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## FOR USING AI IN EMERGENCY COMMUNICATIONS CENTERS

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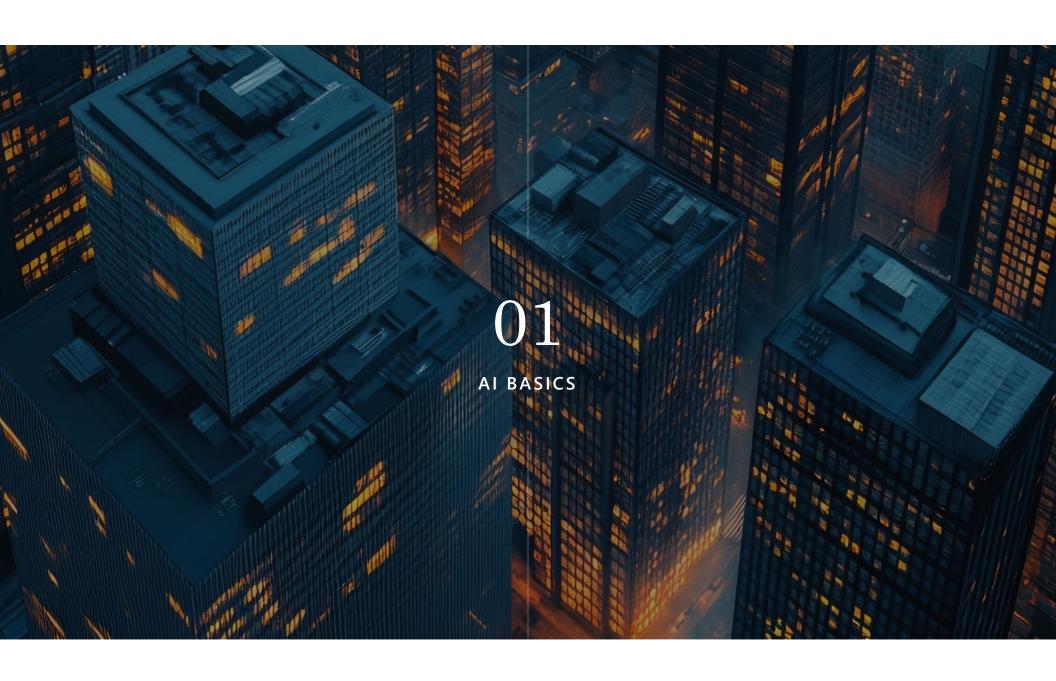


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# AGENDA 1. Al Basics 2. Role of Al in public safety communications Ethical and Legal Considerations

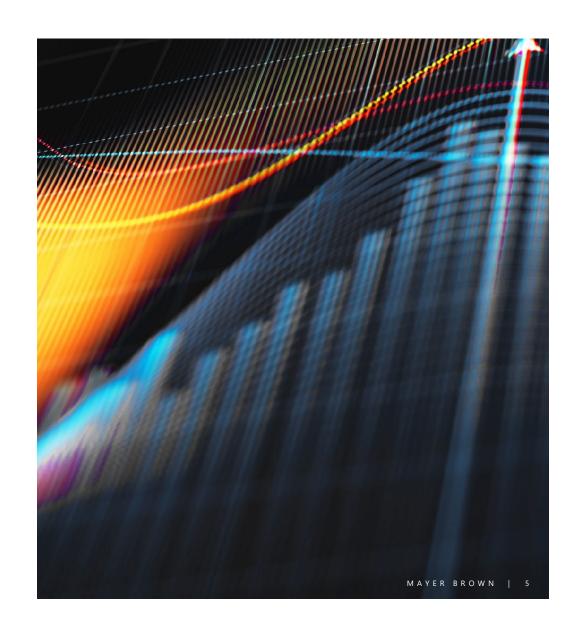


#### WHAT IS ARTIFICIAL INTELLIGENCE?

Artificial intelligence (AI) is a machine-based system that, given human-defined goals, can influence real or virtual environments by producing predictions, recommendations, or decisions.

