

Public Safety Communications Europe

# Digital Transformation leading towards Safer Smart Cities

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# Digital transformation - Public Safety Gets Smart



## Phase I: IT-based technical services

Constructs reliable network infrastructure and an information platform for crime fighting and public safety.



## Phase II: resource consolidation and sharing

Provides an integrated IT solution that enables crime fighting, social services, and back-office management.



## Phase III: Smart public safety

Delivers resource gathering, professional analysis, and intelligent judgment to support precision defense, proactive prevention, and enforcement.



Converged

Open

Smart

Focuses on security and innovation to deliver stronger outcomes in public safety



# Multi-level public safety cloud with big data services built on a truly converged technology architecture, drives *smarter, lower-cost, collaborative outcomes*

## Legacy, local & national systems



- **Top-level design of IT-based public safety**
- Standardizing data and policies to improve collaboration and flexible working
- Converging data centers for accelerating system integration



- **Improves technology and information service capabilities.**
- Strengthens service-orientation and provides flexible resources:
- shared-service command centers
- data centers
- secure clouds.

## National Cloud & Resilient Data Centres

### National public safety cloud infrastructure



### Public Safety Cloud

## Regional Cloud & Data Center (Distributed Systems)

### Regional public safety cloud infrastructure



## Architecture of the public safety cloud

Nationwide Public Safety Platform

# Integrated Communication Platform (ICP)



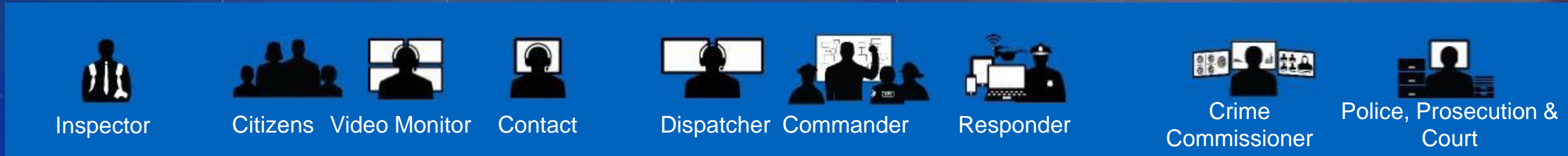
- **Voice & Data Driven**
  - PSTN/PLMN/VoIP
  - Internet & Social
  - IoT
- **Real-Time Video-Based Converged Command**
  - Video Push-To-Talk (PTT)
  - Intelligent Video Surveillance
  - Video Conferencing
  - Mobile devices
- **Converged Voice Dispatch**
  - TETRA/P25/eLTE
- **GIS-Based Management**
  - Unified command map
  - One-click dispatching, efficient response





**Converged Infrastructure  
enabling and enhancing  
Cross Agency Collaboration  
&  
Data Sharing**

# Cross Agency Collaboration & Data Sharing





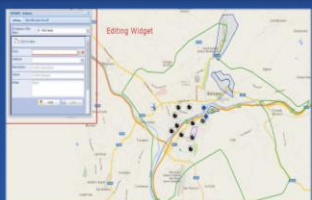
# Prevention is Beyond Reducing Crime Rate

Aim to improve the quality of life and feeling of security

**Prevention**  
(Deterrent Effect)

Regulation & License

Assessment Tool  
& Handbook



Regulation & License



Risk Assessment & Planning

Prevention of  
recidivism

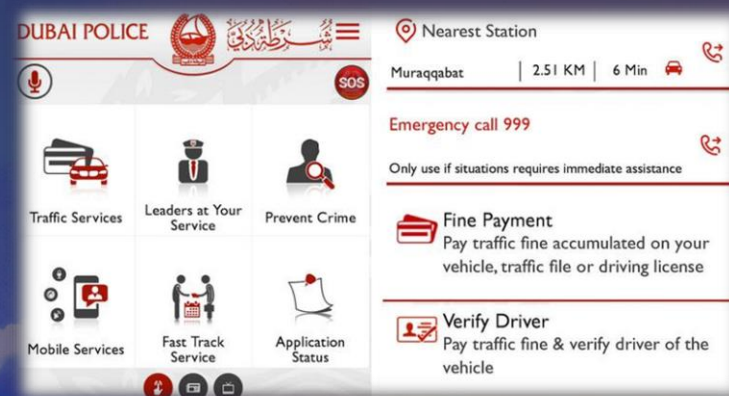
Community Safety



Inspector



Prevention of recidivism



Community Safety



# Anticipate, Prevent Future Crimes using Predictive Policing

Social Media becoming more critical to communicate with the Public in events such as the Charlie Hebdo shooting or citizen warning in Munich OEZ shooting (e.g. no taxi allowed)

