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WHITEPAPER
FUTURE TECHNOLOGIES

Public CCTV
A Strategic Asset for Local Government

Commercial in Confidence

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# EXECUTIVE SUMMARY

Public Closed-Circuit Television (CCTV) systems are integral to enhancing public safety, deterring crime, monitoring traffic, and supporting emergency response efforts in local communities. However, many Australian local governments grapple with the challenge of replacing aging infrastructure originally funded by grants no longer available. Additionally, they face compliance hurdles with privacy regulations. This whitepaper offers strategic solutions to help local governments transform their CCTV systems into strategic assets.

## Key Points

* Benefits of public CCTV:
Survey data underscores the widespread adoption of CCTV by local governments, highlighting its effectiveness in crime prevention, traffic management, emergency response, event monitoring, economic development, and urban planning. However, local governments continue to face challenges such as funding constraints, gaps in technical expertise, issues with integration, complexity in data analysis, and governance gaps.
* Solutions for public CCTV:
The paper outlines vital solutions to overcome challenges:
	+ Transitioning from capital to operational expenditure for funding.
	+ Adopting cloud-based, scalable platforms to reduce complexity and cost.
	+ Leveraging AI and analytics to extract actionable insights from video data.
	+ Collaborating with stakeholders to share resources and data.
	+ Developing and implementing robust policies aligning with best practices and standards.
* By implementing these solutions, local governments can unlock the full potential of their CCTV systems, ensuring they remain strategic assets that enhance community safety, drive economic development, and inform urban planning.

# INTRODUCTION

Public CCTV is a vital tool for local government to enhance public safety, deter crime, monitor traffic, and support emergency response. However, many local governments in Australia face the challenge of replacing their end-of-life CCTV infrastructure, initially funded by state and federal grants that are no longer available.

This whitepaper aims to guide local governments in overcoming this challenge and turning their CCTV into a strategic asset that can generate actionable insights and value for their communities.

# BENEFITS OF PUBLIC CCTV

Public CCTV has been widely adopted by local government in Australia for various purposes, such as:

* Improving public safety by deterring and detecting crime, anti-social behaviour, and vandalism.
* Enhancing traffic management by monitoring congestion, accidents, and parking violations.
* Supporting emergency response services by providing real-time situational awareness.
* Facilitating event management by measuring attendance, behaviour, and movement patterns.
* Enabling economic development and tourism by attracting visitors, businesses, and investors.
* Informing urban planning and design by analysing pedestrian and vehicle flows, land use, and environmental conditions.

According to a survey by the Australian Local Government Association (ALGA) in 2019, 82% of local governments reported having CCTV systems in their areas, and 74% of them indicated that CCTV was effective or very effective in achieving their objectives. The survey also found that the main drivers for installing CCTV were crime prevention, community safety, and traffic management.

## Challenges

The survey also revealed some of the challenges that local governments faced in relation to CCTV, such as:

* Insufficient funding to maintain CCTV systems.
* Limited technical expertise to operate CCTV systems.
* Lack of integration and interoperability between different CCTV platforms.
* Inadequate data analysis capabilities to extract value from video data.
* Unclear policies and guidelines on privacy and ethics.

These challenges highlight the need for local governments to adopt a strategic approach to CCTV that can address the current and future needs of their communities, while also ensuring compliance with legal standards.

# SOLUTIONS FOR PUBLIC CCTV

To overcome the challenges and maximise the benefits of public CCTV, local governments need to consider the following solutions:

1. Transitioning from capital expenditure to operational expenditure to overcome funding restraints.
2. Adopting cloud-based CCTV platforms that can ease technical complexity.
3. Collaborating with other stakeholders to share CCTV resources.
4. Leveraging artificial intelligence and analytics to transform video data into actionable insights.
5. Implement CCTV policies that align with best practices and standards.

These solutions will be discussed in more detail in the following sections.

#  TRANSITIONING FROM CAPEX TO OPEX

## The challenge

One of the main challenges that local governments face regarding CCTV is the lack of funding to maintain, upgrade, and expand their CCTV infrastructure. This is partly due to the fact that most CCTV systems were initially funded by state and federal grants that are no longer available, as well as the high capital costs of CCTV equipment.

## The solution

Local governments must transition from a capital expenditure (capex) model to an operational expenditure (opex) model for CCTV funding, reducing the financial burden by shifting from significant upfront investment to regular payments. Without having to own CCTV assets, local governments can keep their projects within the budget, and also have the benefit of being able to upgrade anytime to accommodate future changing needs. Other responsibilities tied to owning CCTV hardware, such as managing upkeep, will also be taken out of local government’s hands, increasing the return on investment.

