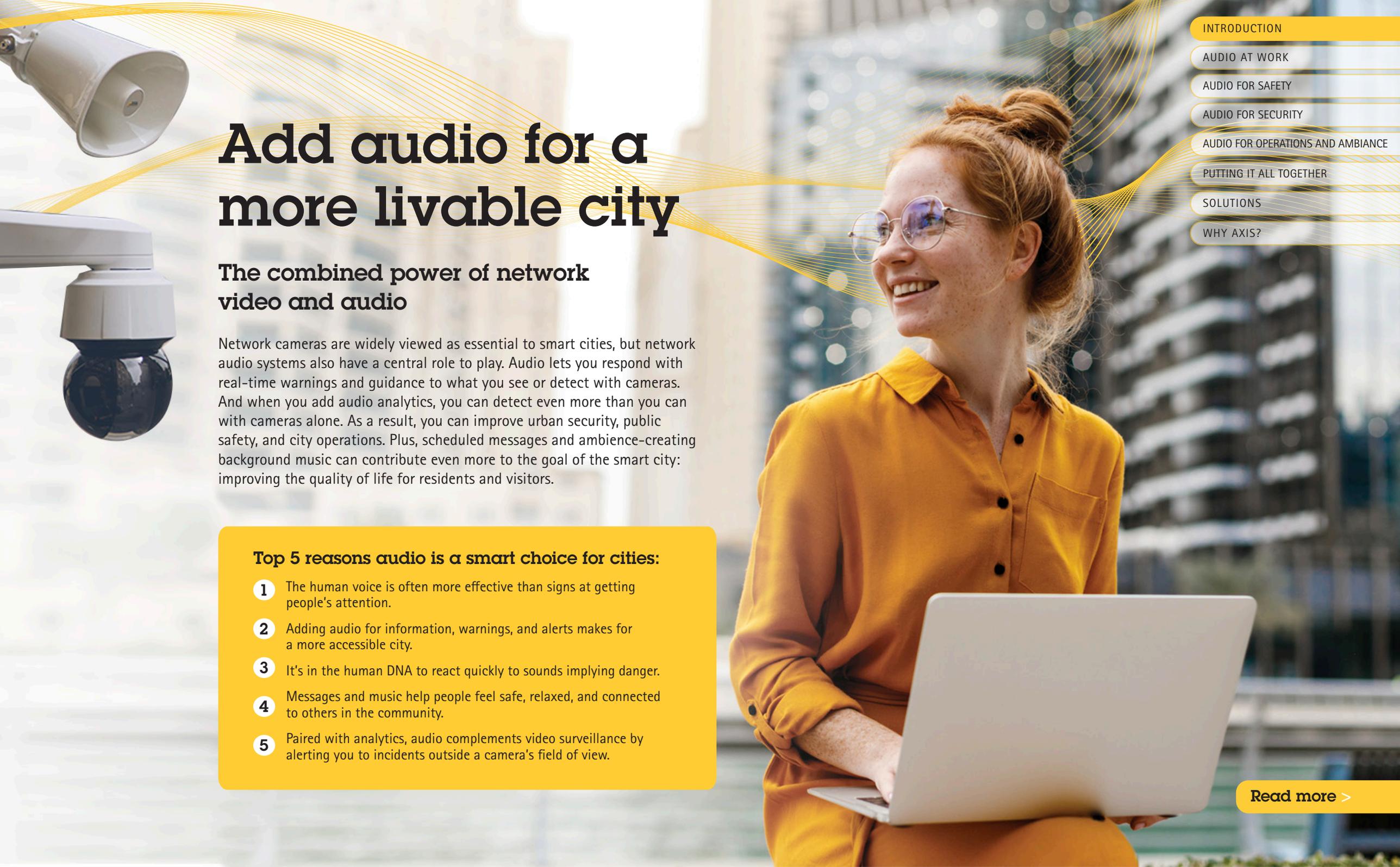




Axis network audio solutions for smart cities

# The sound of a safer and more efficient city



# Add audio for a more livable city

## The combined power of network video and audio

Network cameras are widely viewed as essential to smart cities, but network audio systems also have a central role to play. Audio lets you respond with real-time warnings and guidance to what you see or detect with cameras. And when you add audio analytics, you can detect even more than you can with cameras alone. As a result, you can improve urban security, public safety, and city operations. Plus, scheduled messages and ambience-creating background music can contribute even more to the goal of the smart city: improving the quality of life for residents and visitors.

