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GWF

GEOSPATIAL WORLD FORUM

**TRANSFORMING
ECONOMIES IN** **5G** **ERA**

The Geospatial Way!

7-9 April 2020 /// Amsterdam

www.geospatialworldforum.org





**Safe City & Crime Analytics for
Smart Cities**

Contents

- ❑ Safe City & Security Requirements
- ❑ Safe City Technology Stack
- ❑ Integrated Solutions for Safe City
 - ❑ Command & Control system
 - ❑ Emergency Response System
 - ❑ Mobile Solutions
- ❑ Crime Analytics
- ❑ Conclusion

Safe City & Security Requirements

Challenges

More than 10% YOY
growth in crime rates



Crime Rate

Urbanization

Terrorism Threats

Public Disorder

To meet the above challenges Need technologies

Multi Agency Collaboration



Mature PSIM

Emergency Management



Emergency Response

Data Analysis and Information
Sharing



Business Intelligence & Social Media

Enhanced Situational Awareness



Geo- Enabled Services

Better quality data, voice and video
transmission



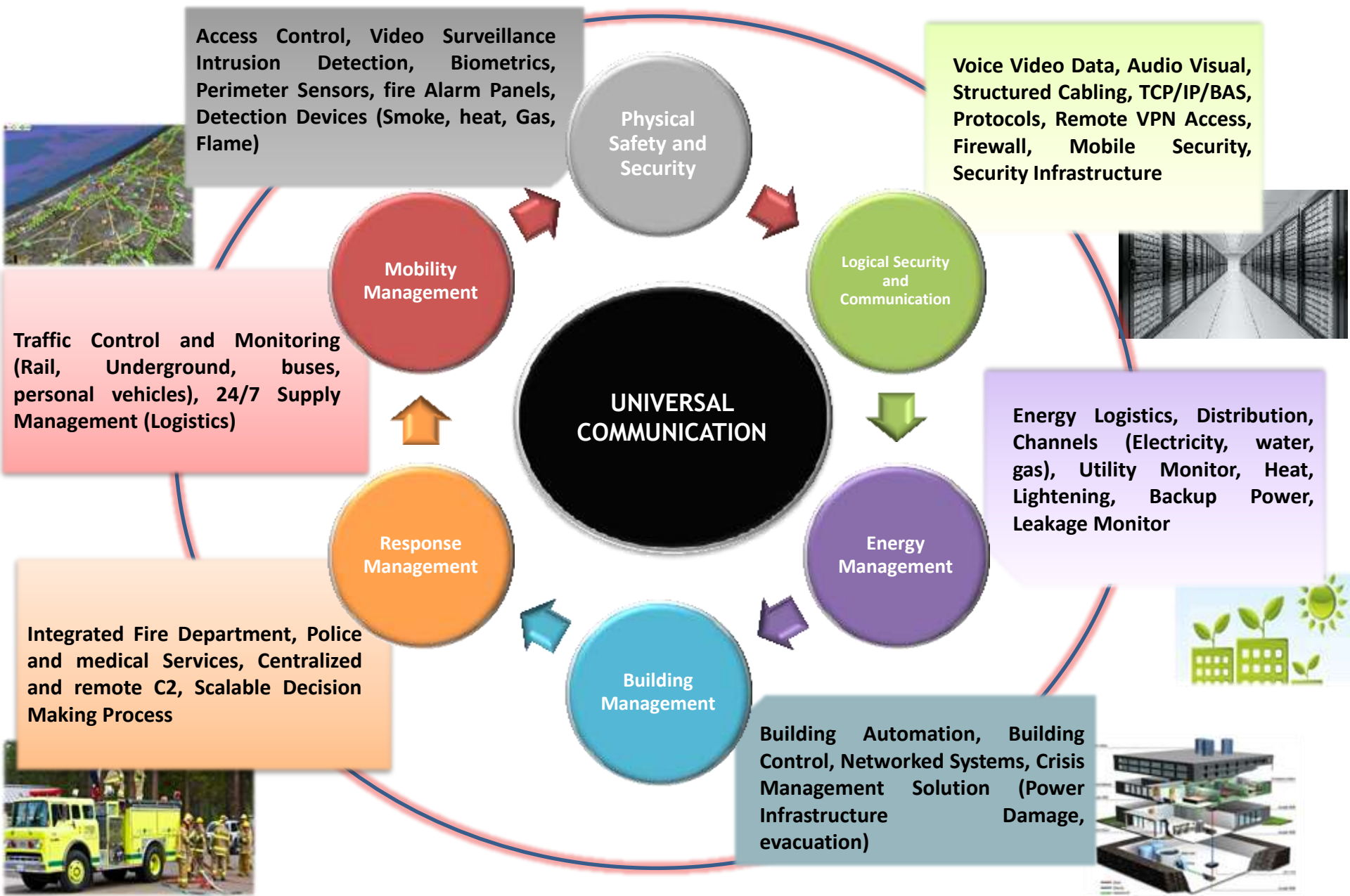
Advanced ICT Technologies

Identification of Onsite Threats

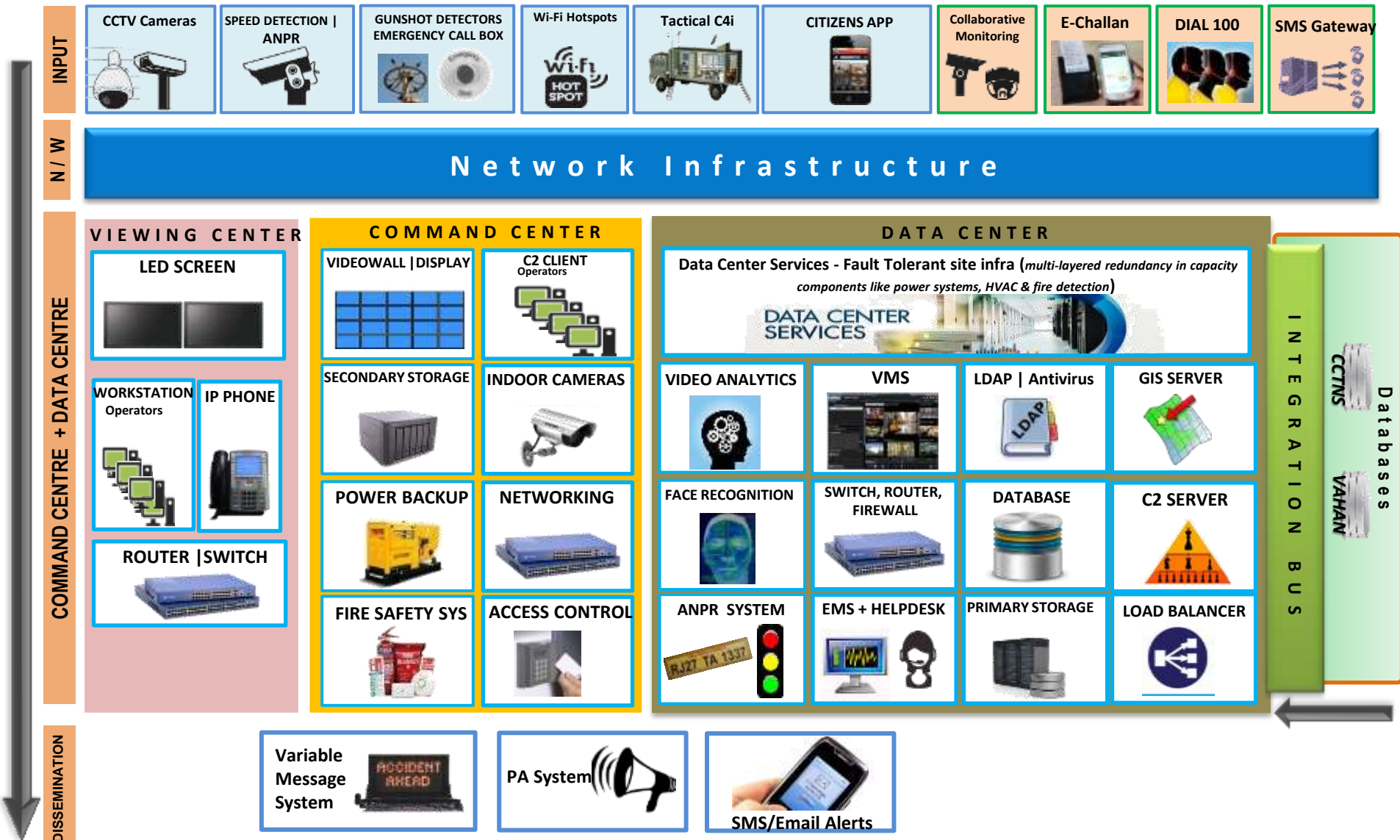


Mobile responders/ Advanced Video
Analytics

Safe City an Integral part of Smart City



Safe City Technology Components



Integrated Safe City Solution

Large Scale Video Wall



Dashboard view of Situations



Road Network Surveillance



Remote Mgmt.