## Prediction (Predictive Policing)

### Social Media Analysis



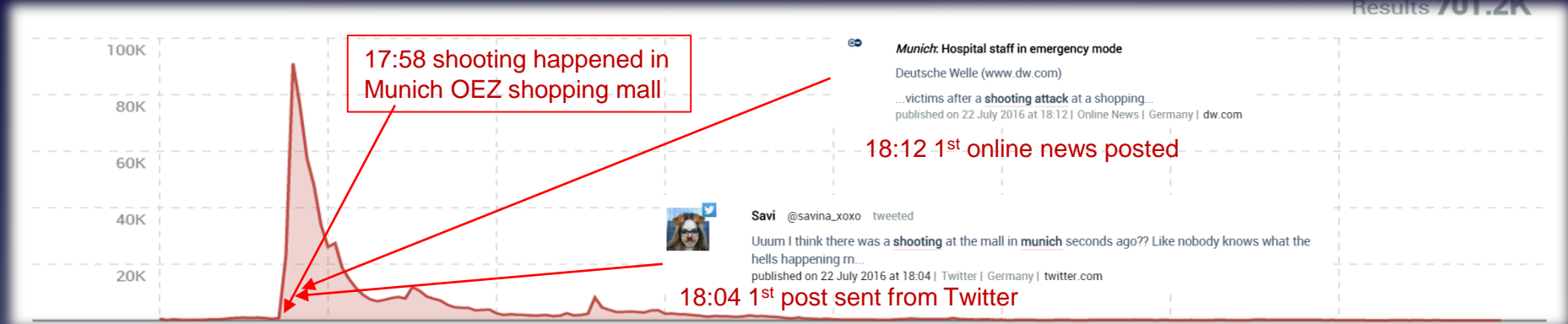
### Video Alarm



### Sensors



### Citizens Video Monitor



Once a high-risk area is identified, officers are encouraged to spend more time in the area.



Summary	Compare	Trend
<b>Marylebone High Street</b> Your Borough: Westminster Crime rate is High		
Total notifiable offences		
Month	Crimes	Rate
April 2016	223	21.51
March 2016	227	21.90





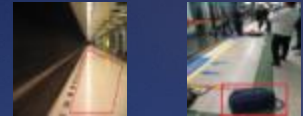
# Video Analytics - Strategic Tool for Crime Prevention