#### Such systems:

- Perceive real or virtual environments using human and machine inputs;
- Convert perceptions into models through automated analysis; and
- Use those models to infer and propose options for information or action. (15 U.S.C. 9401(3))

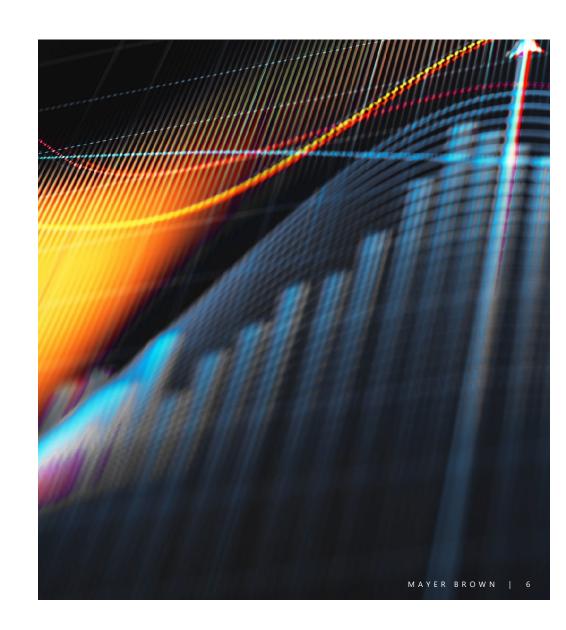


#### WHAT IS AN AI SYSTEM?

An "Al System" is a computational system (or systems) that utilizes statistical or other mathematical techniques to execute tasks.

#### These tasks often include:

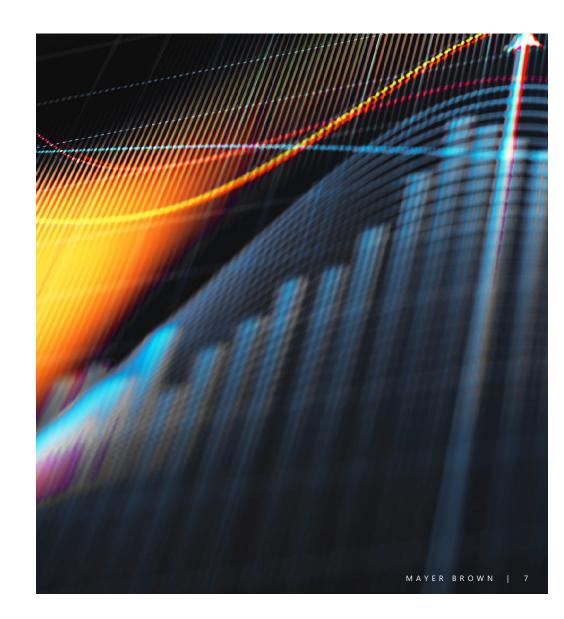
- Prediction and planning
- Classification and pattern recognition
- Organization and perception
- Recognizing sounds and images
- Generating text, sounds, or images
- Language translation
- Problem-solving