### Top 5 reasons audio is a smart choice for cities:

- 1 The human voice is often more effective than signs at getting people's attention.
- 2 Adding audio for information, warnings, and alerts makes for a more accessible city.
- 3 It's in the human DNA to react quickly to sounds implying danger.
- 4 Messages and music help people feel safe, relaxed, and connected to others in the community.
- 5 Paired with analytics, audio complements video surveillance by alerting you to incidents outside a camera's field of view.

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# 3 good reasons to add audio

Network audio adds value to your city by helping you communicate clearly at the right time, in the right places.

**1**

## Audio for safety

When every moment counts, signals, alarms, and prerecorded or live messages let you reliably deliver crucial warnings and up-to-the-minute information and instructions.

**2**

## Audio for security

Network audio adds value to your network surveillance system by helping you act on observed or automatically detected events to deter crime. You can set up your system to automatically trigger prerecorded messages in response to potential criminal activity, or to alert an operator or guard to address the scene live.

**3**

## Audio for operations and ambiance

A single cost-effective network solution can enable scheduled and live public address for paging, guidance and instructions, reminders of rules and regulations, general information and event updates – even background music.

“ A combination of audio and visual communication is generally the best solution if you want to get people’s full attention.

Margareta Andersson  
Sound Architect, Efterklang, Stockholm, Sweden

[Read more >](#)

# 3 flexible ways to add audio

And make your city smarter, safer, and more livable

## 1 Live voice messages or manually triggered, prerecorded messages



1 Sensor, analytics-equipped camera or speaker, or authorized person triggers a notification to the remote operator



2 Operator evaluates the alert and the scene, then determines whether to speak live or manually trigger a prerecorded message