(Executive Level)



Field
Response
Team (MDT)



Coastal Security Mgmt.



Homeland Security Mgmt.



Multi-Agency Emergency Mgmt.



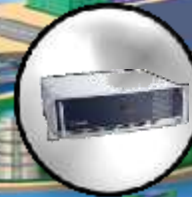
Command &
Control

CAD

Data Fusion

Crime
Analytics

Citizen Portals
& Mobile apps



Integrated GIS & Sensors based Safe City Solution for Smart City

Computer Aided Dispatch (Dial 100/112)

- Dial 100 is a toll free number which provides police emergency services
- Citizen in distress can contact police control room by dialing 100 through land line or mobile
- Police control room staff provides immediate assistance
- Other emergency services such as fire, medical , women help lines etc also provide similar emergency services.
- Computer aided dispatch system is GIS & GPS based system designed for police control room to achieve above objective



Necessity for CAD System

● Crime Control

- Quick & accurate location information
- Improved utilization of constrained resources
- Demarcating of high risk areas

● Quick response to Public Distress Calls

- Real-time locating of patrol vehicles at any time
- Directing vehicles by shortest route
- Quick dispatch
- Timely, accurate & secure information

● Effective Management of Information & Analysis

Multi-media Devices for Emergency Reporting



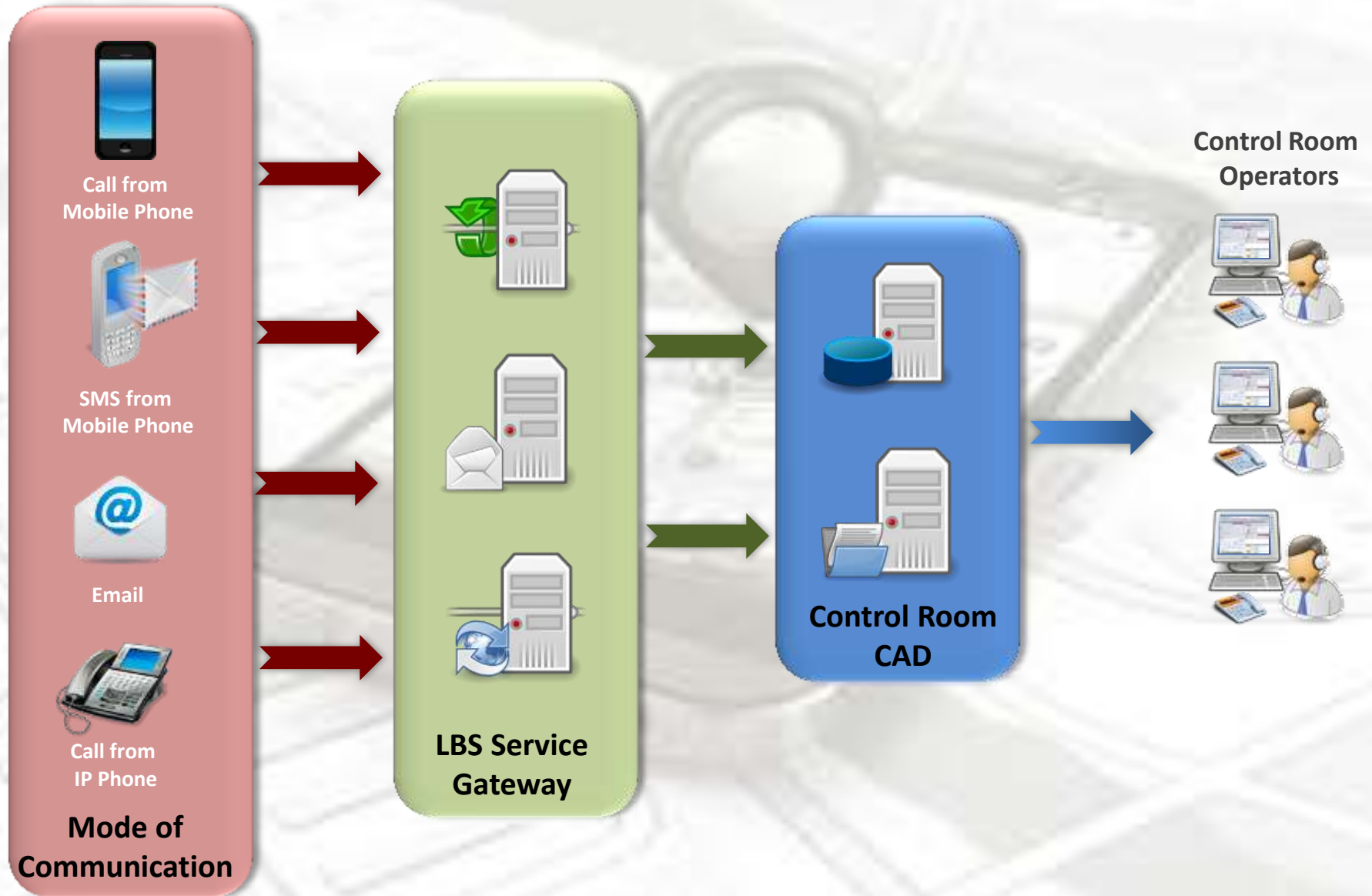
Transition from Voice Centric  Multi Media