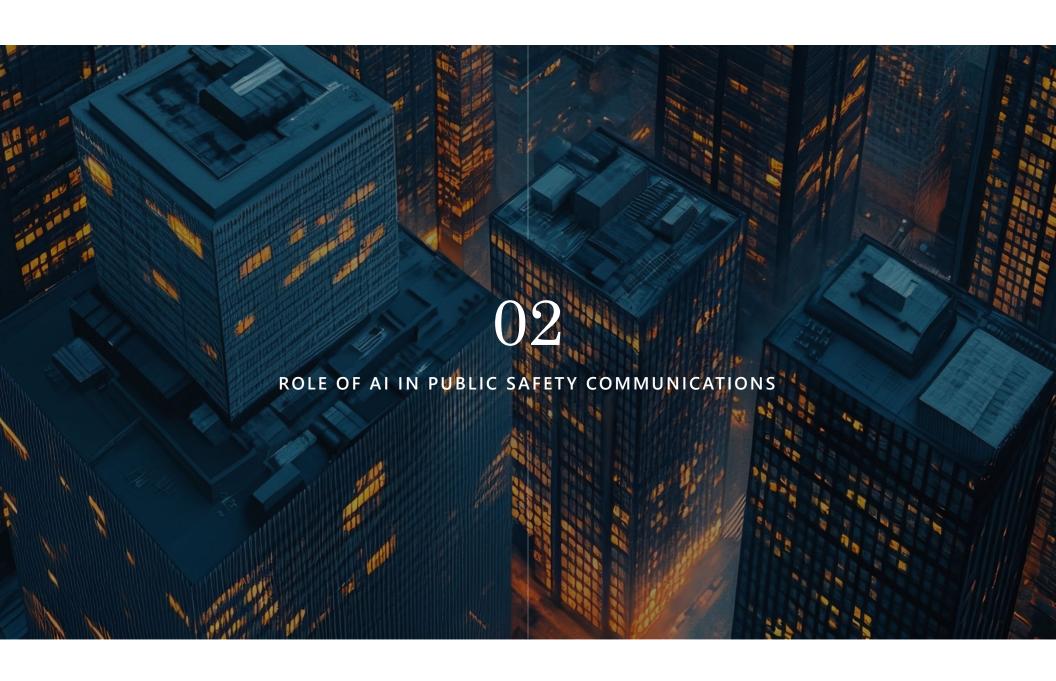


#### **HOW DO YOU BUILD AN AI SYSTEM?**

Develop an algorithm that uses data to model a certain universe of activity and then make predictions about it.

- Feed input data into an AI model to generate an output using:
  - Training data (the initial data used to develop the model)
  - Testing data (helps evaluate the accuracy of the training data)
- Once trained and tested, an AI model can ingest new information to predict outcomes based on specific questions.







#### ROLE OF AI IN PUBLIC SAFETY COMMUNICATIONS

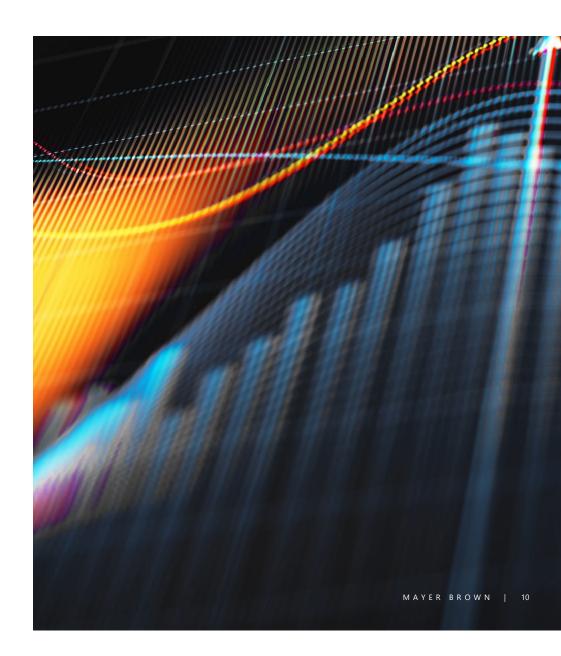
Al enhances public safety by improving data processing, pattern recognition, and the productivity of Emergency Communications Centers (ECCs) as well as police, fire, and EMS response.

Al and machine learning enable the analysis of large volumes of information, helping to identify patterns and predict outcomes.

In the public safety contest, this means AI can learn and predict outcomes based upon previous emergencies, the characteristics of calls related to emergencies, and how the information received from those calls resulted in decisions regarding how to deploy personnel and resources to respond to emergencies.