3 The selected speakers broadcast the chosen message

## 2 Prerecorded messages triggered by an event such as detected motion or unusually high noise levels



1 Sensor or analytics-equipped camera or speaker detects an event and triggers a prerecorded message



2 The selected speakers automatically broadcast a prerecorded message



3 Optionally, the system can also alert a remote operator, who will take any necessary follow-up action

## 3 Prerecorded, scheduled messages, plus background music



1 Operator uses audio management software to manage content, schedules, and zones



2 The selected speakers broadcast scheduled music and prerecorded messages

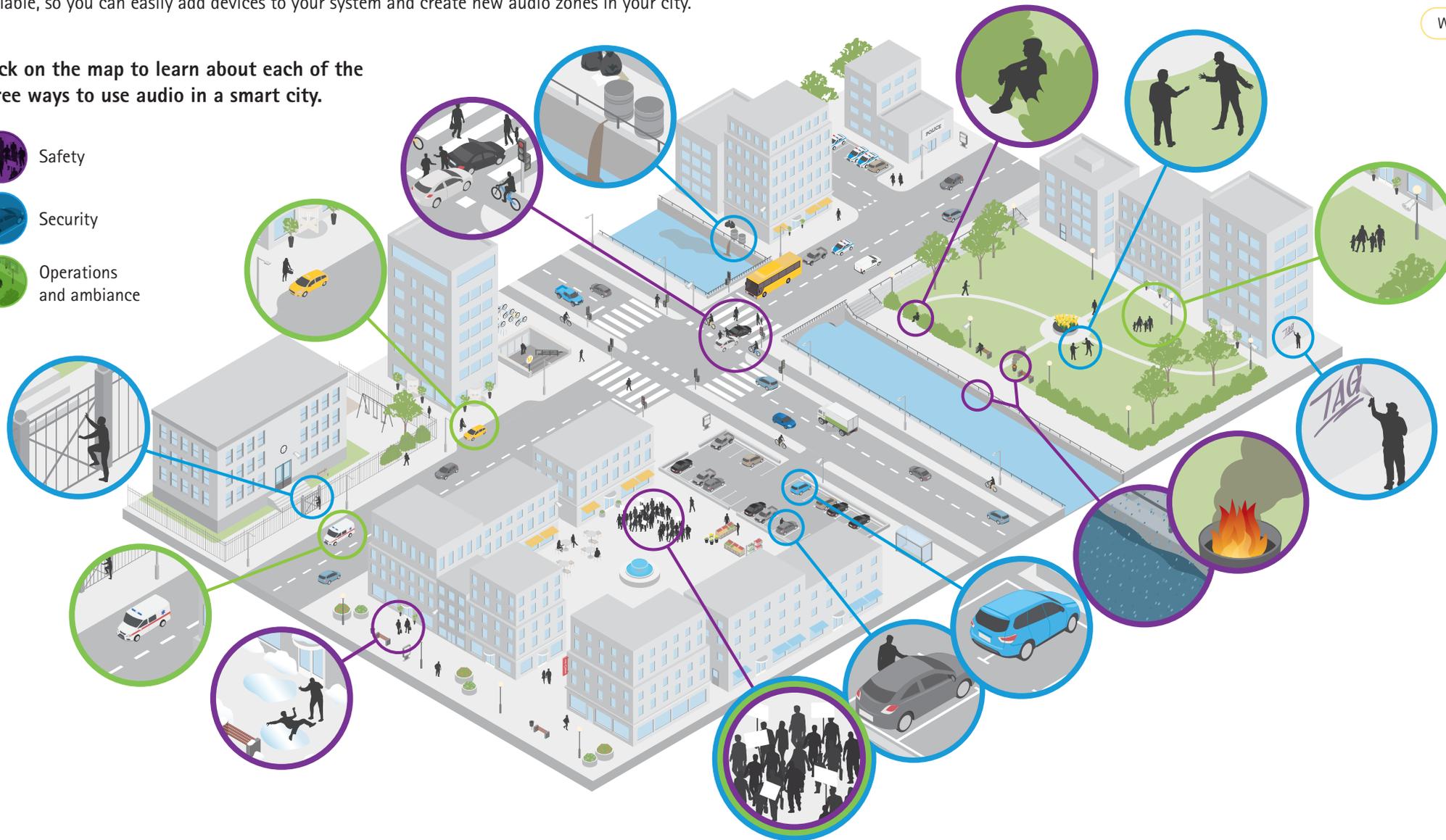
Using sound effectively, cities can greatly improve urban security, public safety, and even city operations.

# Audio at work in a smart city

How can you put audio to work in your city? Deliver critical information right where it's needed in urgent situations. Proactively deter crime. And provide non-critical messages and music that improve the way people experience life. Plus, network audio is so flexible that you can adapt it to new purposes as they arise. And it's scalable, so you can easily add devices to your system and create new audio zones in your city.

Click on the map to learn about each of the three ways to use audio in a smart city.