Enables exchange of image, video , text message

Next Generation Computer Aided Dispatch



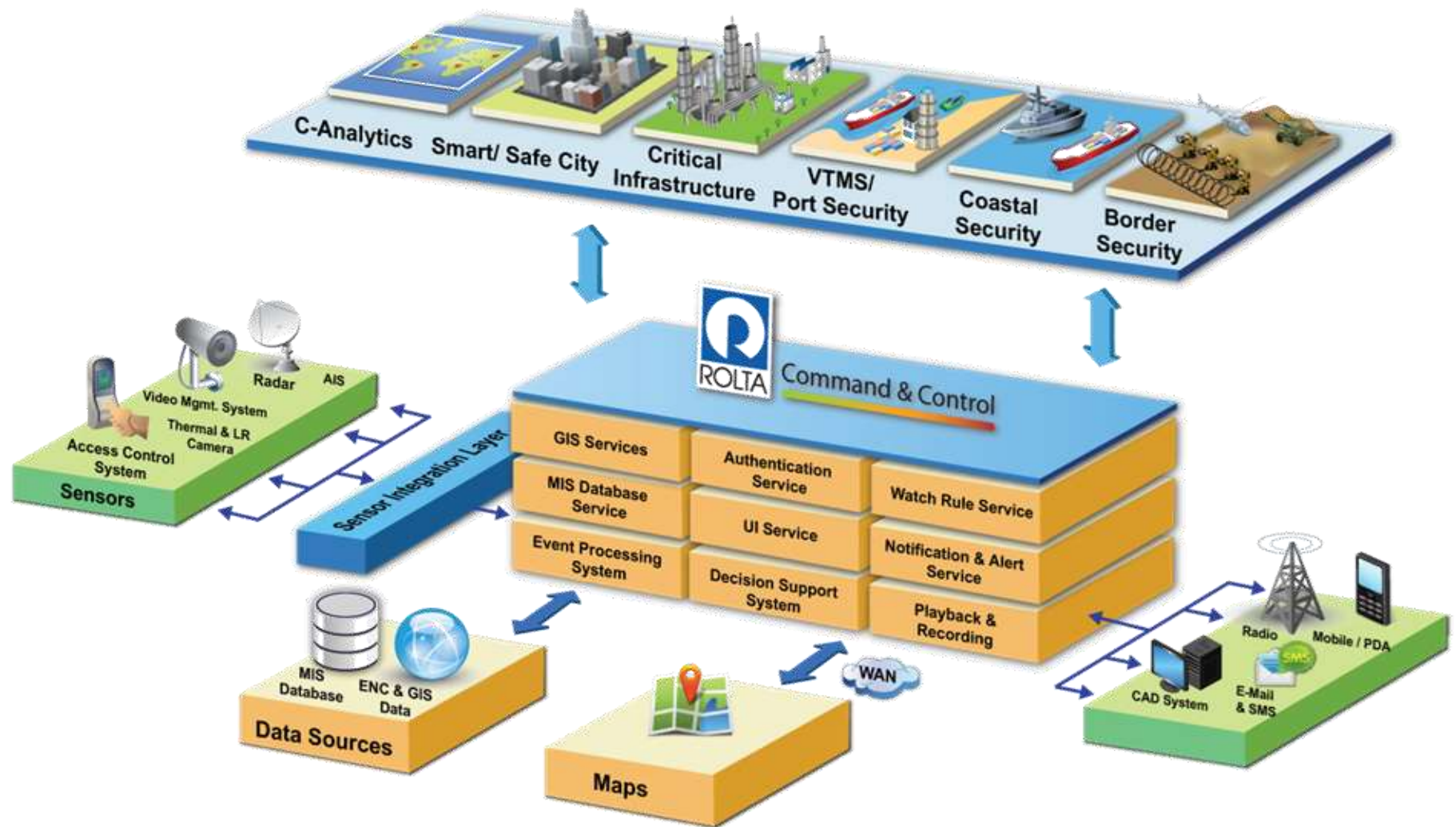
Location Based Services



Interoperability Between Various Govt. Agencies



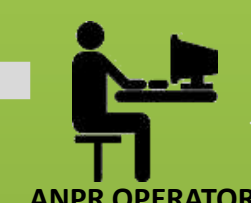
Command and Control (C2) - Safe City



SURVEILLANCE OPERATOR

CONTROL CENTER

FIELD SENSORS



VIDEO STORAGE

VIDEO MGMT APPLICATION

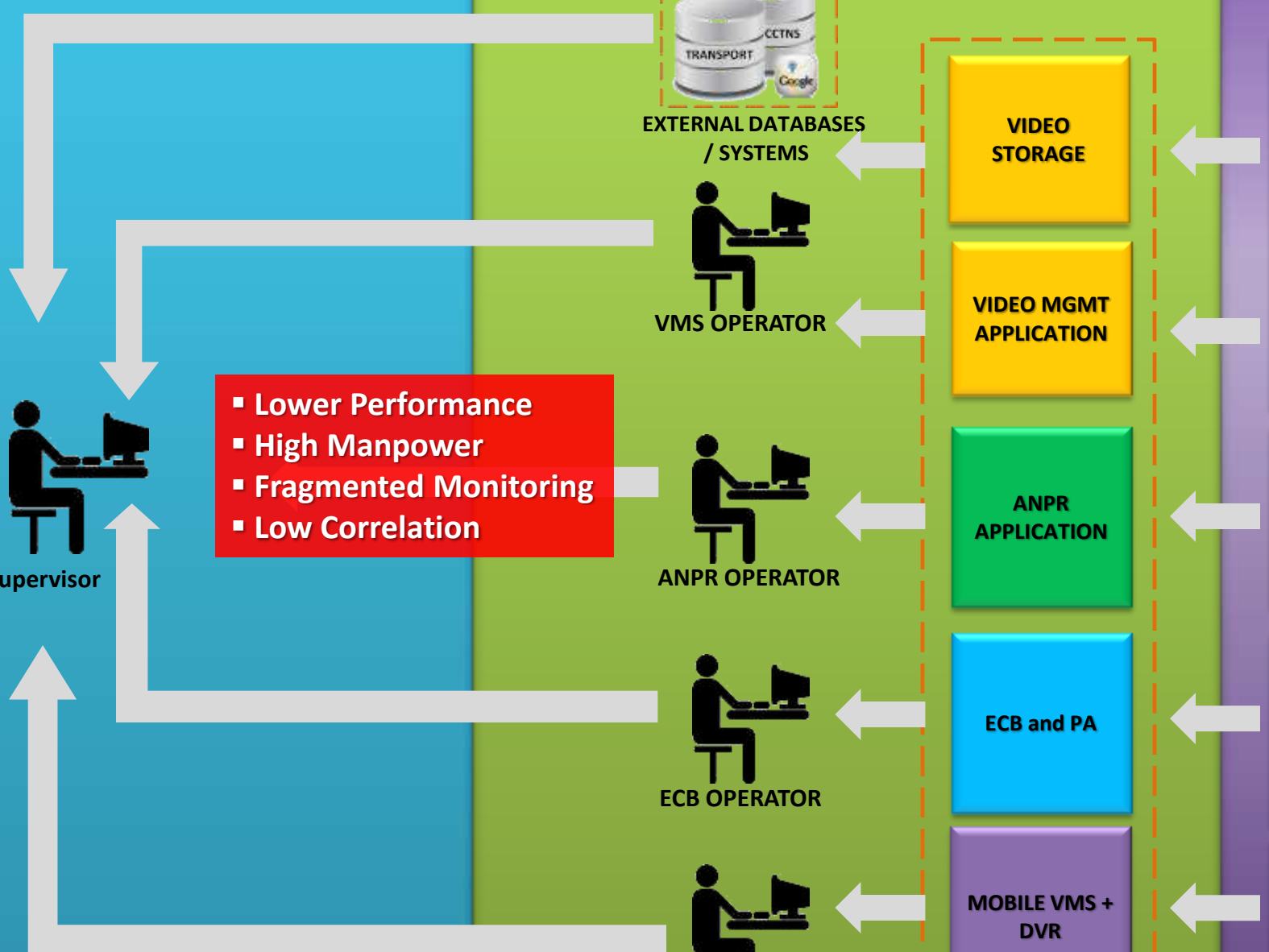
ANPR APPLICATION

ECB and PA

MOBILE VMS + DVR



- Lower Performance
- High Manpower
- Fragmented Monitoring
- Low Correlation



SURVEILLANCE OPERATOR



- Unified Platform - COP
- Seamless Integration
- Reduced manpower
- Streamlined processes
- High Situational awareness
- Geographic perspective