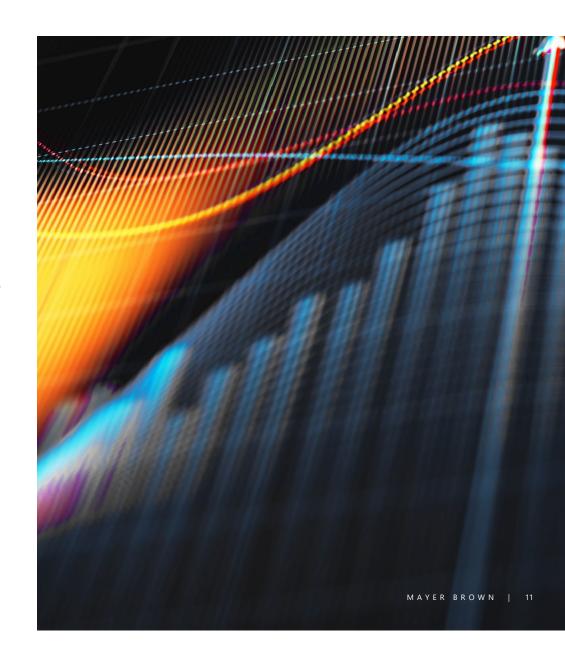
#### **PUBLIC SAFETY USE CASES**

- Al helps ECCs address surges in call volumes during a major event.
- Telecommunicators can focus on coordinating emergency response.
- This is particularly helpful with respect to staffing shortages experienced by ECCs and the stress induced by surges in call volumes.



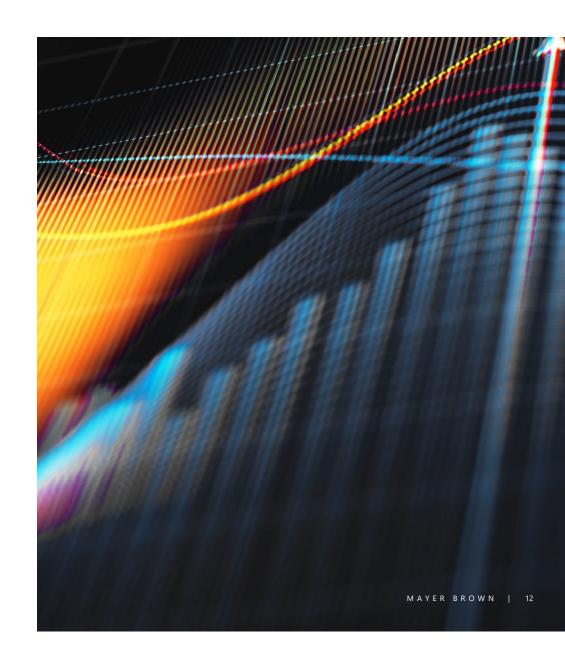
#### **PUBLIC SAFETY USE CASES**

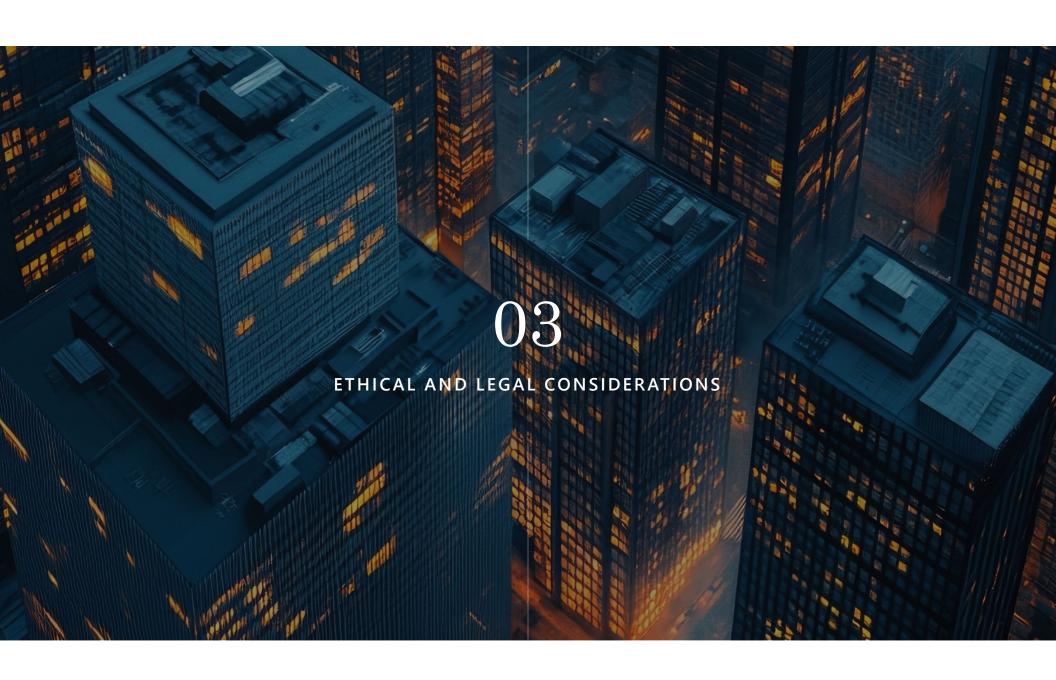
- Al systems can analyze vast amounts of 911 calls to identify key words such as "gun," "fire," or "heart attack" to help triage calls.
- An Al system can learn to distinguish between actual, imminent emergencies, and more routine calls that can be re-routed.
- Such call diversion can automatically direct calls such as weather-related inquiries and damage reports to the relevant department without requiring intervention by a telecommunicator.