## Prediction (Predictive Policing)

Social Media Analysis



Video Alarm



Sensors



Citizens Video Monitor



Trip-wire detection



Intrusion detection



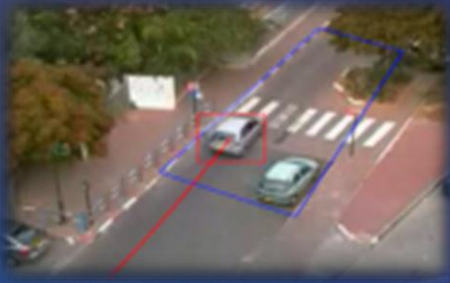
Loitering detection



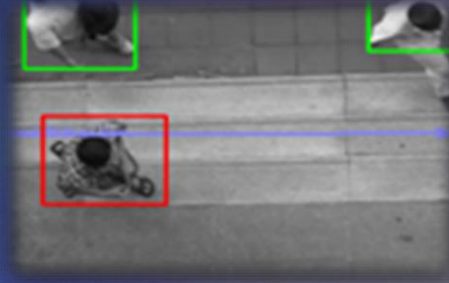
Abandoned object detection



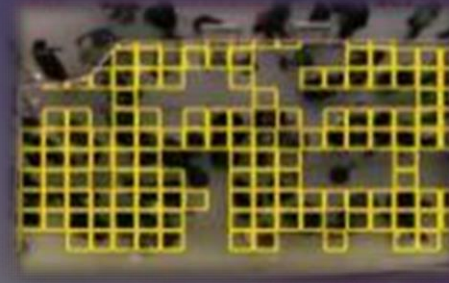
Removed object detection



Direction detection

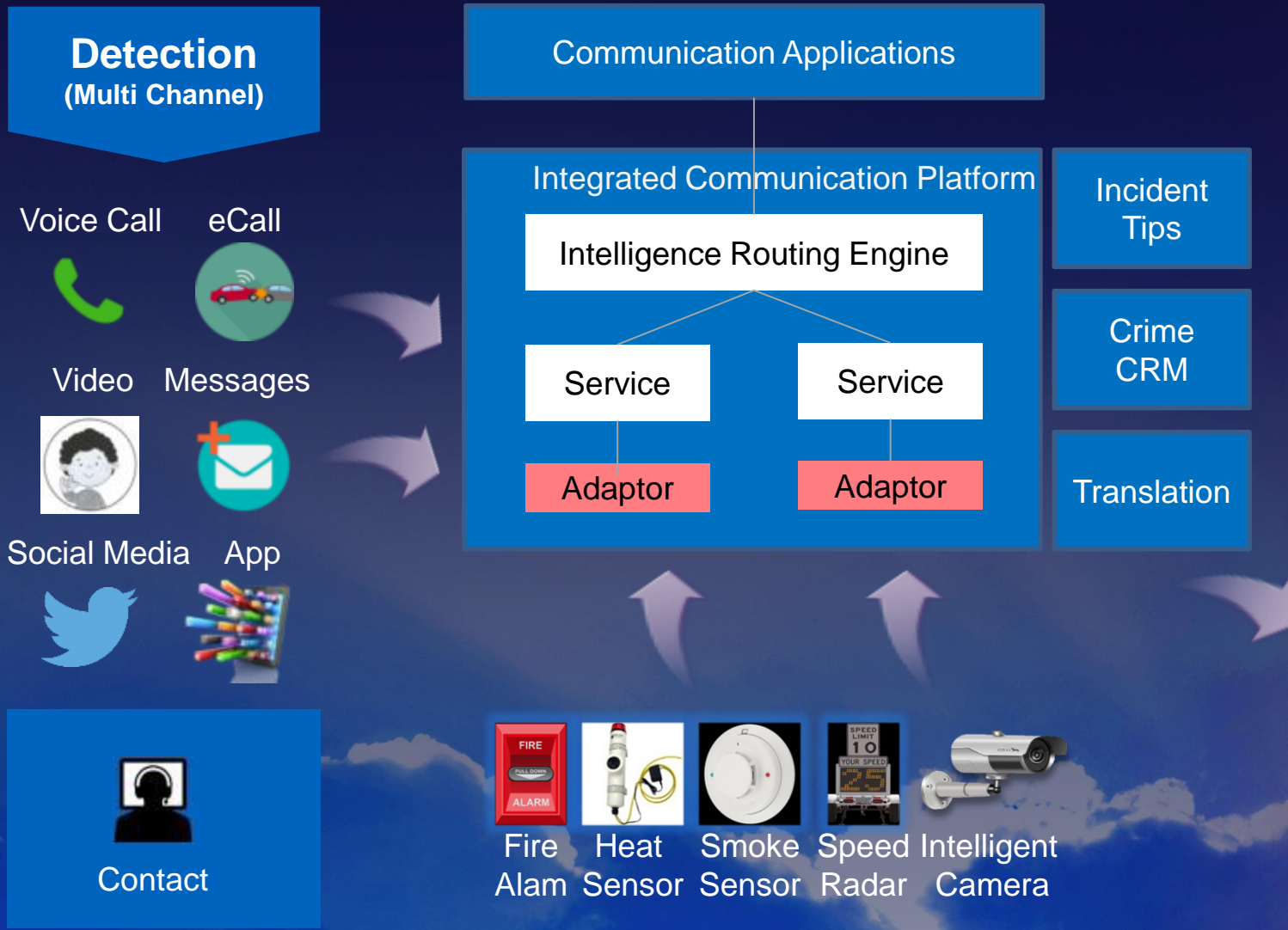


Crowd counting



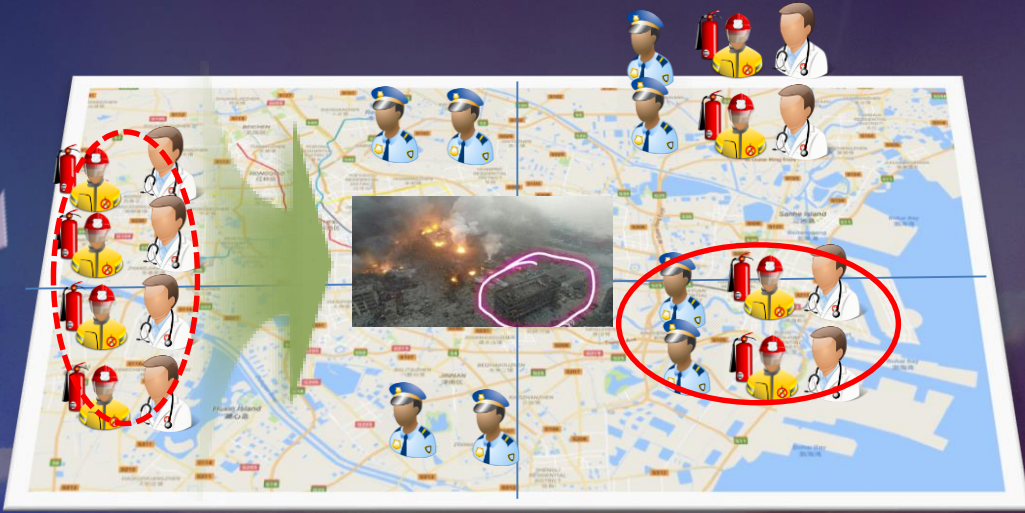
Crowd density detection

# Multi-channel Incident Reporting & Performance Optimization



**New Role: Performance Manager**  
 Define Dispatch Rules based on performance

- Resources Dynamic Regroup
- Skill oriented dispatch





# Situation Awareness & Visualized Decision Making

## Decision (Visualized)

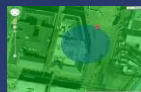
