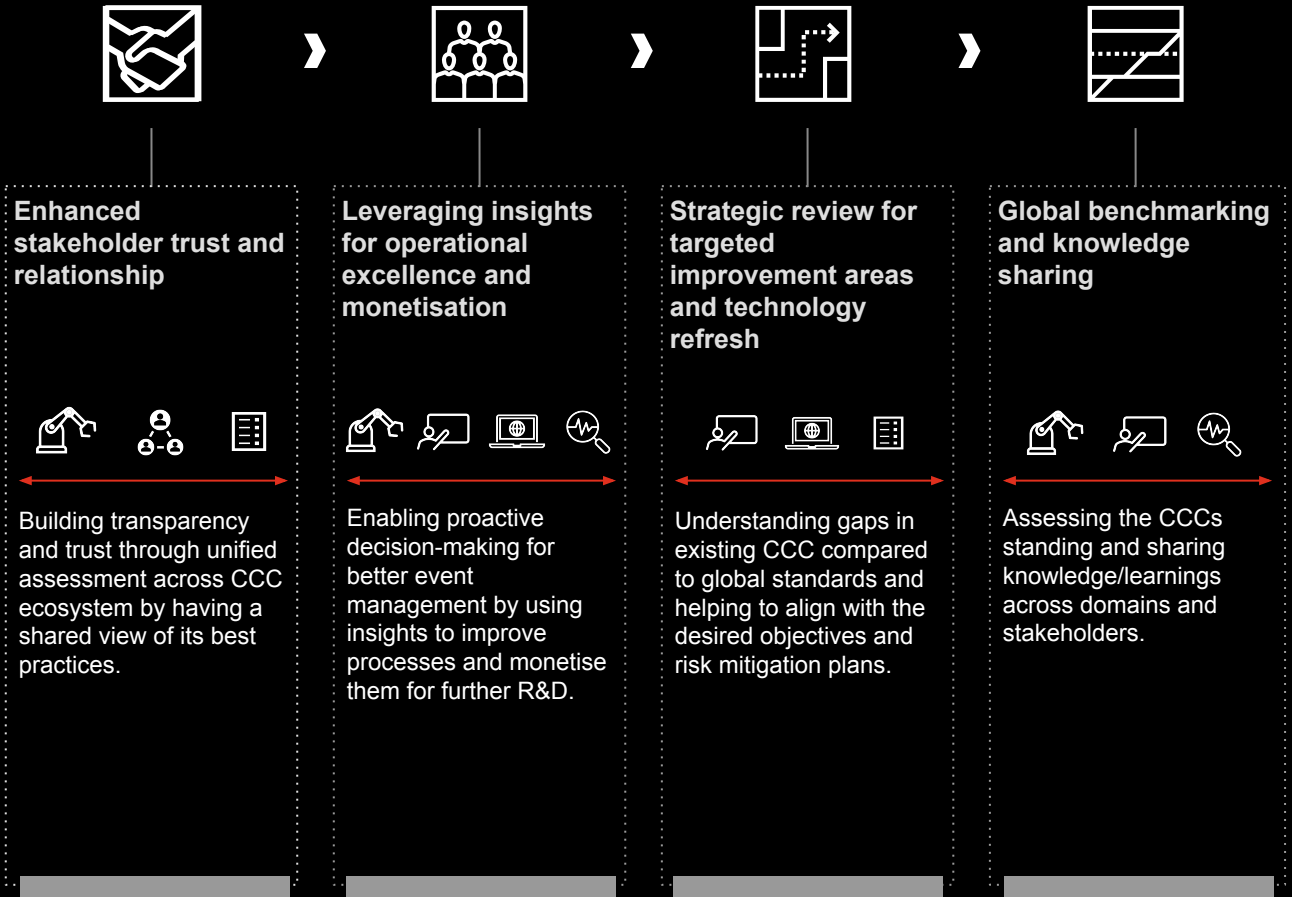
Single Pane of Glass

Systems Integration and Efficiency

Along with many other benefits, the Maturity Index will empower CCC to optimise its effectiveness and ensure that the critical infrastructure remains resilient across multiple aspects.