-  Safety
-  Security
-  Operations and ambiance

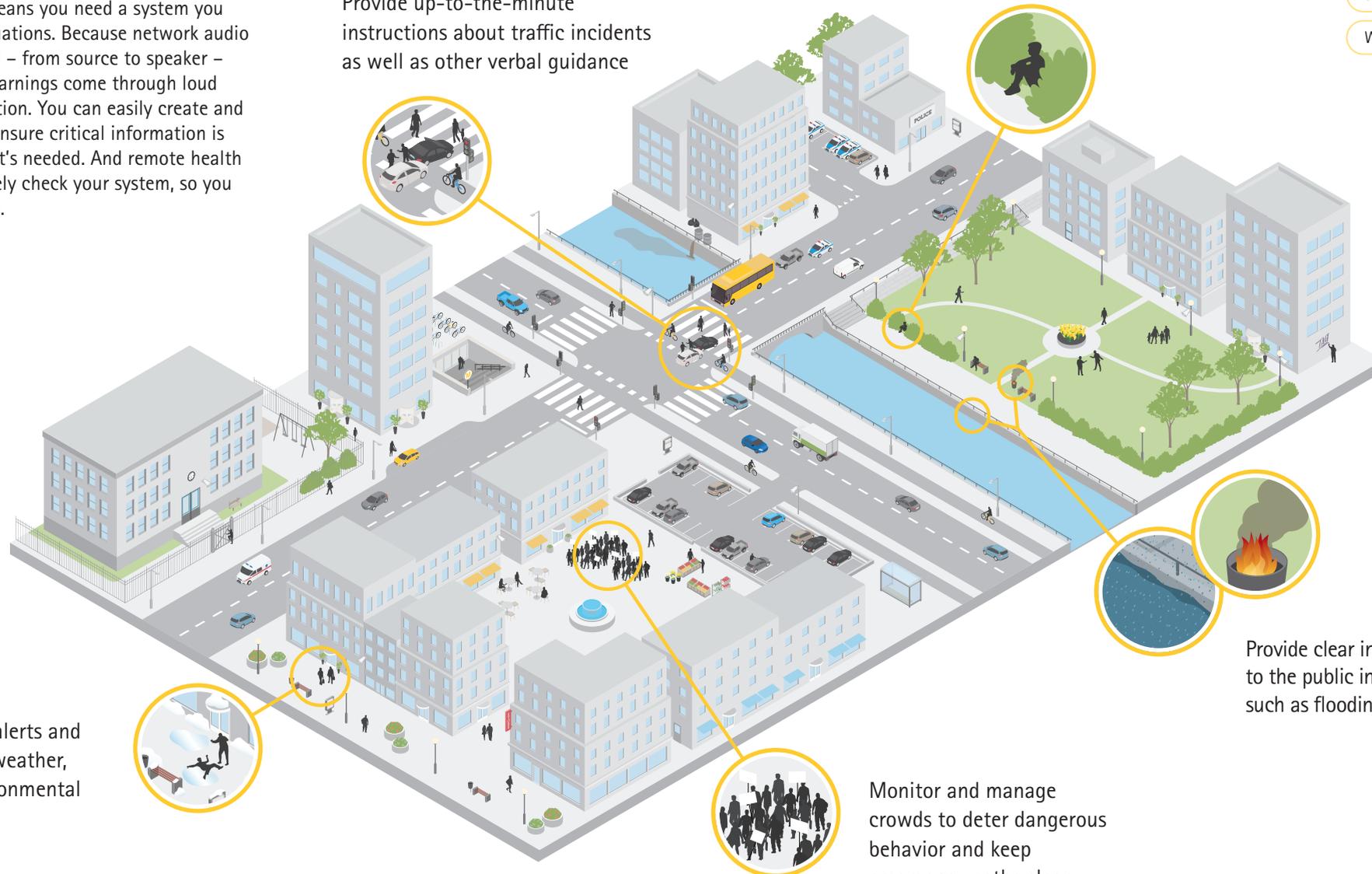


# Keep people safe

For a city to be truly livable, residents and visitors alike have to feel safe. That means you need a system you can rely on in urgent situations. Because network audio systems are 100% digital – from source to speaker – audio instructions and warnings come through loud and clear, without distortion. You can easily create and manage audio zones to ensure critical information is delivered exactly where it's needed. And remote health testing lets you proactively check your system, so you always know it's working.