CONTROL CENTER



EXTERNAL DATABASES
/ SYSTEMS

ROLTA COMMAND & CONTROL™

VIDEO
STORAGE

VIDEO MGMT
APPLICATION

ANPR
APPLICATION

ECB and PA

MOBILE VMS +
DVR

FIELD SENSORS



PTZ Cameras



Fixed Cameras



ANPR Cameras

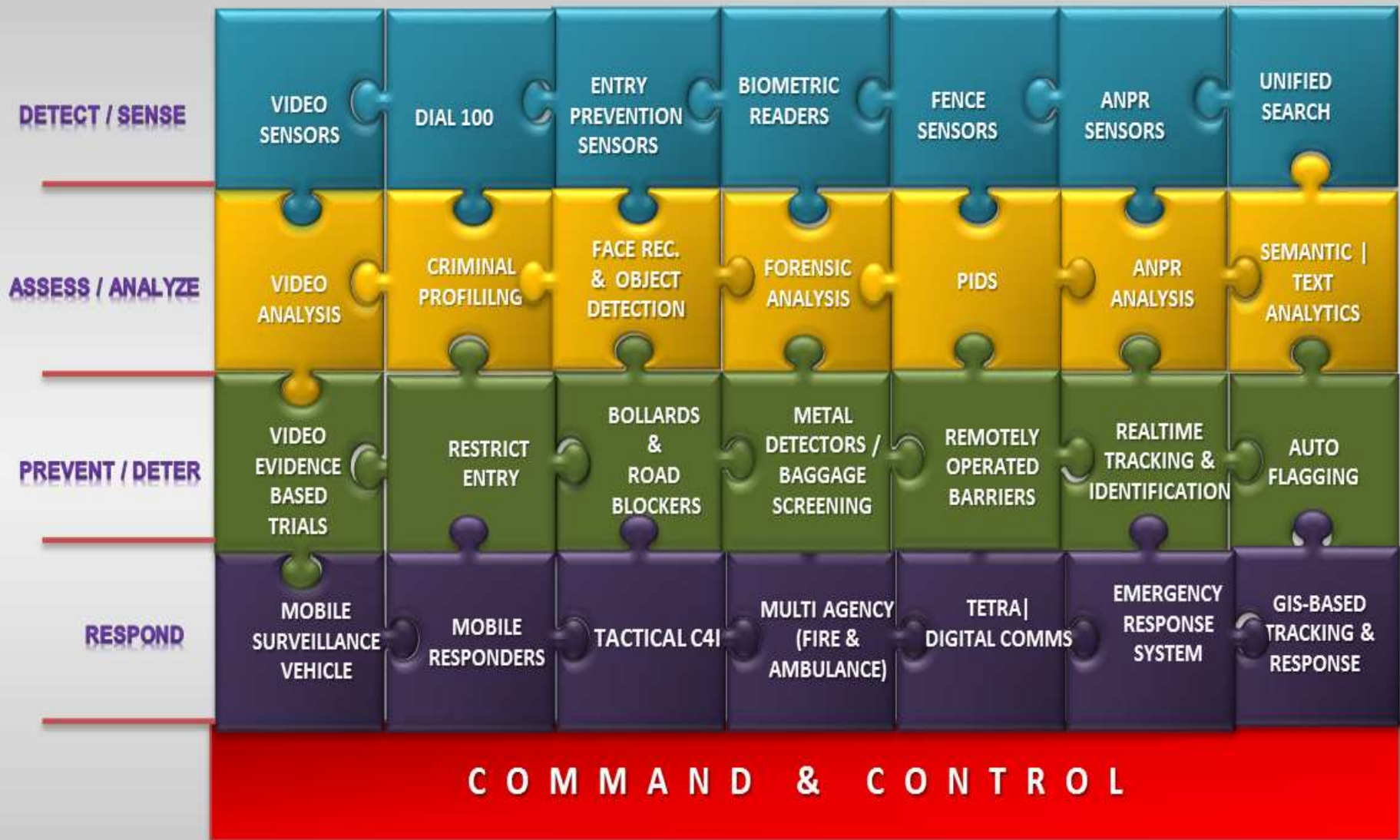


ECB

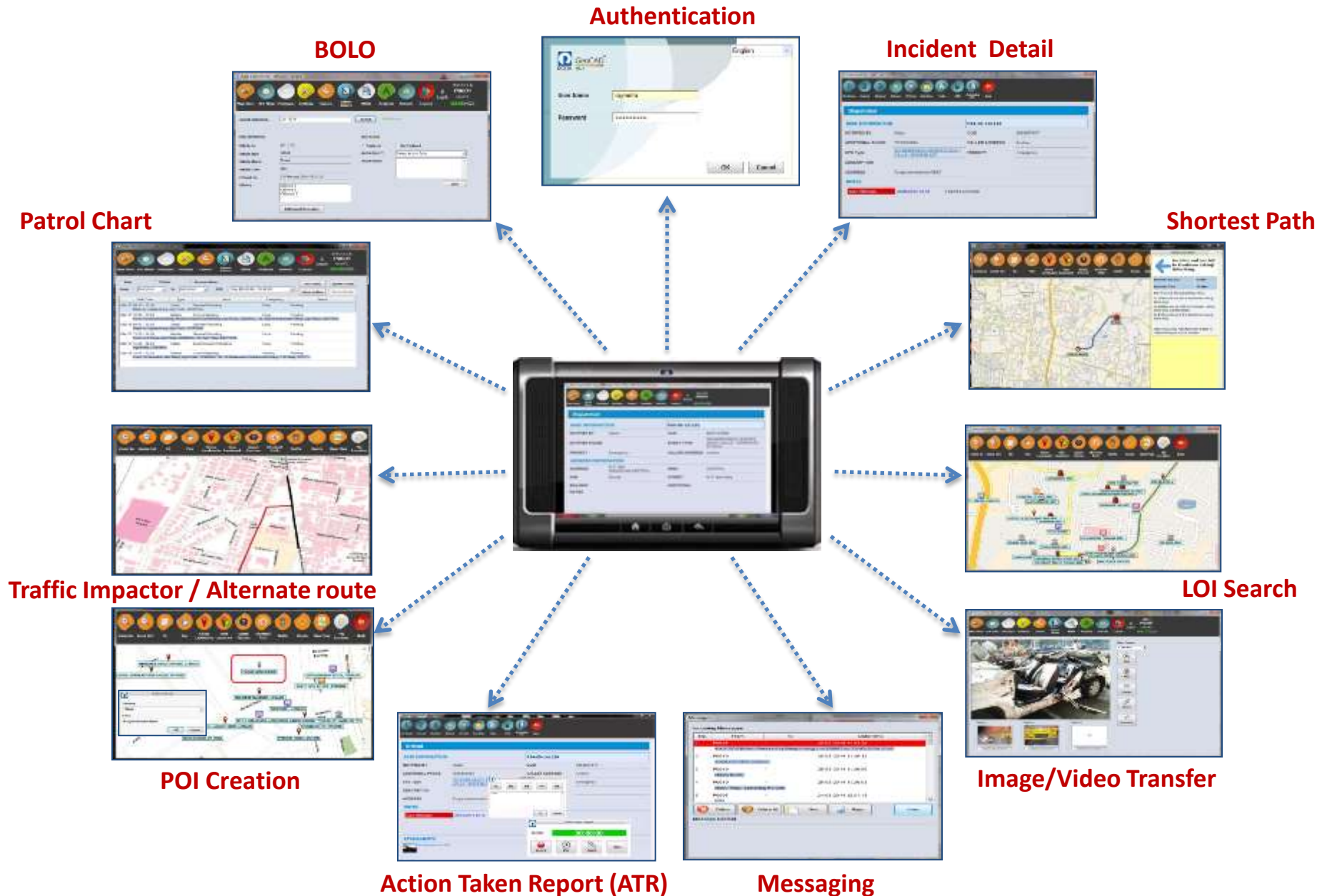


PCR Cameras

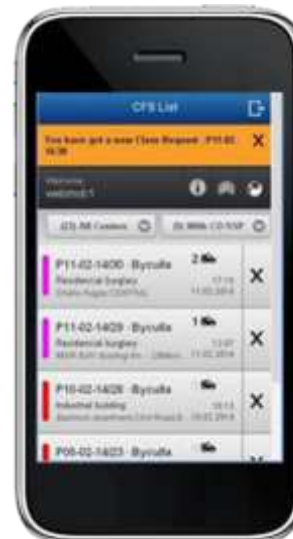
A Seamless Integrated Framework



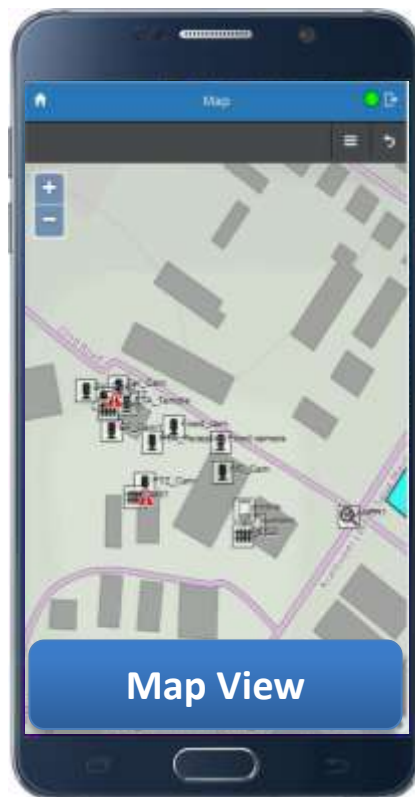
Mobile Data Terminal for Field Resources



Mobile Applications for Citizen Safety



Mobile Console



Dispatched Alert View
Report Incident manually
Acknowledge Alert
Request to Close Alert
Threat Level Indication

Display of Sensors
Alert Indication on map
Map view (All, Geo, Track View)
Map Layer On/Off

Live Video of Sensor /
Associated camera
Alert Time Pre-Post
Recorded Video

View of Dispatched Task
Complete and Comment
Review of Email /SMS
escalation
Provision to Reject Task

SOS Apps - Integrated With CAD System

SOS Apps on Smartphone for Emergency Alert



Alerts Send

CAD at Police Control Room



Access for Parent / Guardian Smartphone



Integration with Existing IT Landscape



Crime and Criminal Tracking Network & Systems (CCTNS)

Automated workflow based application for registration, investigation and prosecution



Crime Criminal Information System (CCIS)

Records of Criminal Case Entry



Online Criminal Dossier

Digitization of FIRs, Criminal data (features, photographs etc.)