Situation Awareness



Social  
Media Tips



History  
Crime



Accurate  
Location



Visualized  
Collaboration



Dispatcher Commander



Indoor Accurate  
Positioning

Tips & Skill  
based Dispatch

Robbery

Knife

Dispatch & Crime  
History

Owner has a  
dog, Tom was  
there twice



# Collaborative Response

**Response**  
(Collaborative)

Mobile Dispatching



Wearable Device

Uber-style Policing

Online Response to  
Minor Crimes



Responder

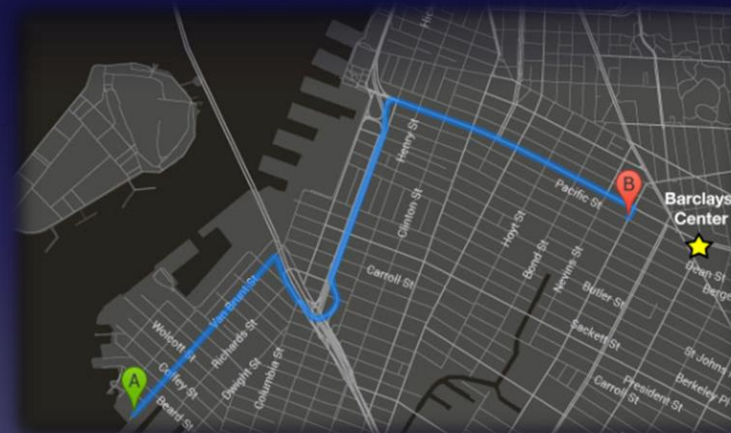
Mobile Dispatching



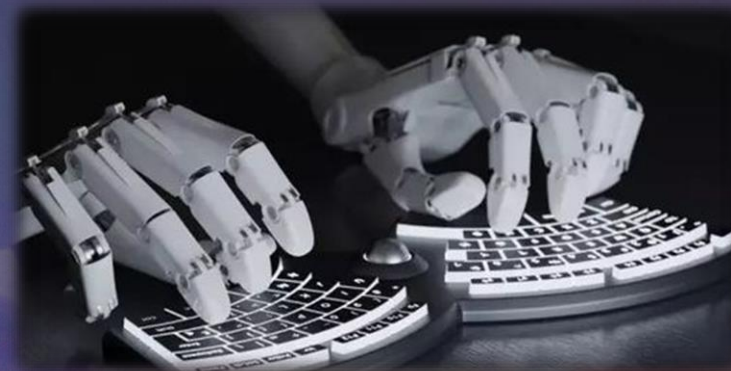
Wearable Devices



Uber-Style Policing



Auto-Response to Minor Crimes



Policing App Store





# Actionable Intelligence Investigation using Big Data Analysis

## Investigation (Actionable Intelligence)

Social Relationship