Use live audio messages to speed up the search for a missing child

Provide up-to-the-minute instructions about traffic incidents as well as other verbal guidance



Complement your mass notification system with alerts and instructions for extreme weather, natural disasters, or environmental dangers like air quality

Provide clear instructions to the public in situations such as flooding or fire

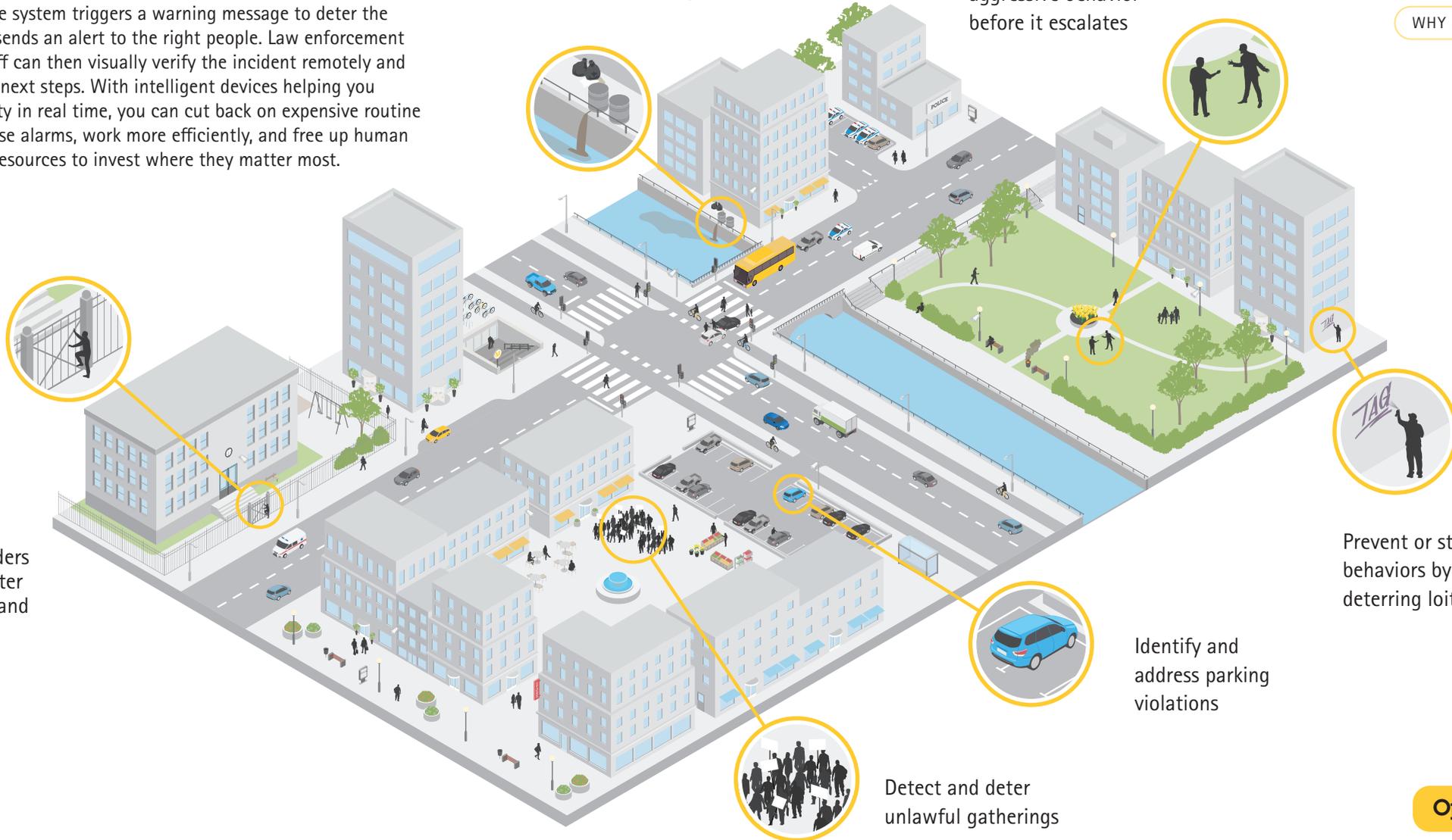
Monitor and manage crowds to deter dangerous behavior and keep emergency paths clear

# Stop crime in its tracks

When analytics-equipped cameras or audio devices detect predefined events, such as unusually high noise levels, screams, or loitering, the system triggers a warning message to deter the behavior, and sends an alert to the right people. Law enforcement or security staff can then visually verify the incident remotely and determine the next steps. With intelligent devices helping you monitor the city in real time, you can cut back on expensive routine patrols and false alarms, work more efficiently, and free up human and financial resources to invest where they matter most.