Local government can transition from capex to opex for funding by adopting a CCTV as a service (CCTVaaS) model. This subscription-based model allows local government to access CCTV services from a third-party provider without having to purchase, install, or maintain equipment. The provider is responsible for delivering, managing, and updating the infrastructure, while local government only pays for what it uses.

CCTVaaS can offer several advantages for CCTV usage in local government, such as:

* Lowering the upfront costs.
* Increasing the scalability of CCTV capacity.
* Improving the reliability of systems.
* Enhancing the integration and interoperability of CCTV with other platforms.
* Accessing the latest technology in CCTV.

When considering a CCTV as a Service (CCTVaaS) provider, there are several key factors local governments should consider:

Define objectives: This could be for crime prevention, identifying offenders, or other public safety issues.

Technology selection: The CCTV system should be selected based on specific local issues and capable of meeting the council's needs.

Legal considerations: Councils should ensure the CCTV system complies with privacy laws and regulations. This includes the responsible use of CCTV surveillance in public places.

Stakeholder consultation: It's important to undertake stakeholder consultation. This could involve local businesses, residents, and law enforcement agencies.

Implementation and management: Councils should have a clear plan for the CCTV system, including the sourcing of technical advice for specifications, installation, and implementation.

Evaluation: Regular evaluation of the CCTV system is crucial to ensure it effectively meets objectives.

Costs: Councils should consider all costs of CCTV, including equipment, installation, maintenance, and personnel training.

Partnership with local police: The CCTV system should be operationally linked with local police forces to detect crime.

The best outcomes are achieved when CCTV is part of a combination of other crime prevention strategies tailored to local issues.

# ADOPTING CLOUD-BASED AND SCALABLE PLATFORMS

## The challenge

Local governments have found it challenging to operate CCTV systems due to a lack of technical expertise. This is partly because most CCTV systems are based on inflexible proprietary technology and partly because there is a shortage of qualified staff to handle CCTV operations.

## The solution

Local governments must adopt cloud-based and scalable CCTV platforms that reduce complexity while improving effectiveness. This means moving from a traditional, on-premise CCTV architecture to a modern, cloud-based architecture that can leverage the benefits of the cloud and the Internet of Things (IoT).

Cloud-based CCTV platforms can provide several benefits for local government, such as:

* Reducing hardware requirements.
* Increasing accessibility of data from any location.
* Improving the performance of CCTV services.
* Enabling automation workflows.
* Facilitating the innovation of CCTV features.

Ensuring the scalability of cloud-based platforms is also necessary, as it can increase the platform's capabilities. Scalable platforms add enhanced functionality to allow systems to adapt swiftly to changing needs, ensuring the best image and video quality is used while also readying systems for expansion and future developments.

# COLLABORATING WITH STAKEHOLDERS TO SHARE RESOURCES AND DATA

## The challenge

The lack of integration and interoperability between different CCTV systems limits the data that can be recorded. This is partly because most systems are based on incompatible proprietary technology and partly due to the lack of standards to enable data sharing.

## The solution

To address this challenge, local governments must collaborate with other stakeholders and partners to share CCTV resources. This means establishing relationships with various entities that are involved in CCTV, such as:

Other local governments can share CCTV solutions to achieve economies of scale.

State and federal governments can provide CCTV support to ensure alignment with national and regional policies.

Police and emergency services can access CCTV data to enhance public safety and support emergency response.

Businesses with their own CCTV technology can provide expertise to improve data quality.

Civil societies can participate in data collection and can be trusted to provide feedback to ensure CCTV transparency.

By increasing the coordination of CCTV initiatives between stakeholders, local governments can also improve data quality by reducing the chance of duplication. The relationships built between partners can also facilitate training for CCTV practices and enhance confidence between local government and stakeholders.

Some examples of collaboration tools and platforms for CCTV are:

* National CCTV Program: a federal government initiative that provides funding and support for local government to install CCTV systems.
* Australian CCTV Standard: a set of standards and guidelines that provide recommendations for CCTV design, installation, operation, and maintenance.
* Australian Crime Prevention Network: a network of local government, police, and community organisations that share information regarding CCTV to reduce crime.

# LEVERAGING ARTIFICIAL INTELLIGENCE FOR INSIGHTS

## The challenge

The lack of data analysis and intelligence capabilities to extract value from video data has proven to be another challenge for local government. This is partly due to the fact that most CCTV systems generate large volumes of video data that are difficult to store and analyse, and partly due to the lack of techniques to transform video data into actionable insights.