POLE Model

- People
- Objects
- Locations
- Events

Cyber Security



Crime Commissioner

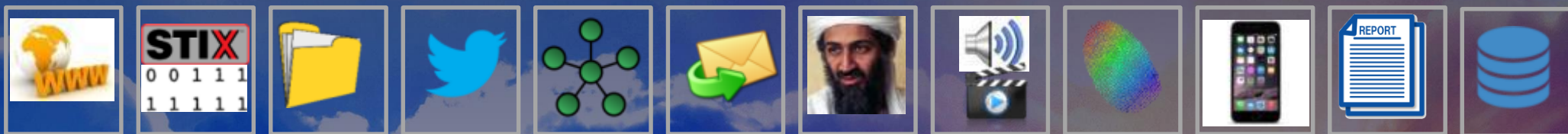
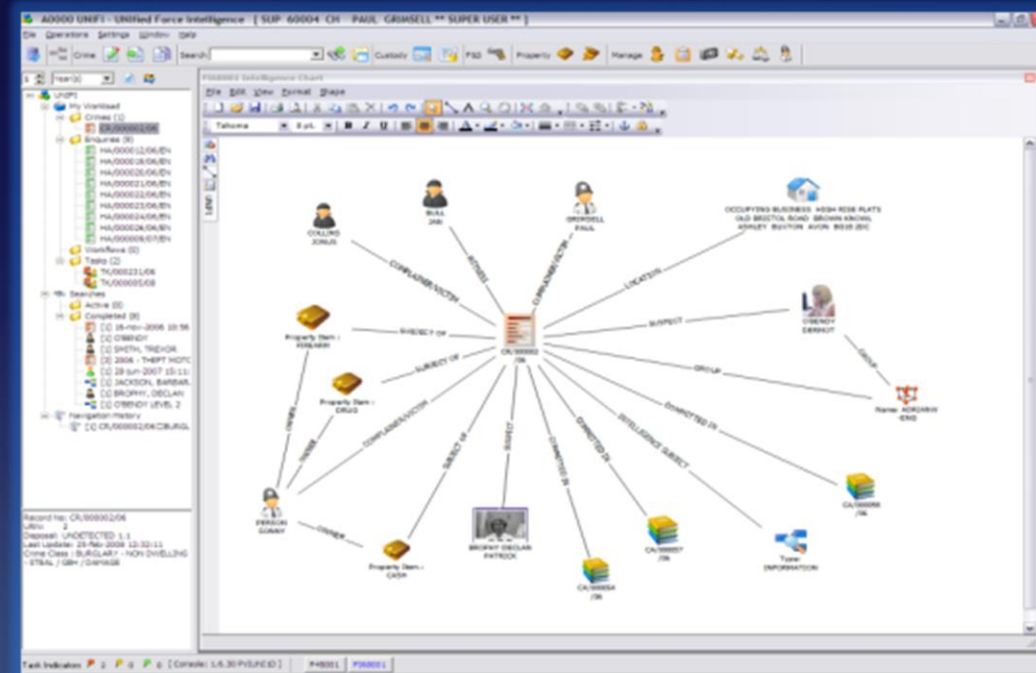


POLE:

- People
- Objects
- Locations
- Events



Social Relationship  
Crime CRM



Website

STIX

Document

Social media

System info

email

pictures

Audio/video

Biometry

Phone Interception

Report

Own Database



HUAWEI

# Actionable Intelligence Investigation using Video Analysis

**Investigation**  
(Actionable Intelligence)

Social Relationship



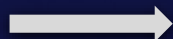
POLE Model

- People
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- Locations
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Cyber Security