Prevent illegal dumping and monitor waste management

Break up fights and stop aggressive behavior before it escalates



Tell potential intruders they're about to enter a restricted area – and warn them away

Detect and deter unlawful gatherings

Identify and address parking violations

Prevent or stop unwanted behaviors by detecting and deterring loiterers

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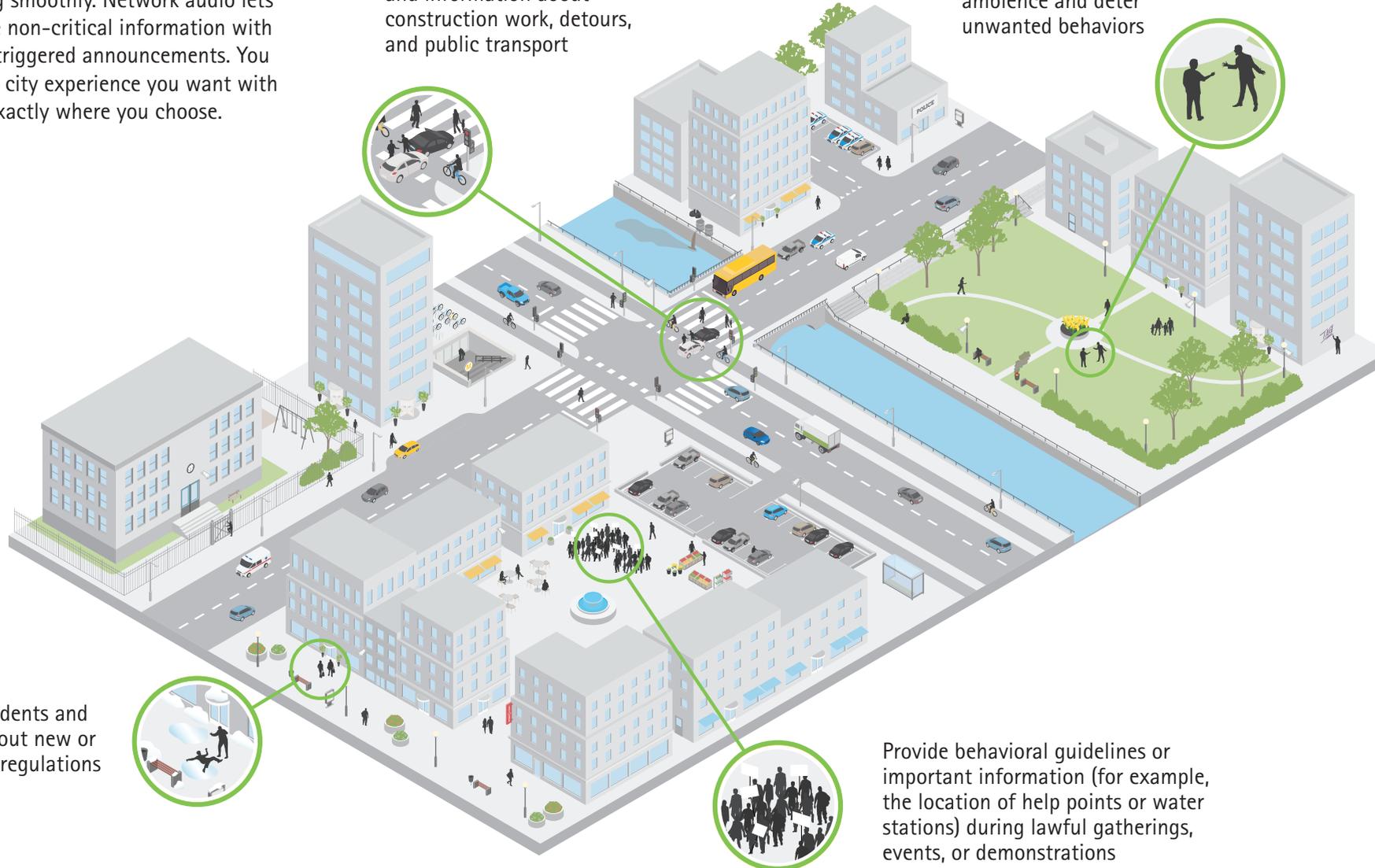
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# Inform, guide, and more