## The solution

Local governments must pair Artificial Intelligence (AI) with analytics to turn video data into useful information. This means applying smart algorithms to video data, enabling features such as:

* Recognising entities such as pedestrians and vehicles.
* Tracking activities like movements, behaviours, and patterns.
* Segmenting scenes, locations, and environments.
* Detecting incidents, accidents, and emergencies.
* Reporting insights and metrics while identifying trends.

AI transforms local government operations by using analytics to increase data processing efficiency. It supports stakeholder decision-making and ensures the data can have the best impact on local government objectives. An additional benefit is how analytics can enable the data to be monetised for various markets, innovating products and services.

When local government is looking to leverage AI and analytics for actionable insights, there are several key factors they should consider:

* Understanding AI's impact: AI has the power to transform local government operations, making them more citizen-centric. By leveraging AI technologies, local governments can streamline processes, automate routine tasks, and gain valuable insights from vast amounts of data.
* Strategic alignment: It's important to understand strategic priorities by addressing key questions. This will provide the proper context for acting on insights.
* Data acquisition: It is crucial to acquire the correct data from trusted sources across the government, non-government, and private sectors and then securely make it available for efficient analysis.
* Use of advanced analytics techniques: Advanced data analytics techniques such as machine learning and predictive modelling can provide rich insights targeted at local government objectives.
* AI governance: As AI continues to advance, local government boards must understand the implications and responsibilities that come with its implementation. This includes ethical considerations, maintaining human oversight, and enforcing strict data privacy laws to protect citizen information.
* Upskilling or recruiting key personnel: Government organisations will need a plan to modify existing processes, upskill or recruit key personnel, refine approaches towards partnership, and develop the necessary data and technical infrastructure to deploy AI.
* The four pillars of AI landscape: Interactive AI, intelligent discovery and insights, hyper-automation, and intelligent operations are the pillars that best align with state and local government’s future vision.

Achieving a truly data-driven government requires more than just providing information to decision-makers—it requires generating accurate and relevant insights that decision-makers can act on and ensuring timely communication.

# IMPLEMENTING POLICIES THAT ALIGN WITH BEST PRACTICES

## The challenge

Another challenge local government faces regarding CCTV is the lack of clear policies on privacy and ethics. This is partly because CCTV involves complex legal risks and partly because CCTV data users and stakeholders do not understand their responsibilities.

## The solution

To address this challenge, local government must implement CCTV policies and guidelines aligning with best practices. This means establishing regulations that govern CCTV operations, beginning with:

* Objectives and scope defining the purpose of CCTV use.
* Assigning responsibilities of CCTV data owners, managers, and users.
* Regulating access and disclosure of CCTV data.
* How to store and delete CCTV data, and how long to keep it.
* Monitoring the performance by measuring and reporting the impact on objectives.
* Audit reviews verifying data compliance and that it aligns with legal standards.

Implementing policies for CCTV data doesn’t just reduce legal risks for local government; they also increase efficiency and trust between data users and stakeholders by ensuring accountabilities are understood. With the confidence of policies behind them, local government can focus on enhancing the value of CCTV data and facilitate improving practices.

Some examples of policies and frameworks for CCTV are:

* Privacy Act 1988: A federal legislation that regulates the collection, use, and disclosure of personal information, including CCTV data.
* Australian Privacy Principles: A set of principles that provide guidance and standards for the handling of personal information, including CCTV data
* Office of the Australian Information Commissioner: A federal agency that oversees and enforces the compliance and performance of CCTV data and systems with privacy laws and principles.

# CONCLUSION

Public CCTV is a strategic asset for local government that can provide various benefits for public safety, economic development, and planning. However, local government also faces various challenges in relation to CCTV, such as funding, technology, data, collaboration, and governance. To overcome these challenges and maximise the benefits of CCTV, local government needs to consider the following solutions:

* Transitioning from capex to opex for CCTV funding.
* Adopting cloud-based and scalable CCTV platforms.
* Collaborating with other stakeholders to share CCTV resources and data.
* Leveraging AI and analytics to transform video data into actionable insights.
* Implementing CCTV policies that align with best practices and standards.

By implementing these solutions, local government can turn their CCTV into a strategic asset that can generate value and impact for their communities.

For more information, or to get started with Public CCTV today, contact Nathan Tremlett from Ericom’s Future Technology team at engage@ericom.com.au.