Crime Commissioner



A black Volkswagen car

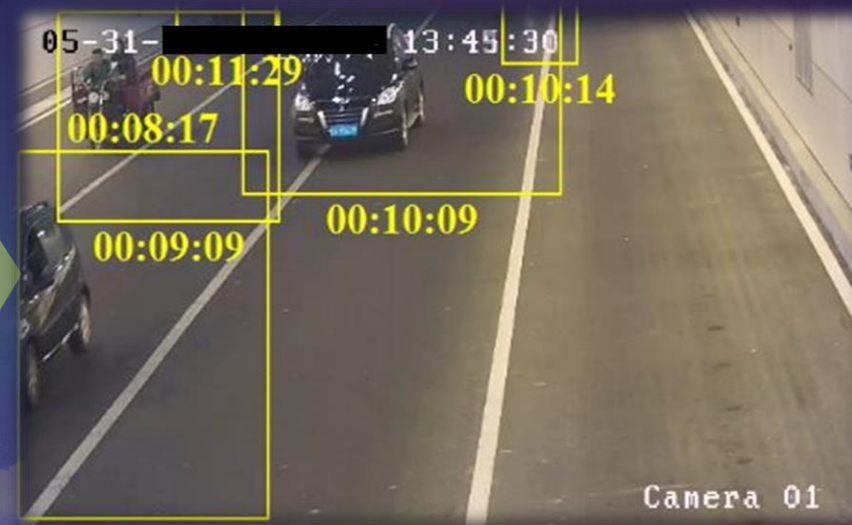


A man in red dress

Video analysis makes structured description which support search by specified criterion (object, color, size, location, track)



Video synopsis



Video synopsis can significantly shorten the time security agents spend in watching video in order to find clue