The right information at the right time can improve the experience of residents and visitors and help keep your city functioning smoothly. Network audio lets you provide valuable non-critical information with scheduled or event-triggered announcements. You can also support the city experience you want with background music exactly where you choose.

Provide tourist information and information about construction work, detours, and public transport

Play music or voice messages to create ambience and deter unwanted behaviors



Inform residents and tourists about new or temporary regulations

Provide behavioral guidelines or important information (for example, the location of help points or water stations) during lawful gatherings, events, or demonstrations

# Putting it all together

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Below, explore a step-by-step breakdown of how some of the sample audio use cases work.

## Audio for safety

Live or prerecorded, event-triggered messages to keep people safe

### Sample use case

**Detect:** A camera with AI-based analytics identifies a crowd gathering in a public space, or a speaker with audio analytics identifies shouting or screaming in a known crowd.

**Alert:** An alert is sent to a remote operator, who visually verifies and evaluates the situation.

**Take action:** If needed, the operator can address the crowd with voice messages – for example, asking them not to block a specific area. The operator may also keep security or law enforcement officials apprised of the situation, or alert the public to avoid the area.

### Axis audio products

Axis network horn speaker with preinstalled AXIS Audio Analytics, Axis audio management software, Axis network microphone console

### Input source

Axis camera with preinstalled AXIS Object Analytics

### Other products

3rd-party mass notification system, VMS

## Audio for security

Live or prerecorded, event-triggered messages to deter crime

### Sample use case

**Detect:** A camera with AI-based analytics identifies an individual loitering outside a restricted area and triggers a prerecorded warning.

**Deter:** The speaker at the scene broadcasts the warning. "Move on, or law enforcement will be notified."

**Alert:** An alert is sent to a remote operator, who evaluates the individual's response.

**Take action:** If the individual desists, the case is closed. If not, the operator decides whether to follow up with a live message or notify law enforcement.

### Axis audio products

Axis network horn speaker, Axis audio management software

### Input source

Axis camera with preinstalled AXIS Object Analytics

### Other products

3rd-party analytics, VMS

## Audio for operations and ambiance

Prerecorded, scheduled messages and music to inform, guide, and more

### Sample use case

**Schedule and zone:** A system administrator sets up an audio zone and schedules music and audio messages for the downtown weekend farmer's market.

**Inform:** At the scheduled time, the selected music plays in the farmer's market zone. Prerecorded voice messages – for example, reminding vendors of parking regulations during setup or informing attendees of the location of a special event – are automatically broadcast as scheduled.

### Axis audio products

Axis sound projector, Axis audio management software

### Input source

N/A

### Other products

N/A

# Axis network audio solutions for smart cities

Selecting an advanced network audio solution can ensure that all your audio, from critical safety instructions to inviting background music, comes through clearly, exactly where and when you need it.

People want to live in places that are safe, secure, and that feel good to call home. The right combination of network audio equipment, network cameras, and advanced analytics is a powerful tool in creating such an environment. We offer solutions and products that can address an extensive and diverse range of scenarios, and withstand tough outdoor conditions to do it.

On the next pages, learn about the Axis products that help keep your city running smoothly.