CCC Maturity Index: Assessment benefits

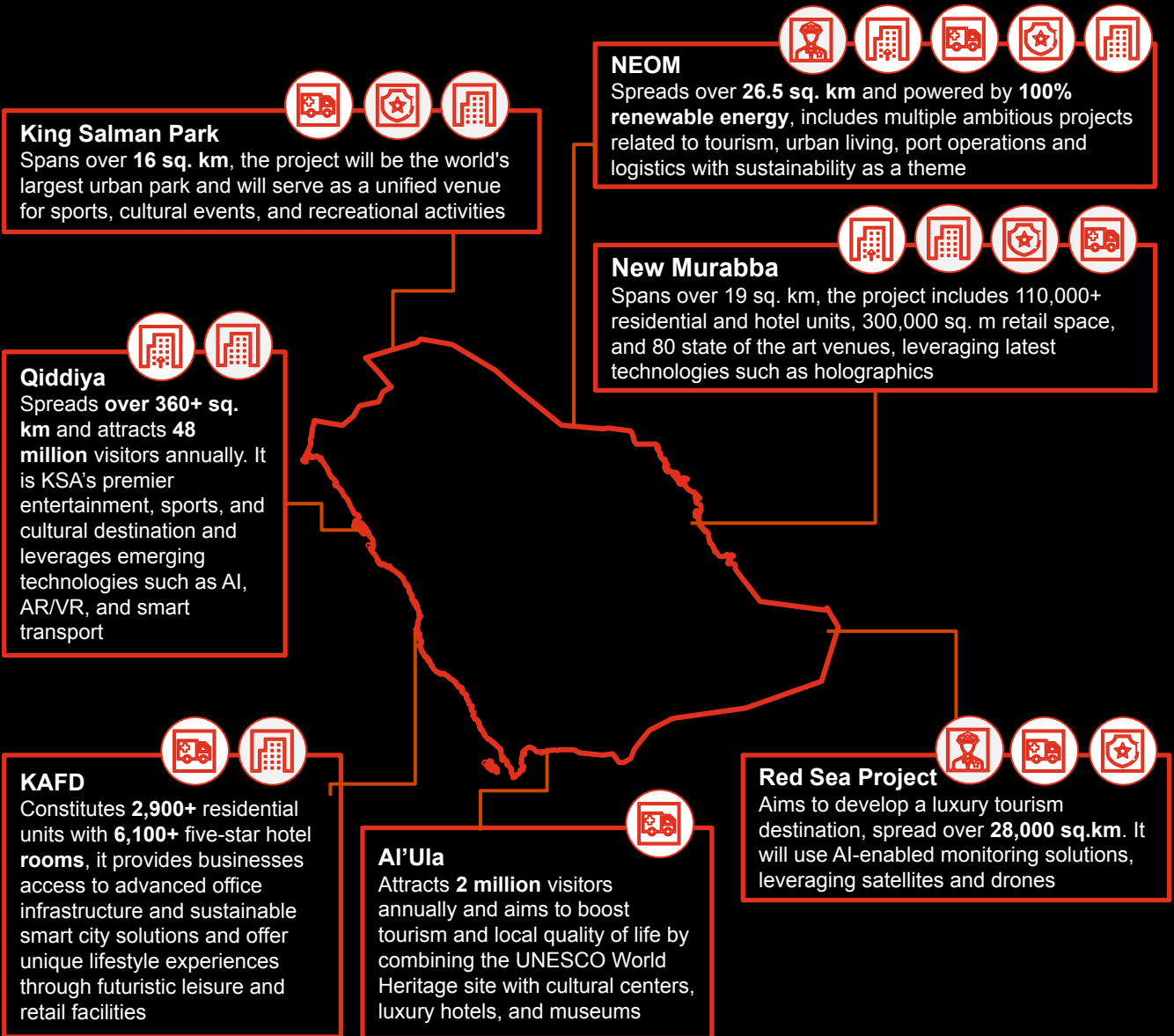
Assessment benefits to the ecosystem



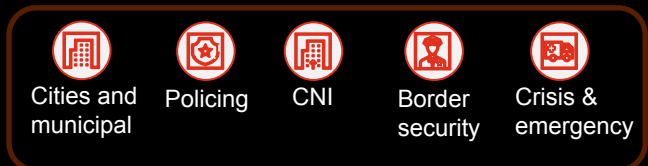
By working in synergy, all stakeholders within the CCC ecosystem can harness these benefits to create a more robust, optimised and reliable environment for CCCs.