Zonal Integrated Police Network (ZIPNET)

Records of missing children, persons with name, age, location etc. Records of unclaimed, unidentified dead bodies, Records of vehicles stolen with vehicle number and other details, Information of disowned vehicles, mobiles lost or stolen



MACT Application

Database of all registered the vehicles and their owners. Note: Motor Accident Claim Tribunal (MACT) records information of vehicles involved in accidents



Automated Fingerprint Identification System (AFIS)

Collection and Coordination of Criminal's Finger Prints



Traffic Monitoring System

Application for issuing e-challans for offending vehicles, notices and records of traffic violence



Licensing Branch System

Records of licensed arms with owner details, License details of hotels and cinemas in Delhi

Integration with Existing IT Landscape



GIS-GPS based Automatic Vehicle Tracking System - (AVTS) for PCR vans

A GIS based application for tracking the location of PCR Van



Web-based Personnel Information System (WebPIS)

It maintains the detailed information of each and every employee of Delhi Police, such as Personal & Official



e-Beat Book and Suraksha

Mobile and web based e-Beat book App was developed to digitalize the process of information maintained at Beat level. Provide mobile App to assist Beat staff to make entries about day to day activities within an electronic log book

Summon Warrant System

It keeps track of court processes (summon/warrant) details like court name and address, FIR No., FIR year, to whom it has to be served, date of appearance, date of receiving in summon warrant cell, date of service, who served it etc.



Court Case Monitoring System

To monitor all pending criminal cases in the High Court and Supreme Court and all civil cases, with their day to day progress in these courts. CCMS also monitors the performance of Govt. Counsels and Pairvi officers.



C4I

System for receiving and monitoring CCTV feeds from field locations



PCR100 number facility

System for taking calls from public and forwarding it to respective police stations, PCR vans.