# Digital Transformation for Justice

## Justice (Efficient)

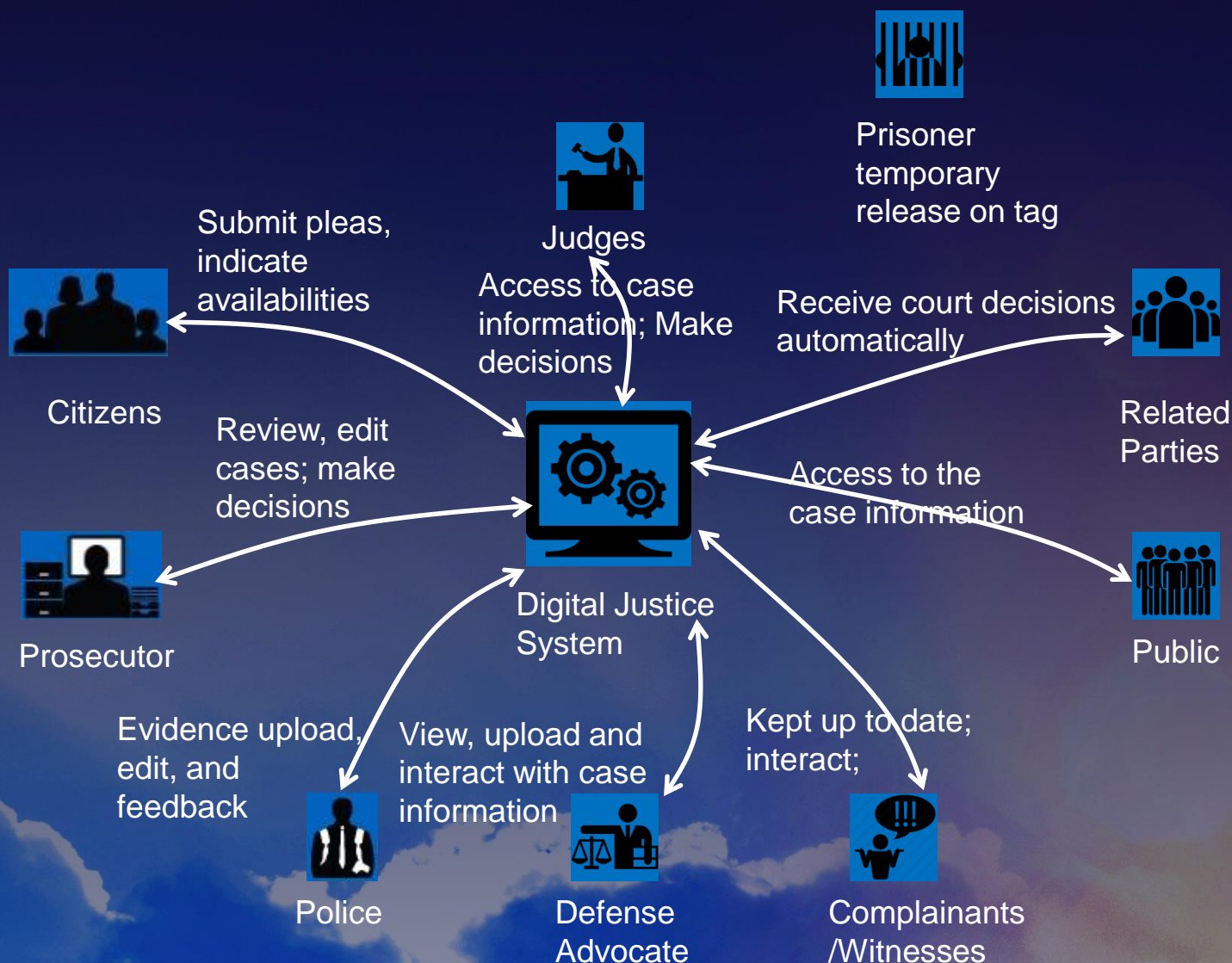
### Digital Evidence



- ### Prison Reform
- Release, Tag & Home Leave
  - Probation
  - Prevention of recidivism



Police, Prosecution & Court



## Evidence

3<sup>rd</sup> Party Interviews

999 Audio

Body Camera

CCTV Clip

Documents

Photographs

In-car Video

# City of Rivas (Spain)

As part of its initiative to enhance city efficiencies and citizen centric services the city of Rivas decided to migrate from an existing PS Tetra network to eLTE



- New capabilities in addition to earlier Voice only, such as Video, Location confirmation, PoC
- eLTE broad band access, remote surveillance wireless backhaul, IOT network wireless backhaul
- Reduced cost
- Platform to continue Rivas' evolution to a leading smart city with a Public safety core



# New Safe-City, Better Kenya

## Efficient Collaboration for Major Events and VIP Visits

Pro. broadband trunking  
2,000 users/group

Cross-Dept collaboration  
Based on CAD/GIS

**300,000+**

People in 0.12 km<sup>2</sup>

**10,000+**

Police Officers

E2E visual operation  
Live onsite video

360° protection HD dome  
camera with 30x zoom

## Rapid and Effective Crime Investigation



24/7 HD video surveillance  
Strong light suppression

License plate recognition  
Virtual checkpoint

Hit-and-Run case  
Solved in

**1 Day**

## More Effective Crime Fighting



From Crime to Arrest

**4 Days**

- Dec. 25, 2015  
Two police radios lost in a incidents.
- Dec. 29, 2015  
The police found and arrested the suspects, and retrieved lost equipment based on the GPS info sent from the radios.

## Vastly Improved Public Safety



Crime Rate

**↓ 46 %**

For covered areas  
2014~2015

Source: Kenya Police Dept's 2015 annual report

# Huawei takes part in 100+ Smart City projects





# At Huawei we support our Customers and Partners with Global Expertise & Local Services

## Openlab, Munich

- **Cloud:** T-Systems
- **Smart City:** Hexagon, Amsterdam Smart City
- **Manufacturing:** KUKA

## Openlab, Saudi Arabia

- **Oil & Gas:** Saudi Aramco

## Openlab, UAE

- **Smart City:** Dubai

## Openlab, Suzhou

- **Bank:** CEC, ICBC, CCB, Yucheng Technologies
- **Media:** Sobey
- **Government:** State Information Center
- .....

## Openlab, Singapore

- **Smart City:** IDA
- **Railway:** SMRT

## Openlab, Mexico

- **Smart City:** SCT,PROMAD
- **AMI:** ADM

# THANK YOU



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