Window of opportunity: Pioneer one CCC in KSA

In alignment with Saudi Vision 2030, the Kingdom has embarked on several giga projects aimed at enhancing the overall quality of life and driving economic diversification. Large-scale initiatives like NEOM and the King Abdullah Financial District (KAFD) are utilising advanced technologies such as AI, IoT, 5G, and augmented reality to enhance efficiency and sustainability. These innovations make the projects more appealing for investment and private sector involvement, which is crucial for managing their complexity and ensuring their success in shaping Saudi Arabia's future economy.



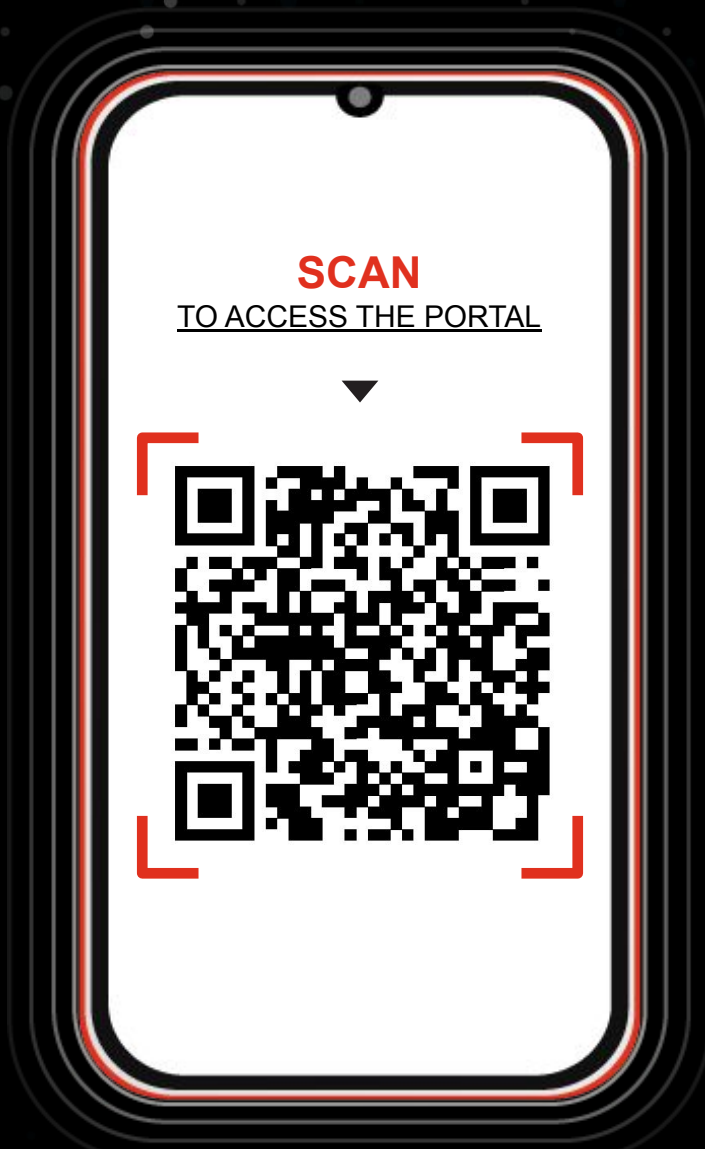
As KSA giga projects are focused on unification of various sectors, it will bring together various domains of CCCs to function as a cohesive entity under One CCC. This window of opportunity, combined with a forward-looking vision, technological advancements, strategic investments, and public-private partnerships, will empower KSA to lead the evolution of One CCCs toward ambitious "moonshot" goals.



Evaluate the maturity of your Command and Control Centre today

Are you ready to assess your CCC maturity?

Gauge, evolve and reach for the moonshot. Fill in your details today!



You can also experience the future of command centres at [PwC Command Centre Fut'VR'e Lab](#), a VR-enabled vision for urban security and incident management.

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