Social Media

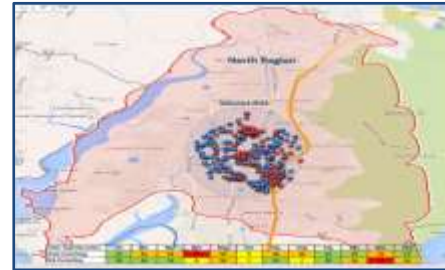
Crime Analytics



Hotspot Analysis



Pin Mapping



Change Over Time mapping



Journey to Crime



Incident Count Mapping



Crime Profile Mapping



Suspect Analysis



Trend Analysis



Repeat Incident Count



FIR Status Mapping

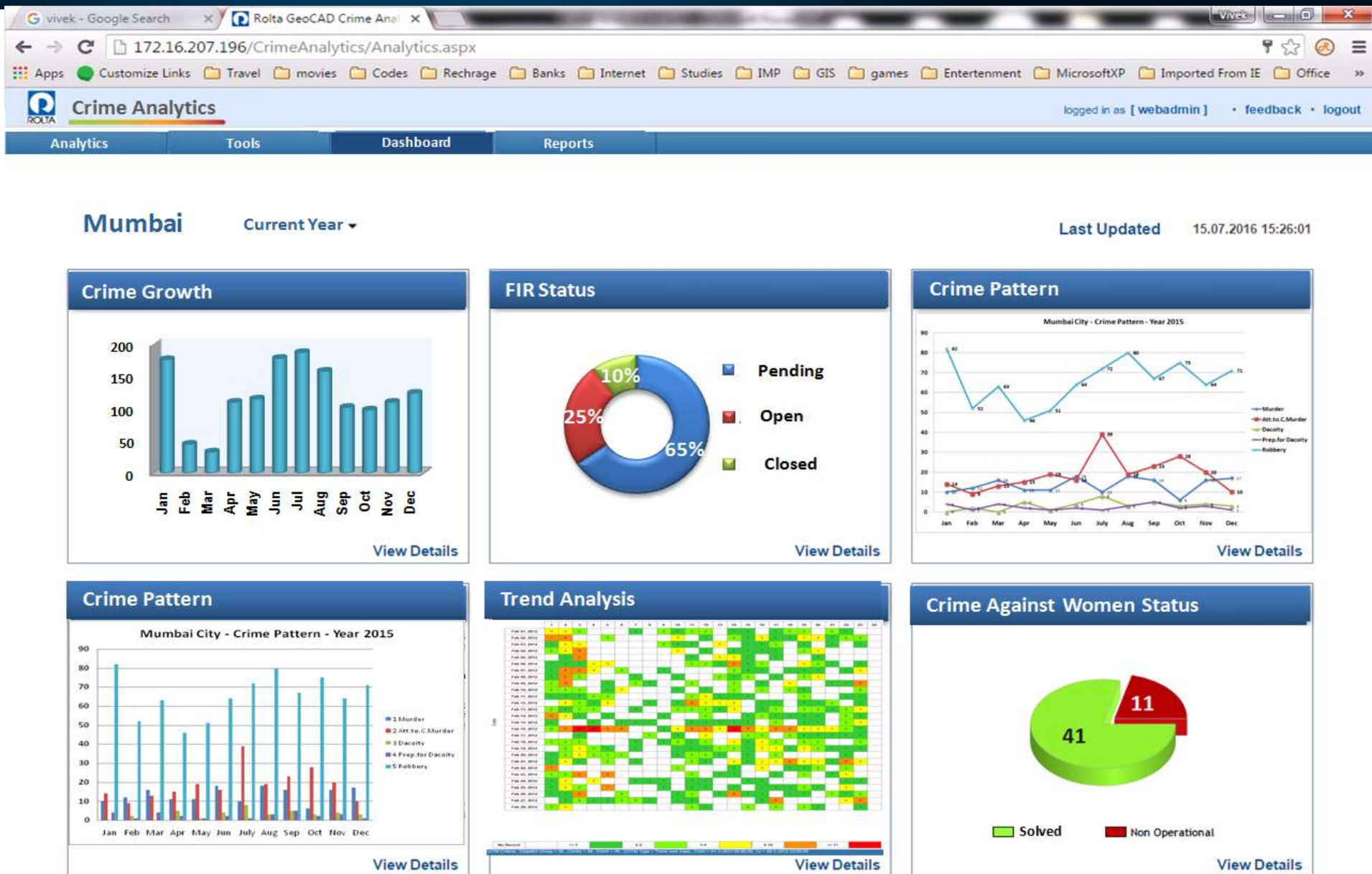


Neighborhood Analysis

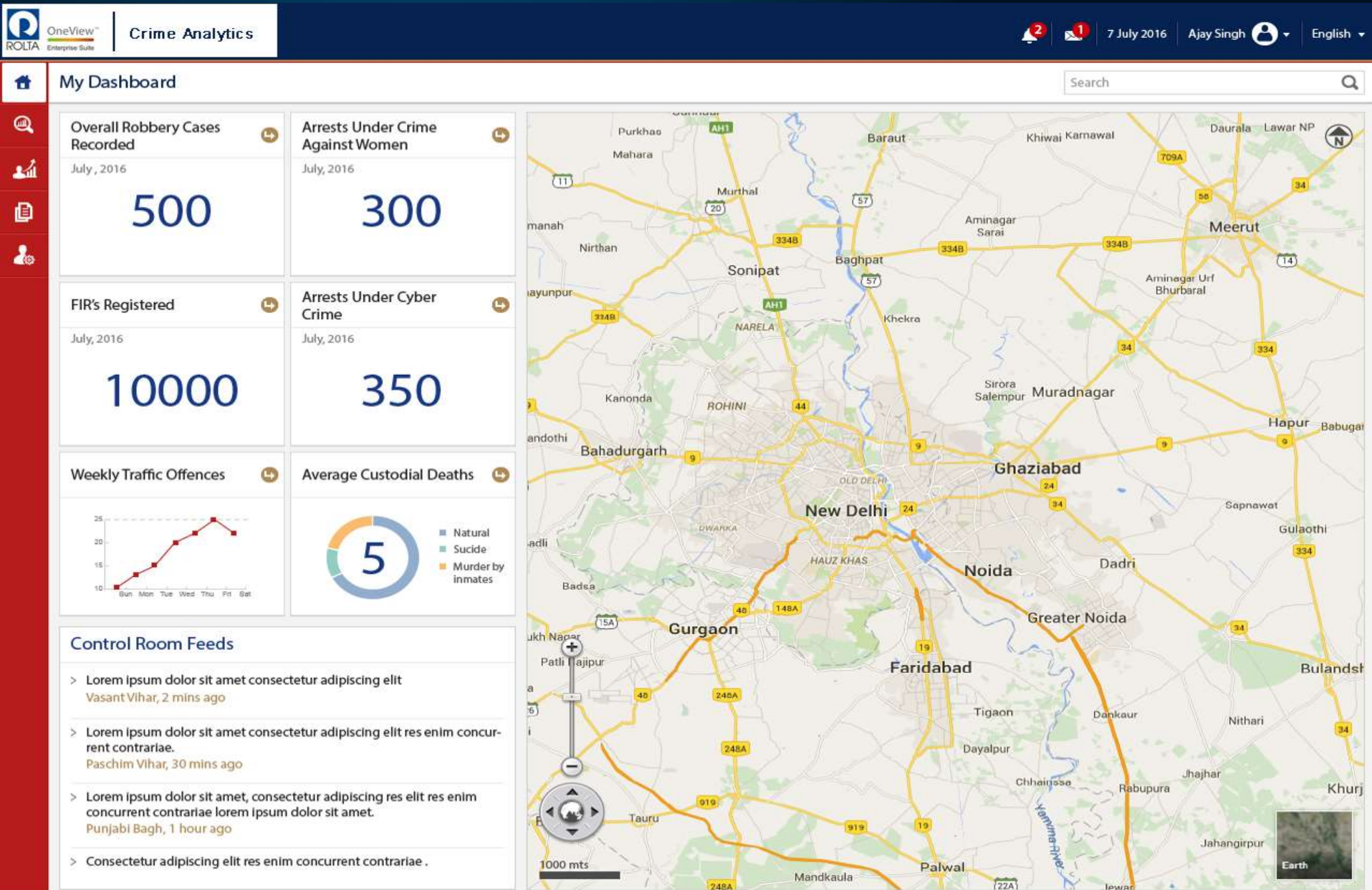


Pattern Analysis

Crime Analytics Dashboard – illustrative Examples



Citizen Safety Portal - – illustrative Examples



Intelligent Dashboards & Reports – illustrative Examples

Delhi Police
शुद्ध सेवा सदा

01-Sep-2016 Ajay Singh English A- A+ A-

Reports

Search

Type: All By Date for All Time

Report Title	FIR No.	Agency	Upload Date	Download
Crime Record Aug. 2016	22432007140013	Delhi Police	19 Jul 2016	
Forensic Report	22432007140014	Delhi Police	21 Jul 2016	
Crime Record June, 2016	22433005130060	Delhi Police	22 Jul 2016	
Crime Record May, 2016	22432007140015	Delhi Police	24 Jul 2016	
Crime Record April, 2016	22433005130020	Delhi Police	25 Jul 2016	
Crime Record March, 2016	22432007140023	Delhi Police	30 Jul 2016	

Upload Date

Download

19 Jul 2016

Downloadable reports

Investigation Team

Drill Down

Yash Pal Singh
Vaastav Vihar Police

Mahavir Agarwal
Vaastav Vihar Police Station

(Ctrl) ▾

Delhi Police
शुद्ध सेवा सदा

16-Sep-2016 English A- A+ A-

Offender: Abdul Razak

Search

Offenders in Robbery Cases

Abdul Razak

Current Status
Custody Details: Out on Parole
Last Seen: Golf Market, 5 Apr 2016

Physical Characteristics
Identification Mark: Black Beard
& Moustache
Handcapped: No
Skin Complexion: Dark
Weight: 155
Height: 5-8
Eyes: Brown