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# Solutions overview: Meet our audio portfolio

- **Network speakers** speakers function as complete high-quality audio systems in a single unit. Enabling both live and scheduled voice messages, as well as alarms and background music, they support safety, security, and daily operations.
- **Audio management software** comes pre-installed on Axis speakers and enables you to efficiently manage, monitor, and control a single-site audio system. Additional software is available for complex and multi-site installations.
- **All-in-one network microphone consoles** turn your Axis network speakers into a complete public address system.
- **Strobe sirens** provide a combined audio and visual alert when you need to catch the public's attention.
- **Analytics** use the power of AI to turn speakers or audio-equipped cameras into sensors able to detect specific noises or atypical volume levels. In addition to developing our own analytics, we work with a global network of analytics partners to help you address a wide range of challenges.



## Do you already have a large investment in an analog system?



We make it easy for you to protect your legacy investment and transition to network audio at a pace that works for you. A single Axis audio bridge is a cost-effective way to reap the benefits of IP audio from hundreds of existing analog speakers. Meanwhile, our audio amplifiers turn any passive speaker into a network speaker.

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# Solutions overview: Complementary technology

Our audio solutions can be integrated with the rest of our extensive portfolio for faster, smarter responses to a wide range of events. Here's just a small sample.

**Visual cameras** include pan, tilt, zoom (PTZ), panoramic, and fixed box and dome cameras to suit a wide range of needs. Sophisticated algorithms and technologies support reliable image quality 24/7, and vandal-proof options give you peace of mind.

➤ **Suggested audio integration:** Warn off a detected loiterer.

**Thermal technology and radar** accurately detect people, objects, and incidents – even in complete darkness, strong sunlight, fog, smoke, or dust.

➤ **Suggested audio integration:** Near schools, warn speeding vehicles detected by radar to slow down.

**Visual analytics** turn cameras into sensors that can detect, identify, and track specific objects, monitor crowd size, and much more.

➤ **Suggested audio integration:** Provide guidance or instructions to demonstrations and protests.

**Vehicle access control** helps ensure vehicles only gain entrance where and when they're authorized.

➤ **Suggested audio integration:** Trigger a strobe siren when a vehicle attempts to tailgate on an authorized entry to a restricted parking area.



**Your existing or preferred systems** can also be integrated in an Axis solution. We build on open standards, so you can choose from the widest possible selection of third-party analytics, video management software platforms, and more.

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# 6 key reasons to choose Axis

Although smart city agendas will differ according to the unique challenges cities face, they all have the same goals: to create ways to use data and resources more efficiently and make cities safer, more secure, and more livable.

With our long experience and industry-leading expertise providing innovative and scalable IoT solutions, we play a vital role in the transition to smarter cities. Here are six key reasons why Axis is the perfect network audio solution provider for your city.

## 1 All-in-one solution

The speakers are ready to go without audio racks or amplifiers, and audio management software comes preinstalled.

## 2 Simple installation

No dedicated audio cabling needed – a single network cable to each speaker provides both power and connectivity (Power over Ethernet), helping to keep installation costs down.

## 3 Excellent sound

Axis speakers are preconfigured for excellent sound, and the digital signal ensures audio messages remain intelligible even over long distances.

## 4 Peace of mind

You can test and troubleshoot your network speakers locally or remotely using the same network that powers them, so you always know they're working.

## 5 Scalability and flexibility

Adding or removing speakers is fast and easy, and management software lets you update content and schedules from anywhere.

## 6 Openness

We build on an open platform, so an Axis solution can include the other tools you choose, such as third-party video management software (VMS), mass notification systems, and IoT sensors.

**Choosing Axis audio means getting more out of your audio system – and the other systems your city depends on.**

**Ready to learn more?  
Contact us [here](#)**

# About Axis Communications

Axis enables a smarter and safer world by creating solutions for improving security and business performance. As a network technology company and industry leader, Axis offers solutions in video surveillance, access control, intercom, and audio systems. They are enhanced by intelligent analytics applications and supported by high-quality training.

Axis has around 4,000 dedicated employees in over 50 countries and collaborates with technology and system integration partners worldwide to deliver customer solutions. Axis was founded in 1984, and the headquarters are in Lund, Sweden.