#### **PUBLIC SAFETY USE CASES**

- Al systems can "geofence" calls to identify areas with the largest number of calls, which can help identify etermine the exact location of an emergency.
- Al systems can also quickly generate incident summaries based upon incoming 911 calls.
- That speeds the process of identifying where to send police, firefighter, or EMS assistance.







#### WHAT SHOULD ECCS CONSIDER WHEN INTEGRATING AI INTO EMERGENCY **COMMUNICATIONS?**

ECCs can utilize AI to enhance the productivity of telecommunicators while reducing the response time to emergencies.

But ECCs must also ensure that they are anticipating and mitigating the risks associated with the use of Al.

- Al ethics and governance must be the foundation for the development of any Al system.
- ECCs should integrate considerations of the societal and ethical implications of the design and integration of AI into every stage of the development and use of an AI system.



- It is important to be cognizant of the information used to train a model.
  - O How was the information collected?
  - o Do we have the right to use the data to train Al models and/or as input prompt?
  - o Does it provide as broad a set of data points as possible?
  - Does it help an AI system learn patterns based upon a multitude of scenarios and characteristics of an emergency incident?
- The bottom line is that an Al system is only going to be as good and accurate as the data used to train the system.



- Avoid using personally identifiable information the use of which may violate privacy laws.
- Deidentified, anonymized, and/or aggregate information should be sufficient to help AI models learn, identify patterns, and predict outcomes.



- Effective governance is the key to responsible use of Al.
- Identify people within your organization who will be responsible for setting the parameters for how your Al system is trained, tested, and used.
- Seek independent expertise in developing or deploying your system.
- Consider guidelines, standards, and tools used by other ECCs and more broadly in other industries.



- Be proactive and have an internal governance framework in place before the training of a model takes place.
- Prioritize transparency, accountability and fairness.
- Implement ongoing monitoring and evaluation of AI systems and address unintended consequences/poor performance.
- Always bake in human accountability and decision-making throughout the training, testing, use, and evaluation process.



#### **AI GOVERNANCE**

#### **ACCOUNTABILITY**

- Developer Policy
- Deployer Policy
- Leadership Policy

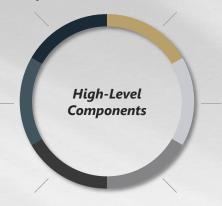
#### AI GOVERNANCE TEAM

- Cross-disciplinary group
- HR, IP, Privacy, Cyber, Engineer, Data Scientist, etc.
- Training in regular cadence

#### **MITIGATION MEASURES**

- Transparency & Explainability
- Fair and unbiased
- Accuracy
- Robustness
- Safe and secure
- Privacy-enhanced
- Human oversight

- Technical documentation and logs
- Continuous monitoring
- Contestability
- Contract and oversight of Al vendors and model providers
- Decommissioning Al system



#### **DATA GOVERNANCE**

- Input data for use of Al
- Training data for Al development

#### **LEGAL COMPLIANCE**

#### **RISK MANAGEMENT**

- Identify/rank risks
- Document risk assessment via AI impact assessment

- Stay up-to-date on developments in Al.
- Have regular training sessions for employees that integrate new developments.
- This is a very rapidly evolving technology!



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