Gender: Male
Hair Color: Gray Hair

Other Details
Arrested Status: NA
Bail Status: NA
Fingerprints Availability: [View](#)

Offender's History

FIR: 22432007140004
NDVV-FIR-Cr.No. 113/1899 Cr. 13.01.1899
Motor Vehicle (Scooter) Theft

General Detail
Vehicle Owner
Contact Name
DOB: 10/03/71
Main Language
Prior Criminal
Education Level
Marital Status
Nationality: B
State: Delhi

Offence Location

Offence Record

Delhi Police
शुद्ध सेवा सदा

16-Sep-2016 English A- A+ A-

Officer: Yash Pal Singh

Search

Yash Pal Singh

Current Status
Current Rank: Deputy Commissioner of Police
Posted at: Vaastav Vihar (South West Delhi)

General Details
Blood Group: B+
DOB: 06/06/1960
Email ID: yashpal@delhi.gov.in
Main Language: Hindi
Marital Status: Married
Country: India
Other Details
Police Office No: 287010455
Contact Number: +91 9491150237

List of Cases Handled

22432007140013
Smuggling of Medicines / Drugs, Vaastav Vihar

22433005130060
Auto Car Tires Stolen, Vaastav Vihar

22432007140023
A 60 year old woman found murdered, Dand Bagh

22432007140019
A 29 year old man was allegedly shot dead inside a gym, Alipur Danda

22432007140003
Three men, allegedly tried to abduct a 16 year old girl, Gurgaon Dand Bagh

22432007140048
17 year boy arrested for two mobile phones and wallet, R.K. Puram

22432007140001
A 58 year old man was burnt alive, Nand Bagh Area

22432007140044
Thief in Sui Co. Operative Bank Ltd., Dand Bagh

22433005130061
Auto Car Tires Stolen, Vaastav Vihar

Drill down to critical details

Crime Analytics – illustrative Examples

Delhi Police
Shanti Sena Nigam

Analytics

Hot Spot Analysis

Select Analysis: Hot Spot Analysis

Area of Interest: [Map]

Select Dispatch Group: WEST

Select Crime: MDC

Event Type: All

Select Event: All

Delhi Police
Shanti Sena Nigam

Analytics

Suspect Analysis

Select Analysis: Suspect Analysis

Area of Interest: [Map]

Select Dispatch Group: WEST

Select Crime: MDC

Event Type: All

Select Event: All

Delhi Police
Shanti Sena Nigam

Offender: Sureshbabu Raja

Crime Profile analysis

Offenders in Robbery Cases

View full size image

Person Dossier: 22826007150000315

Registered Date: 06/10/1988

Sureshbabu Raja

Current Status: Custody Details: Finished Jail Term

Last Seen: Gol Market, 5 Apr. 2016

Physical Characteristics: Identification Mark: Long greasy hair, thick eyebrows, heavy forehead, thin mustache, Heavy Gold Necklace, Heavy Gold Finger Rings on Right Hand (Middle & Ring Fingers - 2 each)

Skin Complexion: Dark

Weight: 155

Height: 5-8

Eyes: Brown, Thick eyebrows

Gender: Male

Hair Color: Long greasy hair

Other Details: Armed Notes: Is known to be armed with a country made revolver and a folding knife. Dangerous.

Bail Notes: Has jumped Bail on 3 occasions before.

Fingerprints on Record?: No

General Details

Vehicle Owned: NA

Contact Number: +91 9845442495

DOB: 12/03/1962

Main Language: Nepali

Prior Occupation: Unemployed

Marital Status: Divorced

Nationality: Nepal

State: Kathmandu

Offence Location

Offence Record

Offender's History

RR: 22438001140042

NDVV-PS-C/No.147/1999 Dt.04.03.1999

Property Theft - Flat Break-in, Cash, Laptop & Gold Stolen.

Vasant Vihar

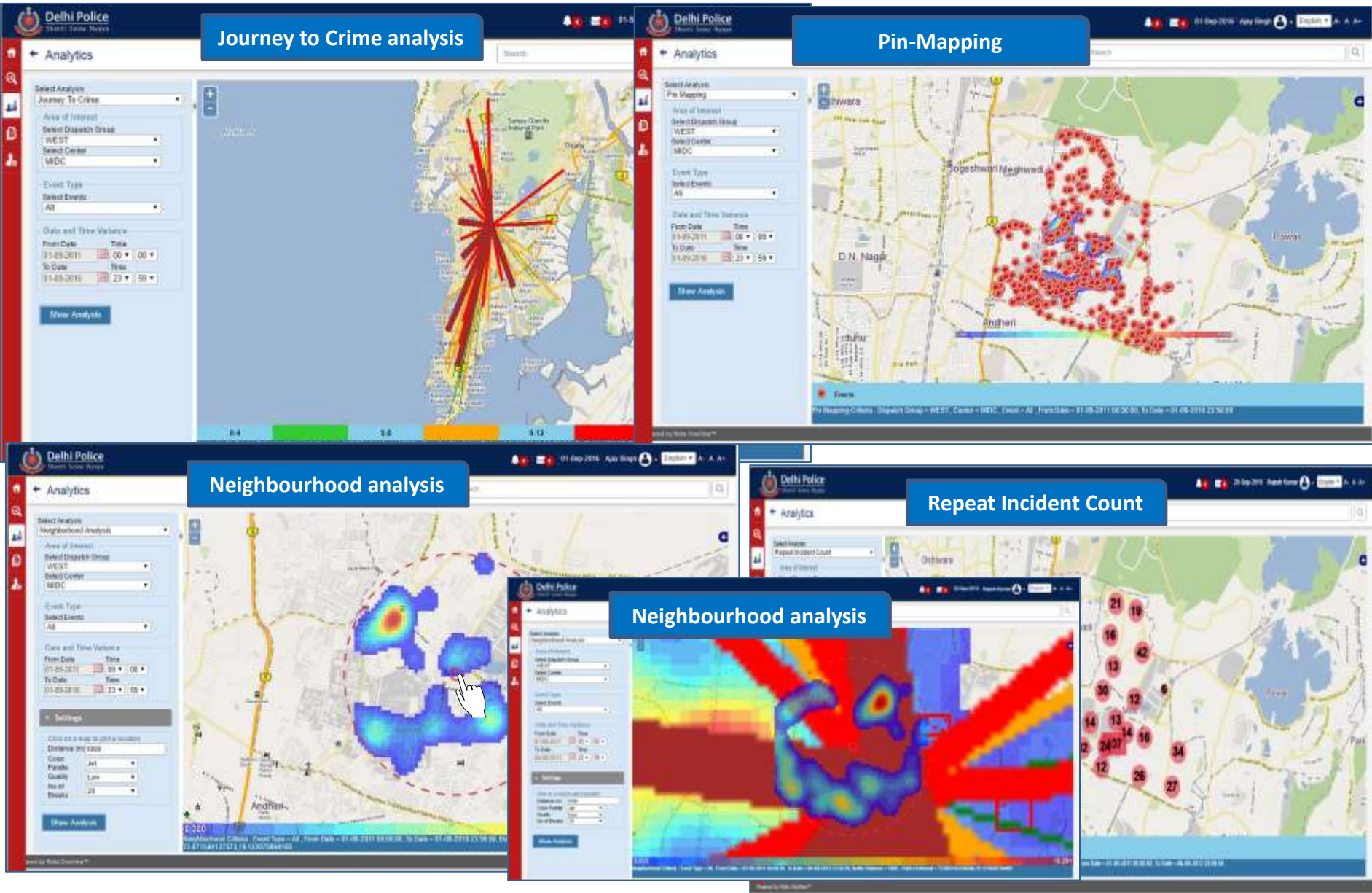
Sentenced for 1 year

Delhi Police
Shanti Sena Nigam

Link Analysis

Link analysis

GIS based Decision Support System– illustrative Examples



Conclusion

- Safety of citizens , critical infrastructure & services integral part of smart city
- Multi-agencies synergized approach essential for responding to major incidents /disaster
- Intuitive, user-friendly environment for analyzing incident locations
- Data Fusion from multiple sources & identification of spatial patterns from point locations
- Actionable Intelligence from advanced spatial analytics for predictive & preventive measures
- Confidence Building amongst the citizens & deterrent to bad actors.

Rolta Contribution for Smart & Safe City

- Rolta GeoCAD – Emergency Response System
- Rolta Command & Control solution for :-
 - Smart City
 - Critical Infrastructure Protection (Land)
 - Critical Infrastructure (Marine)
 - Coastal security
- Rolta Suraksha – Mobile solution for SoS
- Rolta Mobility Solutions
- Rolta Oneview
- Rolta Onpoint
- Rolta iperspective



Thank you